ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

MA PROGRAM IN PROJECT MANAGEMENT

THE ROLE OF PROJECT MANAGEMENT OFFICE SUPPORT IN ACHIEVEMENT OF PROJECT SUCCESS: IN THE CASE OF ETHIOPIAN WATER WORK DESIGN AND SUPERVISION ENTERPRISE

BY: TESFAYE BERHANU

A Project Submitted to Addis Ababa University School of Commerce in Partial Fulfillment of the Requirement for the Master of Arts Degree in Project Management

September, 2024

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ADVISOR: ABDURAZAK MOHAMMED (PhD)

September, 2024

Addis Ababa, Ethiopia

DECLARATION

I, the undersigned, declare that this Master's research project paper entitled *"The role of project management office in achievement of project success: In the case of Ethiopian Water Work Design and Supervision Enterprise"* is my original work prepared under the supervision and guidance of Dr. Abdurazak Mohammed. All sources of materials used for this thesis preparation have been duly acknowledged. I also declare that this paper has not been submitted either in part or in full to any other higher learning institution for earning similar or any other degree.

Name: Tesfaye Berhanu Challa

Signature: _____

Date: _____

CERTIFICATION

This is to Certify that the research project paper entitled: “The role of project management office in achievement of project success: In the case of Ethiopian Water Work Design and Supervision Enterprise” submitted in partial fulfillment of the requirements for the degree of Master of Arts in Project Management was carried out by **Tesfaye Berhanu Challa** under my supervision and guidance. Therefore, I approve that this project work was not submitted previously or concurrently to any other institution and can be submitted to the department.

Advisor: **Abdurazak Mohammed (PhD)**

Signature: _____

Date: _____

APPROVAL SHEET

This is to Certify that the research project paper prepared by Tesfaye Berhanu Challa, entitled: *"The role of project management office in achievement of project success: In the case of Ethiopian Water Work Design and Supervision Enterprise"* submitted in partial fulfillment of the requirements for the degree of *Master of Arts in Project Management* complies with the regulations of the University and meets the accepted standards with respect to originality and quality. Signed by the Examining Committee:

Internal Examiner: _____ Signature: _____ Date: _____

External Examiner: _____ Signature: _____ Date: _____

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List of abbreviations

DPMCM	Development project management competency and methodology
DV	Dependent variable
ECDSCo	Ethiopian construction design and supervision corporation
IV	Independent variable
MC	Monitoring and control
MPM	Multiple project management
OL	Organizational learning
PMBOK	Project management body of knowledge
PMI	Project management institute
PMO	Project management office
PMS	Project management solutions
SM	Strategic management
WWDSE	Water work design and supervision enterprise

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Abstract

Project management office has been broadly acclaimed to be a critical success factor for success of projects. The objective of this study was to identify those project management office role dimension that have the greatest effect on project success and to examine whether these dimensions are actually in place on study organization Projects. Though the Project Success assessment survey questionnaire and Project Management office role questionnaires, linear regression analysis (N=66) were conducted. The findings of this quantitative study supported the research hypotheses and demonstrated that; a significant, positive relationship does exist between "Multi-projects management" and "development of project management methodologies and competencies" with project success. In contrast, insignificant and negative relationship exists between "monitoring and controlling on project performance" "organizational learning" and strategic management with project success. This research explored a cause-and-effect relationship of project success and project management office role dimensions. The findings do imply that project success might be improved by improving project management office support role on two significant dimensions. The researcher recommends that to enhance the success of project that the organization practice on monitoring &controlling on project performance, strategic management and organization learning .Further to use agile project management for projects.

*Keywords**: Project Success, PMO role, Project Management office support, EWWD&SE.***

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Construction projects are different types come in different levels of complicity and size(Alzahrani *et al*., 2013, Isik *et al*., 2009). There is ruthless Competition in the construction industry. Construction companies need to use their capacity to stay in business in a competitive market (Gudienė *et al*., 2014; Shin, 2012). Competition forces construction companies to concentrate on what they do best in order to succeed in their projects (Gumilar *et al*., 2015; Castro *et al*., 2020; Zuo *et al*., 2018; Belout & Gauvreau, 2004).Infrastructures with regarding roads, dams, parks, museums, and overpasses is necessity for the developing country like Ethiopia because it determines grows and development of the country. Successfully finished construction projects in Ethiopia is important and a serious issue to be focused on (Saad *et al*., 2020). So, it is relevant to study the role of PMO on achieving project success in the context of the construction industry specifically in Ethiopian construction design and supervision Work Corporation.

The necessity for centralized project coordinating functions has evolved along with the number and complexity of projects in the construction sector. The value system, roles, procedures, and rules that enable projects to accomplish organizational goals in the best interests of all parties involved—internal and external—as well as the company itself make up good project governance for project management office. Many firms use *ad hoc* procedures that produce subpar results when implementing projects that are not managed in accordance with a structured project management office. Despite extensive research on project management over the past few decades, a number of projects' performance and/or accomplishment fell short of the required level to reach project objectives within the projected timeframe and/or budget, which could lead to project failure.

According to the PMI (2018), 30% of projects failed in 2018 whereas 70% of projects achieved their initial goals or business objectives. About 60% of the projects were finished within the allocated budget, and 40% had cost overruns. In an effort to

address this issue, several firms have created new structures recently, such the Project Management Office, which will enhance project execution and prevent resource waste. "An organizational entity assigned organizational body various responsibilities related to the coordinated and centralized management of those projects under its influence" is what is meant to be accepted by the term "project management office." The Project Management Office's (PMO) duties might extend from supporting activity and function of project management to taking on project management duties directly.

An organizational body called a project management office is in charge of standardizing the governance procedures pertaining to projects and facilitates the exchange of tools, methods, and resources. For companies who are serious about realizing and optimizing their project investments, one of the essential components of project management performance and maturity is the creation of a project management office (PMO). A PMO serves as a medium for communicating an organization's intention to manage projects in a uniform, standardized manner—a practice known as project culture—and as an agent for putting that culture into practice. It is a hub that propels an organization's project management office excellence.

Everyone agrees that having a project management office is essential to completing projects successfully and effectively. According to Dai and Wells (2004), who support this assertion, a PMO makes project management more successful by facilitating the application of lessons learnt from the viewpoints of project success and failure. The responsibility of supervising the application, uniformity, and adherence to project management procedures within a company falls to a PMO. A study by Hobbs (2008) further demonstrated that a PMO’s most significant purpose is the development and implementation of standardized project management procedures. An organizational unit called the project management office (PMO) was created with the goal of enhancing project performance by offering standards and procedures, utilizing expertise in project management techniques and learning from mistakes through the delivery of multiple project across the organization (Desouza and Evaristo, 2006.)

Organizations can realize best practices and synergies through standardized project management procedures, which also help them achieve strategic objectives and increase project success. In addition to the previously described duties, a PMO

oversees and manages project support and control activities. Team management is one such project activity that involves attending to demands and concerns. In terms of increasing project delivery and enhancing project management standardization, project management offices, or PMOs, have demonstrated their value and importance in the business, particularly in project-based companies (Karkukly, 2015). Francis (2015) carried out exploratory research at the National Microfinance Bank in Tanzania in an effort to look into the impact of PMO on the success of IT projects. Thirty project managers and IT staff members participated in the case study investigation. Project cost, schedule and scope management were impacted positively by PMO as has been agreed by more than 60% of respondents. Furthermore, the study revealed a better management of project success factors upon PMO implementation.

Linde and Steyn (2016) conducted a case study in a South African mining company and reported a 50% to 81% increment in project execution ability upon implementation of PMO in their firm. Organizational performance was compared before and after formation of PMO, and best practices in project management were attained due to PMO implementation including proper planning and monitoring of projects. Furthermore, a strong coordination was reported among projects. The study also pointed out this value of the PMO was realized as a result of the combined effect of PMO functions.

Munns and Bjeirmi (1996) conducted a study in United Kingdom to know the role of project management in achieving project success and concluded that one must always bear in mind that effective project management methods will provide to the achievement of projects, but project management will not stop a project from failing to succeed. The right project will succeed almost without the success of project management, but successful project management could improve its effectiveness. Selecting the right project at the outset and careening out potentially unsuccessful projects, will be more important to ensuring total project success. Another similar study conducted in the same place with and the same topic by Ward & Daniel (2012) intended to investigate the roles of project management offices (PMOs) in IS project success and management satisfaction suggested that it is more important for PMOs to be involved at the start and at the review stage of projects, rather than in the on-going

monitoring, which is where much of their current focus is and also identify a reduced level of management satisfaction associated with the presence of PMO.

A PMO is driving force for project management effectiveness through insights gained from both project success and project failure viewpoint. The absence of a PMO in an organization is likely to lead to lack of standardization of project management practices and standards, resulting in non-compliance with these practices, as notice by the study accomplished by Hans and Mnkandla (2023). This suggests that PMO is an effective means of addressing the challenges as the number and complexity of projects in business world has increased. The Water work Design and enterprise work sector (ECDSWC) runs various construction projects that are facilitated as its ongoing operation which are managed by program and project management office. For effective and successful project outcome, developing and implementing standard project monitoring and controlling processes, methods and activities is supposed to be done by the project and program management office. The main purpose of this research is to explore the role of project and program management office in achieving project success in water work and design supervision enterprise (ECDSWC).

1.2. Background of the Organization

Ethiopian Construction Design & Supervision Works Corporation is a multi-disciplinary Engineering firm founded by amalgamation of three organizations. Transport Construction Design Share Company, Construction Design Share Company .and Water Work design and Supervision that were engaged in Study, Planning, Design and Supervision of Water & Hydropower and, Building since 1998, 1977 & 1987, respectively. Ethiopian Construction Design & Supervision Works Corporation excellence and qualities are more than rhetoric. It is our dedication to provision of excelling sustainable engineering solutions & the creation of knowledge base to the challenges of our people and addressing some Africa nations.

The water work design and supervision enterprise (WWDSE) currently in good performance. On the other hand, s ome challenges are faced; trained human power, compensation fees, demarcation and finances. The enterprise has been taking on Varity tasks across the country. It supervises, design, constructions and studies all around the country. It also has completed different projects such as Kesem Melka Sedi Power Plant, Haromaya Sanitation Project, and the Melka Sedi Electrical Resistivity Survey Projects. Water Work Design is also expected to start the construction of Kuraz Sugar Factory. It has designed Gullele Botanical Garden, an irrigation drainage project and Awash Bridge. Other projects include Lower and Upper Awash Dam and Irrigation Study, Kuraz Tendaho Sugar Factory and Legedadi Irrigation Study (Alemayehu, 2014)

The Ethiopian government has granted a $1.5m contract to the state-owned WWDSE and the Italian, Electro Consult (ELC) for 1060MW hydropower project. As per the contract, WWDSE and ELC will conduct pre-feasibility and feasibility study of the Tams Hydro-power Project. Besides Tams project, ELC has also conduct the feasibility study of the dam project for Wolkait Sugar Project, Tana Beles hydroelectric projects and supervision of Gilgel Gibe II. The company is currently supervising the hydroelectric projects of Gibe III and Grand Renaissance Dam projects. The Water Works Design and Supervision Enterprise Corporation supervised by the Ministry of Water Resources. It shall, among other things: conduct studies pertaining to hydraulics, dams, water supply, irrigation industry, sewerage disposal

water works, and basin development master plans; carry out surveys, designs and specifications regarding hydro power, dams and irrigation structures, flood control, water supply, sewerage disposal and other related water works; and render consultancy services.

Water Works Design and Supervision Enterprise, with prime motive to play a key role in water resource investigation, development and utilization agenda of the Nation, has been involved in different projects that incorporates the three major and crucial interventions such as construction study, design and supervision.

The water work design and supervision enterprise holds a vision of becoming leader in Africa by 2040. To realize its vision and to stay competitive PMO develop a project management practices in an organization, responsible for standardize and enforcing project management practice across the water work design and supervision enterprise, and also provides the supporting and controlling role for project.

This research has been focusing the role of PMO in achieving project success in the case of Water Work Design and supervision sector.

1.3. Statement of the Problem

The benefit of project management has been well documented, but project failure rates still stay high level. This states continued discovery of new process models and organization structures to encourage strong project accomplishment. One important candidate for improvement in this ongoing journey is the project management office (Christine, William, 2004). Managing projects successfully has been evident to be a paramount factor for the success of organizations and giving the necessary focus for project management is integral to that success. A study by Standish Group (2013) on IT projects has indicated that many firms still are challenged in achieving success. According to their report, many of the projects failed to be completed on time, on cost as well as within the predetermined scope which brought about cost overruns as well as missed business opportunities.

Scott (2013) argued that the main parameters of project success encompass completion on time, with budget and meeting the customer requirements. However, the CHAOS report by Standish group on global perspective on project statistics indicated that 43% of IT projects were delayed, with cost overruns and did not meet the predetermined scope while 18% of IT projects were killed prior to completion or were delivered but were not utilized at all. From this figure 60%, 25%, 15%, were from US, Europe and the rest of the world respectively (Standish Group, 2013). In the Ethiopian context, project management practice is in its infancy and limited researches were performed which are pertinent to project management. Specifically, there are no researches conducted in the case organization as far as the current researcher knows. Thus, a research can be conducted in detail and on the project management process and knowledge areas to contribute for project management growth in Ethiopia. The delay of construction projects has been a major issue in the Ethiopian construction industry too (Hareru *et al*., 2016). In Ethiopia, only 8.25% of projects have been finished to the originally targeted completion date. The remaining 91.75% of projects are delayed 352% of its contractual time (Tesfaye and Asteray, 2021).

The driving force to study, considerable delays incompletion of construction project and rework and performance problem of project (i.e. water project and road construction project). There are also complains from the society and several institutions for inconvenience resulted by delay of deliverable through various media. More over the number of different construction projects (i.e building water sector and road) are constructed without insuring quality and guaranty of project, due to that after while (beyond life span) it may need maintenance and rehabilitation work resulting in spending of additional resources and time besides creating in convince on the user for this matter as a good example Ethiopia capital city Addis Ababa road construction, rail way road construction and dams like Gilgelgibe and Grand Ethiopian renaissance dam we can mention for subject matter. Lewis (2003) tell us that on average about 70% of all IT related projects fail to meet their objective. In this case Lewis includes not only project that were abandoned (failed) but also those that were defectively completed due to cos overruns, time overrun, rework or did not give all of the benefits that was initially agreed. There exist a lot of benefits that carry out PMO(2017) pulse of profession survey found organization utilized project management office had 38% more project encounter their strategic business goals and experienced 33% fewer failed projects.

As stated by (PMBOK)" A PMO is management structure that standardizes the project interconnected guidance for activity and makes smooth sharing of resource, methodology, tools and techniques" (PMI, 2013). PMO can be especially useful to provide common practices and standards for organization like Water work Design and supervision enterprise sector multiple projects in multiple locations.

Regarding to gap the previous researcher studied, in similar topic but in different company most of them did in the different industries. Among closest study on the topic; Alem (2017) conducted a study with the goal of assessing the PMO role and type in Ethio-telecom and Teshale (2021) also studied the role of PMO in project success in the case of CBE Apart from these, no study had been conducted specifically on the role of project management office in achieving project successes in Water work design and supervision work sector (ECDSWC). Hence there was knowledge gap in

this area and the objective of this paper is to determine the role of the PMO in achieving project success in the case of EWWD&SE.

1.4. Objective of the study

1.4.1 General Objective

The general objective of the study is to investigate the role of project management office in achievement of projects success in the water work design and supervision enterprise in Ethiopian construction design and supervision Work Corporation.

1.4.2. Specific Objectives

1. To identify significance of project management office roles for projects success
2. To determine the extent to which PMO has influenced projects success
3. To investigate the relationship of project management office roles and projects success

1.4.3. Research Hypothesis

The research was done by employing a quantitative approach; assumptions associated with the main research question of the research were projected, which are then to be approved or rejected based on the study findings. Accordingly, the hypotheses for this study are given below.

Null Hypothesis (H_0): PMO has no positive relationship with project success.

Alternative Hypothesis (H_1): PMO has positive relationship with project success.

Similarly, the assumptions associated to the specific objectives of the research are as follows:

- **H_{1a}:** Multi-project management role has a positive effect on project success.
- **H_{1b}:** Organizational learning role has a positive effect on project success.
- **H_{1c}:** Monitoring and controlling project performance role has a positive effect on project success.
- **H_{1d}:** Strategic management role has a positive effect on project success.
- **H_{1e}:** Development of project management competencies and methodologies role has a positive effect on project success.

1.5. Scope of the Study

This study is focused in assessing the role that PMO has in the water work design and supervision enterprise in Ethiopian Construction Design and Supervision Work Cooperation. There are private companies that are working in different water infrastructure in Ethiopia which may have institutionalized a PMO to manage their various projects. However, the PMO of private water infrastructure is out of the scope of this study. As a result the water work design and supervision enterprise is selected due to its huge activities implement in the country and for its engagement in various key roles in water resource investigation, development and utilization agenda of the Nation, has been involved in different projects that incorporates the three major and crucial interventions such as study, design, construction and supervision of projects. From geographic point of view, the study is limited to projects in the Addis Ababa due to time and resources limitations. PMO role on project success can be assessed by different parameters. However, the current research is delimited to; the monitoring and controlling roles of PMO, development of project management methodologies and competencies, multi-project management, strategic management and organizational learning.

1.6. Significance of the Study

The lessons drawn from the current study can help to devise practical solutions to the existing problems and gaps in a sustainable manner for successful management of projects. The outputs of the current research can contribute in elucidating and filling the gaps by assessing the practices and role of PMO at WWDE (ECDSWC). It can also add to the body of knowledge in project management and PMO. In addition, the knowledge extracted through this study can be used in assisting managers and executives in firms to have clear picture in the association between PMO and project success, to form informed decision for future planning and future betterment of the firm. Besides, the research can serve as a foundation for future studies on the utilization of PMO to manage projects successfully.

1.7. Limitations of the Study

The study is limited to address the role of PMO in achieving project success of Ethiopian Water work design and supervision enterprise. Data will be collected from the selected staff members from the Ethiopian water work design PMO department; therefore this study will not represent the overall Ethiopian water work design. The study only focused on Ethiopian water work design that excluded the private one, which limits the generalizability of the research finding. The research will be limited to the role of the PMO at WWD & SE.

1.8. Definition of Terms

Project: A temporary developed activity, which deliberately undertaken to produce a unique product, service, or outcome PMI (2013)

Project management is the activity of starting, planning, implementing, monitoring, and accomplish a project or work that target to attain specific with in a given time interval (Lippi & Mattiuzzi, 2019).

Project management office is a critical organizational entity that adopts a variety of roles and structures but which should focus on adding value to an organization and its customers to achieve the desired organizational performance (Karkukly, 2011).

Project success can be describe as the projects' efficiency, impact on the customer, business and direct success, and readiness for the future (Shenhar *et al*., 2001)

1.9. Organization of the Research Paper

The current study includes five chapters. Introduction, gap of the problem, research objectives, significance of the research, limitations as well delimitation of the study are included in Chapter one. Chapter two covers literature review on the topics of the study; both theoretical and empirical literatures as well as conceptual frame work for the study. Chapter three encompasses the methodology of the research including the design and approach of the research, sample size, data source and collection method, data gathering procedure, and data analysis method. Chapter four includes the discussion part. Summary, conclusion, and recommendations are given in Chapter five.

CHAPTER TWO
LITERATURE REVIEW

2.1. Theoretical review literature

The theoretical review of a given research strives to systematically study, synthesize and present the existing concepts, theories, knowledge areas, arguments, and gaps that are very important in grasping the research objectives. The literature review is structured and given thematically in the coming chapters.

2.1.1. Conceptual Definitions

The current research uses the descriptions that are suggested by the Project Management Institute (PMI) to define the terms of project, project management and related concepts. Project Management Institute (PMI) has an aim of empowering project professionals to excel in project management practice through knowledge sharing and best in class certification, driving positive change in the organization and the growing project management community to provide tools, network, and best practice to those who seek help to successfully manage their project and portfolio (PMI, 2021).

Project is defined as "a transient undertaking performed to produce a product, service or result of unique nature." it is transient in the perspective that it has a specific starting and ending date, as well as a defined scope and resources According to PMI (PMI, 2013). Similarly, a project is described as "a special, transient undertaking done to attain a specific objective within certain specifications, using appropriate resources" by the Association of Project Management (APM, 2012). The concept of a *project* is socially constructed, and, as such, it has evolved over time (Morris, 2013), bearing distinct meanings across academic traditions within project studies (Geraldi & Soderlund, 2018). In general, project as vehicle of change delivering predefined attributes single event with a defined scope temporary, often pre-established specific start and end point, with institutionalized termination, project expressed plan as execute logic (International journal PM, 2022).

Programme: is defined as "frameworks or structured processes to communicate, manage align, co-ordinate and control activities to achieve a desired result"

Pellegrinelli *et al*. (2011). A Program, on the other hand, is a set of interrelated projects with similar goal(s). The Association of Project Management (APM, 2012) defines a program as "a group of related projects that together achieve a beneficial change of a strategic nature for an organization". In general program describe as vehicle of strategic benefit – end results are not as well specified collection of projects–not a single event, and hence, offering possibility for an emerging scope temporary, yet its start and end points are not as well-defined as in a project. Its termination becomes a choice. and defined as learn and mature logic(International journal PM, 2022).

Project management: A project in any firm is a cooperative activity across departments to attain a unique well described objective. Project management is to plan, coordinate and manage resources to attain well described objectives of the firm (Prabhu, 2020). The project management institute defined project management as the use of knowledge, skills, tools and techniques to project work to fulfill the requirements of the project. The purpose of project management in essence is delivering an end-product that will bring some change for the advantage of the firm that initiated the project.

Project management: is one of the key skills and fastest growing professions demanded by organizations around the world (Prabhakar, 2008; APM, 2012; Stellingwerf and Zandhuis, 2013; PMI, 2015). The advantages obtained from investing time, money and resources to build organizational project management expertise are progressively being recognized by firms. Benefits include, such as lower costs, improved customer and stakeholder satisfaction, greater efficiencies, and greater competitive advantage (PMI, 2010). PMI, Project management is the practice of starting, planning, implementing, monitoring, and completing a project or work that aims to achieve specific goals at a particular point in time (Lippi & Mattiuzzi, 2019). Some authors describe monitoring and controlling the attainment of project objectives and goals as project management (Aftab *et al*., 2016). Knowledge, skills, tools, and techniques to meet the requirements needed in the project are applied in project management (Abdelghany *et al*., 2017).

A variant definition tells project management as a process where projects are described, designed, inspected, controlled, and executed to fulfill agreed benefits (Moehler *et al*., 2018). Because of its organized process and soft skill competencies like group work, leadership, and collaboration to deal with complex challenges more effectively and efficiently, project management is pinpointed as a facilitated function (Silva *et al*., 2021). Changes in organizational structure are required including the formation of new posts and departments together with project office, in making use of project management methodologies (Tulembayev *et al*., 2019). Several studies have made it evident that project management has a crucial role in achieving project success and reiterated that successful project management techniques contribute to the achievement of projects success (Ramesh *et al*., 2018).

Project Portfolio Management: According to PMI (2017) project portfolio management is recognized as the assemblage of projects, programmes, subsidiary portfolios, and operations managed as a category to attain strategic objectives. Project portfolio management encompasses the whole of a firm's investment (or parts in it) in the required changes to attain its strategic objectives (OGC, 2011). As such, project portfolios are the solid implementation of a firm's strategy (Cooper *et al*., 2001; Pedersen *et al*., 2020).The strategic role of the PMO is very important regardless of the PMO's position within the organization as managing multiple projects is a challenging role that could have an important effect on the strategic objectives of organizations (Julian, 2009). Portfolio management involves governance for a collection of projects/programs which in practice involves portfolio boards, selection panels, and other high level committees (PMI, 2008).

The project portfolio management function involves different key processes; Hill (2008) and Artto *et al.* (2011) have stated that the PMO has to ensure the periodic reviews for the alignment of the project portfolio with the strategy, project and portfolio strategy, the identification of the project selection criteria and mechanisms, and the identification of the portfolio management roles. This important sub-role can be called strategic alignment. From another perspective and as a part portfolio management, second role involve new project screening, prioritization, and the

recommendation for project financing and funding (Hill 2008; Artto *et al*. 2011; Gardiner 2005). As this role involves selection and adding new project, the second sub-role will be called Project Screening and Integration.

It is important to assesses effectiveness of the project/ portfolio as a part of portfolio management by project portfolio performance monitoring and compilation, project gateway assessment, portfolio review and assessment, and project closing (Hill 2008; Artto *et al.*,2011). This can be called Project and Portfolio Reviews and closing**.**

Another function for portfolio management is the assessment of key business results and overall stakeholder satisfaction (Artto *et al*., 2011). This is an important role that enables the PMO to assess its affect to the business and appraise how effective it was, and can be called Strategic Portfolio results and Impact**.**. In general Project Portfolio Management is a vehicle to juggle of resources and priorities across projects and programmes to increase overall organizational performance short and long-term organizational achievement. Not necessarily leading to common strategic benefit(s) Collection of projects and programs Ongoing – portfolio does not start with an expectation of being terminated.

Project portfolio management is defined by primary issue logic (International Journal of PM, 2022). The study recognize the project management career as one of the fastest growing professions in the business world, noting that project managers are highly valued in virtually all sectors (PMI, 2015)

2.1.1.1. Project Management Office (PMO)

Project Office, Project Management Office, Program Management Office, Portfolio Management Office, Project Control Office, Project Support Office, Central project Office (Taylor 2011), or Enterprise Project Management office (PM solutions 2011) all are different names for the same terminology "PMO". A structure of a firm invented to enhance and promote the practice of project management by customizing relevant methodologies to attain increased levels of performance is recognized as project management office (Monteiro *et al*., 2016).

Project management office is pointed out to by various alternative names such as Project Office, Project Support Office, Project Management Office, Program Management Office, Project Management Center of excellence, or Directorate of

Project Management Young (2007). Other authors like (Tjahjana *et al*., 2009) prefer to define PMO as Program Management Office as a command and control center that governs and supports projects from beginning to completion. The author also mentioned that PMO plays crucial role in improving an organization's project management capabilities. The meaning of “Project” and “Program” is delineated in the sense of this definition of Project office was defined by the authors as an administrative function of a project that offers crucial support to the project manager and liaises with the Program Management Office (PMO) to make sure that its project customizes and uses the most recent project management standards implemented by the Program Management Office. In the same manner, in the most current edition of the standard for program management PMI defines the PMO as “The organization responsible for managing and defining the program-related governance process, templates procedures, etc. Helping individual program management teams via central performing of, committed assistance or administrative functions offering to the program manager” (PMI, 2013). The definition neatly recognizes that the “role of the program Management Office is to assist the program manager”.

As it can be understood from the aforementioned definitions, the term Program Management Office and Project Management Office have close similarity and have been uses in several literatures exchangeable. Therefore, for the purpose of this study the two terms are treated similarly and they will be used exchangeable.

2.1.2. Project Success vs. Failure

Project success and failure factors play a crucial role in determining the outcome of any project. These factors can significantly impact the project’s overall effectiveness, efficiency, and achievement of its goals. To perform a usuall understanding of what is project achievement, it desire to be defined in terms of success criteria (Muller & Turner, 2007b). The gauges used to evaluate on the success or failure of a project are known as success criteria and are dependent variable (Muller & Jugdev, 2012).

The same authors concluded that no clear definition of project success exists and stressed the need for measurable constructs of project success. Wysocki (2014) defined project success as “on time, within budget, and to specification” execution; triumph of the product produced; or success in meeting the project's business

objectives. However, the ambiguity over the definition of project success and/or failure seems still existent, which is the justification behind the various gauges of success and the evolving nature of the topic. The golden or iron triangle of project budget, time, and scope are the classic perspectives where failure or success.

A project that is completed within the planned values of each is deemed a success while that goes out of the targeted values is regarded as a failure. Further, project achievement and failure are not necessarily contradictory notions (Fincham, 2002). Organization's strategy and the delivery of business results are further factors associated with project success. (Hjelmbrekke *et al*., 2014) suggested that there was a disparity between the upper management's view of success and project manager's view of success.

Top management is focused on realizing the long-term benefits that were the motivation for starting the project in the first place while the project manager is focused on completing by fulfilling the iron triangle. It's also possible for a project to be achieving in terms of schedule, money and scope but fail in terms of business. Projects that meet business requirements, delivered and maintained on schedule and within budgets, and deliver the expected business value and return on investment are deemed successful. With the emergence of the lean agile concept project success is described as generating acceptable business value. As described by (Wysocki, 2014), traditionally definition of project success which delivering a project within the constraints of time and cost is misused. Wysocki argues that the classic description does not take business value, the client, and organizational satisfaction into account. According to the PM institute; “Project Success is measured by product, budget, timeliness, compliance, project quality and degree of customer satisfaction level.” “A program’s achievement is measured by the program’s ability to deliver its intended benefits to an organization, and by the program’s efficiency and effectiveness in delivering those benefits.” “A Portfolio Success is measured in terms of the aggregate investment performance and benefit realization of the portfolio (PMI, 2013).

2.1.3. Type of PMO

There are many different types of PMOs, Desmond (2014 and 2015) cites the recognized (PMI, 2013), PMOs can also be classified in to three according to the degree of control and influence they have in projects. These three types of PMOs are:

1). Supportive PMO-This type of PMO provides a consultative role for projects through the provision of templates, project management best practice, training, mentoring, training, information, and support—without being too prescriptive. Access to information as well as lessons learnt from other projects, suggestions and structure for projects are provided by supportive PMO. However, the decision of whether or not to adopt those suggestions is on the discretion of each project manager. In this sense the degree of control is low and the PMO is basically a knowledge repository.

2). Controlling PMO–Provide support and guide line project managers are expected to follow for effective results. This type of PMO is most advantageous if you desire to govern on the processes and make sure each of the teams are heading for the agreed goal. A controlling PMO will standardize guidelines and expect project managers to follow those guidelines effectively, and is different from supportive PMO in this regard. Reviewing projects to make sure they're complacent may also be done by Controlling PMOs. The level of control contribute is moderate.

3). Directive PMO-Directly runs projects and large initiatives through highly trained project managers. Parallel to the project management elements and handle most project planning details like resource distribution, project risk management, and project scoping. Furthermore, this type of PMO has direct control of projects through providing of project management services to enable delivery of the projects. The level of control dominance's is high.

Combining the supportive, controlling and directive type PMOs may result in a combo type of PMO. Such kind of PMO approach is referred to as a "blended". Taylor (2011) classified PMOs into six categories using other perspective called organization perspective as follows:

- Departmental PMO: Such PMO is a tiny group that deals with very particular projects within its own landscape and resources.

- Special–Purpose PMO: Such is a PMO invented for a particular reason or requirement. Customization may be done for using special-purpose PMO either for a singular project or a cluster of projects, which was crucial to the company's triumph during major technological transformation. or enterprise-wide. Special-aim project management office ceases to exist once it fulfilled its purpose, as it is invented for a special purpose.
- Supplier (Outreaching) PMO: Such kind of PMO looks after project methodology & practice and standards for a circle of project managers dealing with projects inside customer organizations–delivering own company developed solutions by their supplier to these external customers.
- External (Customer) PMO: External (Customer) PMO offers guidance and governance to these external customers on setting up and running their own PMOs in addition to providing the service provided by PMOs.
- Internal Enterprise PMO: Such kind of PMO is organized at corporate level to make sure that projects go ahead grounded on their strategic alignment to the key business objectives of the firm. Project success is supported by an internal PMO, which is an in-house team. Standards and best practices are established by internal PMOs, which are permanent teams that collect all of organization’s processes. These teams are tasked with: Providing trainings, updating maintaining best practices and guidelines standardizing, Supporting change management initiative. Long term organizational support is possible by the better equipped internal PMO.
- External Enterprise PMO: It is the extension of outreaching PMO which gained a strategic position within its organization and offers to external customers a consistent project delivery and service model across the world.an external project management office is an agency or consulting group that helps you create best practices for company. Optimized best practices are suggested by external PMOs but do not enforce those practices or continue supporting your organization.
- Provision of internal advice, sharing of knowledge in project management, work standardization, improvement of planning activities and monitoring, dissemination of project management culture are the contributions of PMO to scope of an organization (Siedschlag *et al*., 2016; Too & Weaver, 2014; Oliveira *et al*., 2020;

Jurach *et al*., 2017), etc. Multiple factors that coexist inside an organization affect the contribution of PMO to institutional performance (Aubry *et al*., 2009).

KEY REASONS WHY YOU NEED A PMO

Wysocki (2014) identified six reasons why an organization would choose to establish project management office (PMO). They are as follows:

I. STANDARDIZATION AND PRACTICE

Standards and guidelines for project management are set by PMOs for teams to follow. Absence of standards or procedures in place will bring inefficiencies and unproductivity. Increased consistency can be achieved through well-defined processes, frameworks, and tools which leave less room for questions when completing specific tasks. PMO is responsible for choosing a project management methodology for teams to follow based on the project and company needs. Waterfall, Agile, Hybrid, and Critical Path are the usual methodologies. The stages and steps toward completing projects efficiently, successfully, on-time, and on-budget are determined by the PMOs' standards and methodologies.

II. ACCOUNTABILITY

Whenever visibility increases in a business, so does accountability across the organization. Project management office set clear, attainable goals with centralized systems. They build a goal-driven culture where people hold themselves accountable, produce a higher quality of work properly manage the resource, learn from their mistakes, and take pride in their successes.

III. DEDICATED TEAM

Being heavily timeline-driven, PMOs set deadlines for teams to meet at each stage of the project, as well as an overall project end date. This is in recognition of the fact "projects" are having end-dates by design. *Who's doing what* and *by when* is planned by PMOs. They designate Roles specific functions, teams, or tasks are designated by PMOs. How much time should be spent and how much progress should be made across tasks and activities for each stakeholder in the project is then outlined which keeps everybody aligned, aware-of, and dedicated to the timelines at-hand. PMOs play a major role in reallocating time where needed, whenever deadlines are missed, goals

change, or new priorities take precedence. Continuously strategizing to meet changing project deadlines and timeline adjustment to meet changing needs is the ultimate goal of PMOs.

IV.COMMUNICATION

When there is good awareness about strategies, processes, and tasks by everyone and that leads to successful completion of a project, it tells alignment. PMOs can communicate decisions surrounding projects and tasks with the project teams and stakeholders, once they are aligned with company goals and objectives. Establishment of cooperative frameworks that is understood and accessed by everyone involved in the project is done by PMOs. Communication is enhanced by the framework; communication minimizes chaos as teams work towards their goal. PMO will provide ongoing data and communicate progress and achievements throughout the project.

V. COMPLEXITY

Whenever the number and complexity of projects increase within a portfolio, it forces an organization to adopt formal approach of managing the volume and diversity of projects. The organization formulates the procedures that are followed for initiating, proposing, approving, and managing projects to fix the problem.

VI. NEED OF QUALIFIED MANAGER (SUBJECT MATTER EXPERTISE)

Managing projects necessitates the use of qualified project management personnel, especially when the volume and complexity of work increases. PMOs are experts in offering project management support. The need for PMO is categorized from low to high based on relevance to the operations in multi-project environment by Seweryn (2012). There are eight key reasons, ranging from modest to high, for creating PMO.

- Need for efficiency for program/projects;
- Putting and enforcing standards/methodology/templates
- Gathering data on project status for reporting need
- Supporting project planning activities (e.g., resources, risk etc.)
- Managing of Project/ programme portfolio (prioritization of the projects)
- Putting and enforcing PM tools and techniques
- Managing the costs of running projects
- Repository need for data (access to the historical data obtained and lessons learned)

2.1.4. Role and functions of PMO

The aim of a PMO is to provide ongoing support and ensure the success of projects and programs in an organization. The underlying key to the success of the PMO is to ensure proper alignment with the organization's goals, strategies, and objectives (Project Management Institute, 2013; Harold Kerzner, 2009).

Organizations need to clearly define the functions and roles of their PMOs. According to Reddy & Priyadarshini (2016), PMOs can take responsibility for various functions, including the maintenance of a centralized set of standard processes and procedures with which to government programs and projects; and the establishment of a centralized set of project management tools and support services. The PMO also ensures that proper project management standards, risk management, and governance frameworks are adhered to. It serves as a central repository for knowledge, resources, and project management tools (Reddy & Priyadarshini, 2016).

According to the (Project Management Institute, 2013), PMOs can take on various functions based not only on the type and scope of the organization but on the type and scope of the PMO itself.

While reviewing different literatures on the role and functions of PMO, there is disparity on understanding of role of PMO. Study by (Barbara *et al*., 2012) using quantitative analysis on 278 PMOs identified coordinating, controlling and supporting as three distinctive role of PMO. Resource allocation to projects across the portfolio, which is handled by the coordinating role, minimizes failure in the allocation process by safeguarding the rapid allocation of resources to targeted recipients. Establishing, updating and providing the information base for decision making on the portfolio is dealt by the controlling role in addition to delivering corrective measures in support for management of organization (e.g., project supervision, milestone controlling). Providing services to projects/project leaders (e.g., planning, preparing reports, software tools), cultivating PM standards within the firm, including knowledge transfer between parties is dealt by the supporting role of PMO. Dawson *et al*. (2012) identified standardization of project management methodology, alignment of projects with organizational strategies, provision for training, mentoring, and consultation and

compilation of project performance metrics as seven main functions as major PMO role.

Sarmad *et al*. (2015) studied to determine the role of project management office in the success of project-based organizations. The author classified seven main PMO's duties and services.

i. Developing and maintaining methods and standards of project management

ii. Developing and maintaining of project history archive

iii. Project's administrative tasks commitment

iv. Helping in recruiting and deploying the project team

v. Provision of project management education

vi. Giving advice and guidance for project managers

vii. Project portfolio management

According to (Dinsmore & Cabanis, 2010) Organizational chart, , cultural influences and political factors cultural influences affect the ability to manage multiple activities and resources associated with projects that occur simultaneously. A clear alignment of the project team is essential so as to facilitate such management.

Historically the project management office typically assumed a limited number of functions: Project definition and planning; Cost and benefit analysis; Risk management; Monitoring and control;, Support in the application of project management processes and procedures; Collection and dissemination of knowledge; Provide skills in PM; processes and Standards (Garagna & Pellegrinelli 2009). Its current main concerns are project support, consulting and mentoring, developing methods and standards, software tools, training, and project resource management (human and material) (Crawford, 2010).

Dai & Wells (2004) identified six categories of PMO functions: Arranging project management training; developing and maintaining project historical archives; providing project administrative help; providing human resource assistance; providing consulting and mentoring on project management area;, developing and maintaining project management standards and methods. Even though many studies have put enormous efforts into defining and clarifying the concept of PMO, on the role PMOs; significant and extensive study was done by Hobbs and Aubry (2007) on the topic of

project management, on its historical grow of subject area as well as on the role of project management office. They did the study with objectives of creating a reliable definition of PMO and to obtain a deeper knowledge of PMOs, including the reason why they appear in so many various types and the dynamicity that revolves around the initiation, transformation and execution in business. Based on their study they arranged the roles and functions of PMO into five major

PMO roles and functions created from their global survey categorized into five major groups, as follows:

i. Monitor, Control and report on running projects: Reporting the stages and status of the running projects to top management. The reporting covers tasks related to the monitoring and controlling function. It provides also administrative tools and advisory of support to enhance the efforts to the organization to manage its own projects.

ii. Project management excellence: To ensure the implementation of project management is consistent and sustainable for the sake of delivering a successful project, innovative approaches and tools in managing the different phases of the project, the program, and the portfolio are incorporated by intention.

iii. Develop project management competency and methodology: Many new experiences and much professional knowledge can be gained at various stages of the project execution generate. These can in turn be applied to develop the existing project management methodologies and standards for improving the capability of the organization in the field of project management activities. In addition, within and between and similar organizational sharing and exchanging technical information for projects is possible.

iv. Benefits achievement & Strategic alignment: Modifying the processes of the decision making of the senior project managers to ensure that the running projects are strategically aligned to plans of the organization and strategic goals. Hence, strategic alignment has an aim of achieving the most advantages that can be expected from project outcomes.

v. Organizational learning and culture: The organization will build up a specific culture, and will develop and disseminate a typical learning pattern, which becomes

one of the organization's characteristics. This is because the project is considered a production of professional information and experience. A PMO standard model was developed by Hobbs & Aubry (2007) based on a data from a global survey. They suggested that PMO be defined as a set of characteristics and functions which then are categorized under three headings; organizational context, PMO descriptions and PMO performance.

2.2. Empirical Literature Review

The empirical review provides a critical analysis of relevant literature indicating where the studies were taken, the methodology employed, the main findings, and any observed weaknesses. The review was written chronologically, that is starting from the oldest relevant study to the latest. Moreover, an empirical review on the global, African, and Ethiopian levels was carried out.

Empirical studies were conducted by Rajagopal *et al.* (2007) and Forrester (2013) on Libya with the intention to know the importance of PMO in government organization. The authors argued that the strategic PMO is one that is connected to the organization at executive level and plays an integral role in the planning and execution of organizational initiatives. Furthermore, this view is supported by Caliste (2013), who argued that the PMO plays a pivotal role in enabling the organization to achieve sustained business growth and gain a competitive advantage in the market.

According to some studies, PMO is used by 40% of the organizations to coordinate various projects (Marwick *et al.*, 2019). By helping organizations manage their projects more effectively, PMO is perceived as a valuable organization that brings benefits to an organization. Three out of four active PMOs provide a more structured path for project managers compared to a global average of 41% (ESI International, 2013). For instance, 76.8% of PMO managers in India claim that PMO has improved the satisfaction of customers, which is a gauge for effectiveness of PMO (ESI International, 2012). From the point of both on the project and from both internal and external stakeholders, an organization with a PMO has a significant influence. In

addition, providing support functions to the project management team is the responsibility of a PMO. The existence of PMO in a firm is a progressively increasing need for the firm to manage any ongoing or future projects.

According to the research conducted by PM Solutions, there were 85% of companies reported with PMO in the year 2016, which is a 5% hike since 2014. Around 30% of companies which don't have PMO are planning to have one. In the existing corporate world, digital transformation and Artificial Intelligence have great presence and they can also impact the role of the project management office.

Ward and Daniel (2013) conducted a study in UK with the aim to know the role of PMO in project success and management. Sixty nine percent of the organizations had a PMO, a figure that was very similar across all sectors manufacturing, services and the public sector. A correlation result of the presence of a PMO with the explained overall achievement rate of projects reflected no significant relationship. This result is consistent with earlier studies (Martin *et al*. 2007and,Dai Wells, 2004;), who found that having a project management office did not appear to enhance the achievement of projects.

According to Canfield University School of Management (2013), approximately seventy percent of organizations presently have a similarity of a PMO in existence. However, these PMOs experience varying degrees of success. Organizations are motivate to maintain a PMO for numerous reasons: to reduce the risk of project failure and increase the chances of business success; to ensure maximum return on investment; to make efficient use of resources; and to utilize resources effectively across a range of projects and programs (Project Management Institute, 2013). In addition, project management office allows organizations to control performance, serve as a source of knowledge and training, and contribute a standard of organization against which to manage projects Salameh,(2014)

Another research was conducted by Amna (2018) in Saudi Arabia employing exploratory research approach and using a qualitative research method through structured interviews find out that there is a positive association between PMO formation and project success enhancement. The governance structure of the PMO is suggested to exist in a well-structured in a firm.

A study was conducted by Antonio *et al*. (2018) using a structured Survey in Swiss companies found out that; presence of project management culture in organization make a difference in terms of project's "success achievement and to the overall strategic management, resolving the very common lack of leadership and lack of clear business objective understanding." Ernest & Young (2018) reported the same conclusions, reporting better results in terms of project performance were from companies having a project office in place, regardless of the tasks and responsibilities of the PMO.

Munns and Bjeirmi (1996) conducted a study in United Kingdom with the intention to know the role of project management in achieving project success find and concluded that project management will not halt a project from failing to succeed even though successful project management techniques will contribute to the attainment of project success. Despite the fact that successful project management could enhance its success, the right project will succeed almost without the success of project management. Selecting the right project at the outset and careening out potentially unsuccessful projects, will be more important to ensuring total project success.

In order to increase both the number and the strategic importance of the projects, many organizations have executed the project management office (Hobbs *et al*., 2008). PMO has the role of helping organizations to plan, implement and monitor projects so their goals can be achieved (Ferreira *et al*., 2017). Firms form PMOs to take on responsibilities and coordinate functions and activities associated to the project (Andersen *et al*., 2007).In contrast other research outputs claimed quite the opposite, even go far suggesting no need to create of PMO in some cases (Spelta and Albertin, 2012).

2.2.2. Project success dimensions

Key success components need to be in place across the project life cycle so as to attain favorable results for the project (Pinto & Prescott, 1988). PMI (2013) has defined the term success factors. Delineations on project success factors and project success criteria are given below.

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

There are different opinions on what consists of project success and criteria by which the project should be decided. There is no a generalized consensus on project success description that is suitable across different projects. Project success dimensions need to be specified contingent to the particular project type, a given project needs to target on its explicit dimensions. Traditional project achievement measures focused on the so-called iron triangle, accomplished the defined scope of work to specification, and meeting the budget and time goals. The iron triangle based success measure may appear correct for certain cases and appropriate in the short run when time is so crucial. However, in many instances, what appeared to be a challenged project, with much delays and overruns, turned out later to be a great business success.

Some authors have investigated the wider effect of projects on the business. Slevin and Pinto (2008) had acknowledged three situation of project achievement concerning the implementation process, the perceived value of the project, and customer satisfaction with the delivered project outcome. Shenhar & Dvir (2007) proposed a new way to look at project success. Projects should be seen in their broader sense, instead of just viewing projects as tasks that lead to meeting the time, budget, and performance goals. A model encompassing five project success dimensions was suggested by Shenhar & Dvir (2007). Those include project efficiency, impact on customer, impact on team, direct organizational and business success, preparing for the future.

Project Efficiency: budget and schedule performances as well as other project efficiencies are measured through this dimension. On time and within budget completion of the project which represent short-term measures are evaluated under this dimension.

Impact on customers: Functional requirements, technical specifications, the satisfaction level of customer, the extent the customers are using the product, and the

extent of customer loyalty are measured under this dimension. Key stakeholder whose acuity is significant for evaluation of project success is symbolized by this dimension. It explicitly states that how the project outputs enhance the customer's satisfaction or business and how it addresses the customer's need.

Impact on the Team: Indirect investment made by the organization for development of team members, the level of growth and learning achieved by the team, newly acquired skills by the team members, and new management and professional capabilities attained by the team are measured under this dimension. The collective impact of team satisfaction, morale, overall team loyalty with organization and team member retention after the completion of the project are assessed in this dimension.

Business and Direct Organizational Success: Immediate and direct impact on the organization-in terms of income, sales levels, profits, cash flow and as other financial actions in the business context are gauged under this dimension. In certain situations, this dimension is reflected through a typical business plan which sketches expected growth, profit and sales in the future, from the resultant product.

Preparing for the future: This dimension gauges the long-term benefits of the project and describes how new opportunities are created and how well the project supports the organization in terms of developing its infrastructure for the future. Creating a new product line, creating a new market, or a new technology development is under the measures of preparing for the future. Organizational competencies, new organizational processes and additional technological competencies are under future infrastructure.

2.2.2.1. PMO Vs Project Success

A number of researches have been conducted to find out the relationship between project success and PMOs around the world. Milin *et al*. (2012) for instance, establishing a PMO in a company can improve project management effectiveness by allowing knowledge by gathering from prior projects, boosting the use of successful project management activities on current projects, consequently leading towards project success. In line with this, Maylor (2010) argued tools and techniques required to improve overall organizational performance through successful project delivery should be provided by PMO. In addition, Santos & Varajao (2015) believe that

organizations that implement a PMO will gain numerous advantages in the long term. Implementing PMO has the following advantages:

- Proactive project risks/issues management
- Clear evaluations in terms of budget and time
- improve effectiveness and efficiency in project management
- Improved output(s) quality
- Growth percentage of success of project activities
- Improved coordination and control of tasks and resources
- Obtainability and circulation of information
- Creation of data-clearing project best-practices and house of information
- Pursuance of project management competencies and know-how within the organization
- Enhancing of transparency due to information sharing
- Increased predisposition to change and innovation
- Identification of synergies between projects and activities gaps fulfillment especially during feasibility analysis due to increased awareness and attention
- Improved description of project priority and possibility of negotiations in order to manage urgencies

The PMI (2018) expressed that project managers believe that PMOs assist to increase the success rate of projects and reduce the number of failed projects. Weaver (2005) conducted research on effective project governance and found out that organizations with mature PMOs have a project success rate of 98%, while organizations with newly established PMOs have a project success rate of 53%. In line with this, firms devoid of PMOs are reported to have less than 50%rate of project success. A study conducted by Jerbrant (2013) has also reported PMO can improve the number of successful projects in a firm, and also regulate the performance of its individual projects.

The effects of PMO and its attributes on project success was investigated by Amna (2018) through critically reviewing the pertinent literatures and using empirical data to understand the relationship between the roles and attributes of PMOs as well as their effect successful project delivery. The author used exploratory and a qualitative research method and applied structured interviews as data collection tools. A positive

relationship between the establishment of a PMO and enhancement of project success was reported.

Sukhoo *et al*. (2004) suggested that project management concepts, especially those of western origins, may not be universally applicable, as developing countries have to constantly face a shortage of skilled staff, difficult social conditions and economic, weak political institutions, as well as deeply rooted religious and cultural beliefs. Therefore, there is need to encourage the emergency of project management techniques of a certain indigenous nature, which can cope with the actual status of developing nations. Project management office was established to enhance the effectiveness and efficiency of the organization by supporting project managers, teams, functional areas, and organizational levels (Oliveira and Martins, 2020). Ernst & Young reported the same conclusions, showing that companies having a project office in place, regardless of the tasks and responsibilities of the PMO, show better results in terms of project performance.

2.2.3. Relationship between project success and PMO Dimensions

Hobbs & Aubry (2007) developed a structure for project management which identified five key dimensions that any project management office needs to address as prime role. These dimensions consequently were used as measurement of project management office role and to investigate its impact on project success.

2.2.3.1. Multi Project Management vs project Success

More than one project at a time is expected to be led by the project managers in many organizations. Resource limitation and nature of the projects being implemented are main reasons for this. Multiple project management (MPM) is referred to as a management practice in which a project manager is assigned to simultaneously lead multiple projects. With resource constraint, this exercise has been popular in many organizations, since it helps growth efficiency in managing projects (Patanakul, 2010).

MPM is implemented by organization to achieve for the key reason of better efficiency and management of projects. The effective use of organizational resources is the expected output from multiple-project managers. This is besides meeting time, cost, performance, and satisfying customers (Fricke & Shenhar, 2000; Ireland, 1997). The efficacy at a project manager level can also be estimated in terms of employee

satisfaction level (Mishra, & Denison, 1995). Typical measurement criteria include; job satisfaction, career growth, and financial benefits (Fricke & Shenhar, 2000; Kuprenas *et al*., 2000).

Milosevic and Patanakul (2009) stated that the criteria for weighting project success and MPM can be grouped into criteria from organizational, project, and personal perspectives. Organizational level measurements are resource productivity and organizational learning. Project success measures in terms of time and customer satisfaction are the project-level metrics. Personal growth and satisfaction are the effectiveness measures at the personal level (Pasconn, 2018). Defines multiple-PM is the process of selecting, planning, comprehensive control and monitoring of the entire project landscape of a company or another organizational unit. This function is located in the center of the firm and gives orientation to the project managers in order to keep the organization on track and orient them close to common result.

The new project pattern introduced new obstacles in terms of functioning in a multi-project environment and the ability of businesses to manage multiple projects at the same time. Various efforts were exerted to specify the causes of this challenging trend for the project sector in the world. Dealing with new organizational challenges related to their operations in a multi-project environment, which contributes to the unpredictability has been a challenge to many project oriented organizations. Because of the new pattern that requires several projects to be accomplished at the same time, project portfolio management has become much more important (Spalek, 2012).

Many different ways have been recommend to improve the operational effectiveness of multi-project management; among these is establishing the organization-specific PMO as an entity of interest (Singh *et al*., 2009). A study by Sarmad *et al*. (2015) on 30 Iranian construction firms found an existence of positive relationship between managing and coordinating multiple projects which are simultaneously under progress within the firm have an effect on project success.

2.2.3.2. Organizational Learning role of PMO vs project Success

A firms' enhanced effort to attain, distribute and apply knowledge with the purpose adjust to a changing external and internal environment use it is known as organizational learning (Hoe and McShane, 2010). This is because this definition suits

a continuous effort to establish, acquire and integrate knowledge into daily organizational process in order to maintain organizational competing and accomplishment. In this context, organizational learning is framed in sociological perspective that determined by specific organizational structure and culture, facilitated by transformational leadership and empowered employees that leading to project success. The capability to progressively improve the firms' ability to attain, disseminate, apply, and store knowledge occur via the interactions among firm's members and social construct is also known as organizational learning (Abell & Simons, 2000; Argote, 2011; Elkjaer, 2005).

PMI (2013) defines organizational learning or Lesson learned represents a historical information and lessons learned knowledge repositories and categories it as an organizational knowledge repositories. The supporting role of PMO via making lessons learned either from current or previous projects available documents and records of projects, entire information and documentation on project closure, information concerning both the results of previous project selection decisions and previous project performance information, and information from risk management activities. Capturing lessons learned is argued to be an on-going effort throughout the life of the project. This way of thinking needs to be highly encouraged from day one by the project manager. Project failures and successes need to be both used learning, be it for preparations for future projects or sorting process improvements for project management (Rowe & Sikes, 2006). Unless lessons are learnt from project failures, repeating similar scenarios is inevitable. Sarmad *et al*. (2015) conducted a study to determine the role PMO plays for project success in Iran. They reported no association between project success and lessons learned. The researchers described merely the implicit knowledge attained from projects is applied as action criterion for the firms, which will not be available to the firm due to people leaving the organization and so true as time passes.

2.2.3.3. Monitoring and Controlling Performance (MCP) vs project Success

Monitoring and controlling is the most important step in the whole process of project management performance because with the help of it, it is possible to determine the actual progress and status of the project. The processes in this group

are applied for following, reviewing, and facilitating the project flow and performance; identifying segments where changes are required to the plan; and initiate the corresponding changes (Larson and Gray, 2011).So the performance of an organization requires that improvement is seen as a long term and continuous process to improve and maintain superior quality project outputs and hence make sure an all dimensional project success (Shrenash *et al*., 2013).

The Monitoring and Controlling activity group consists of those activity required to track, assess, and augment the progress and performance of a project; point out any areas in which change to the plan are needed; and start the changes accordingly (Wysocki, 2014). The activity in the Monitoring and Controlling Process Group are:, perform integrated work control: monitor and control project work, control scope, control schedule, monitor and control project work, control communication, control quality, control stakeholder engagement, control procurement, control risk, (PMBOK, 2013).Those activities demand to track, control cost regulate and review the progress and performance of the project; recognize any areas in which change to the schedule are needed; and start similar changes (PMBOK, 2013).

Operative monitoring and controlling will allows the project manager to explore the challenge with an expected during the course of the project. Suitable corrective action will be taken to ensure the project is back on track and eventually lead to project success (Karangwa *et al*., 2016). As it described by Ashly & Farzana (2013) monitoring and controlling activity have recently become a requirement for project achievement. Fulfilling a project demands to have the best project monitoring and controlling practice to control and manage the progress of the project. PM is the operation of knowledge skills, tools, techniques and tools to project activities. Projects generally fail as a result of, constant changes in the scope and poor planning, consequently deadline and budget, as well as the lack of monitoring and controlling practice and consequently deadline and budget.

The main activity of Monitoring and Controlling Process Group are: status reporting; conducting project status meetings, establishing reporting system, and change management and documentation (Wysocki, 2014). Henok (2018) assess the effect of

project monitoring and controlling practices on project successes of Ethiopian Airlines Group Digital PMO and finally the study concludes that project monitoring and controlling process plays significant contribution to the project success. This suggests that there is significant and positive relationship between the project monitoring and controlling practices and project success.

2.2.3.4. Strategic Management Role of PMO vs project success

ThePMO provide to organizational context, the papers approach the offices as tool enhance project management and increase achieving rates (Vasconcelos, Oliveira &Pontes, 2015). As to portfolio management, Siedschlag *et al*. (2016) stimulate the implementation of PMO to make this activity. According to the authors, the role of an office that focuses on the execution of the strategy goes directly through prioritization, control and project management, attributions inherent to portfolio management, which increases the organization´s capacity of achieving the expected results.

As suggested by Wysocki (2014) each project bears dynamic and fluid challenges to the organizations. The effect of project is both tactical operational as well as; tactical this is evident in the program and portfolio management processes. Managing projects at industry level related to aligning projects into the strategic level as well and should be planned to a means of achieving vision through projects and the project management activities.

The PMO serves as the work of the enterprise and critical link between executive vision. By providing standard organizational methods for planning, executing, staffing, and prioritizing learning from every projects that incorporate today's organization, the PMO contribute organizational life a consistent that has long been lacking (Crawford, 2010).In Similar tune, PMI (2013) argues that Strategic and business management skills of PMOs including the ability to see the high-level overview of the organization and effectively negotiate and execute decisions and actions that encourage strategic alliance and innovation. As research conducted by Evaristo & Desouza (2006) classifies the roles of PMOs into three levels: tactical, strategic and operational. At the strategic level, projects are a fit with the objectives of the organization growth of the organization knowledge management and growth of the organization. Strategic

management relates to settling strategic priorities, aligning to initiatives, defining business goals, opportunity analysis and environmental scanning (Salameh, 2014).

2.3. Development of Project Management Competencies and Methodologies vs project Success

Competency is the capability to work efficiently to meet the required goals and objectives (Shahhosseini & Sebt, 2011; Hwang & Ng, 2013). PM competencies are the capabilities and abilities to handle the project to meet the project objectives and goals, leading to project success.

As stated by Wysocki (2014), the first step in portfolio management is deciding the strategy for the portfolio. That strategy is an investment strategy. That is, how will the enterprise's allocate resources be distribute across the portfolio? The organization will have a structure for selecting business opportunities that will be contribute in the form of project proposals once this strategy investment is in place. This is a strategic planning phase in which the portfolio management or portfolio manager team decides how to allocate project (Isik *et al.*, 2009; Hwang & Ng, 2013). Project management is an approach to ensure project achieve, particularly in the construction industry. In almost every project, the execution of projects is the same (Madter *et al*., 2012). During the project's implementation process, these management competencies are found to have a potential impact on project success (Sebt and Shahhosseini, 2011; Madter *et al*., 2012; Jones and Remidez, 2012, Muller *et al.*, 2013).

Project management competencies are a related area of study in the project management community. As verification of its vital, project management bodies, including the Project Management Institute and the International Project Management Association (IPMA), have codified project management competencies (Marzagáo and Carvalho, 2016). The literature shows that there are numerous definitions of project management competencies. Project management competencies are the combination of experience, attitudes behaviors, knowledge, and competencies that lead to higher level project accomplishment (Alvarenga *et al*., 2019). In project-based industries like the construction industry, there is a direct link between projects management, project success and competencies (Chen *et al*., 2019).

According to PMI (2013) competence is the capacity and skill and prerequisite to finalized assigned activities within the project constraints. If project team members do not possess the required capability, accomplishment can be threatened. When such misfit is clearly known, proactive responses such as, schedule changes hiring, training or scope changes are initiated. Competence in project management refers to the ability to do tasks within a project context to accepted standards and expected.

Mohammad *et al*. (2022) conducted a study in Pakistan by intended to know the impact of project management competence on the project success and found that project management competence enable project managers to harness the creativity and ingenuity available in the complex project leading to project success.

As Stated by Crawford (2005) the notion is that project managers' competence directly dominates project achievement and threat after organizational performance. It has been said that discover the right project manager is the essential to project success. A study conducted by Muhammad (2018) in Pakistan, with aim of investigating impact of project management competence and complexity in mega engineering projects found a significant positive relationship between two variables.

It is vital to note that an existence of capable project manager or team alone does not assure project success. A project manager may successfully counterbalance the competing request of, time, cost, scope, quality, resources and risk, but the project success may be influenced by other factor like; organization's project management maturity and capability. It is just as possible to have a "competent" project manager employed within an organization in the early period of maturing its practices resulting in an unsuccessful project, as it is to have an unsuccessful project effect from a project manager who is not capable working within a full growth of company (Yinger t &, Cartwright, 2007).

Project management methodologies are collections of different approaches, tools, templates, and techniques. The usual definition of project management methods includes the organization and standardization of project management activities to persistently distribute project objectives (Neverauskas and Zdanyte, 2011). The intent behind any project management methods is to increase the probability of project success (Vaskimo, 2011; Spundak, 2014; Muller and Joslin, 2015). This growth

probability is accelerated through persistence and uniformity, while also emphasis primarily on how to manage the resource budget, and schedule constraints of any project (Harrison and Felix, 1984).

Project management methodology insists project manager's turndown risks, prevent replication of efforts and fundamentally grow the effect of the project success. However, PMI (2013) leading recommends design of standard methods based on the context of organization. Since these standard documents identify the subset of the project management body of knowledge that is generally acknowledge as good practice. The term "best practice" does not implicate that the knowledge given should be used persistently to all projects. According to PMI (2013) methodologies should be establish by experts within the organization, purchased from vendors, obtained from professional associations, or acquired from government agencies. Reliable project management techniques take into account the distinctive nature of projects and allow customize to some level, by the project manager. However, the tailoring that is included in the technics may still require additional tailoring for a given project" (PMI, 2013)

A survey report by the Standish Group (2010) agrees, project methodologies have been developed specifically to help address low success rates using project-related knowledge and availability of project management methodologies improved project success rate by 35%. A research conducted by Lehtonen & Martinsuo (2006) has shown that having project methodologies in organizations provide more predictable project success than projects that do not use on.

2.4. Conceptual Framework of the Study

Depicted below is the conceptual framework of the study inspired by Andersen *et al*. (2007) who mentioned that establishment of a PMO have big contribution in achieving project success by taking responsibility, coordinating function and projects activity. In similar way, Ernest and young (2018) reported that company having project office in place regarding of tasks and responsibility of PMO show better results in terms of achieving project success. Furthermore, a study conducted by Amna (2018) again has

proven that the formation of PMO and achievement of project success have positive relationship.

As can be seen from the conceptual framework depicted below, the basic facets of the roles of project management office; multiple project management, organizational learning and culture, monitoring and control, strategic management , developing project management competence and methodology are used as independent variables whereas the project success as the dependent variable is represented by dimensions of; impact on customer, impact on the team, project efficiency, preparation for future, business and direct organizational success.

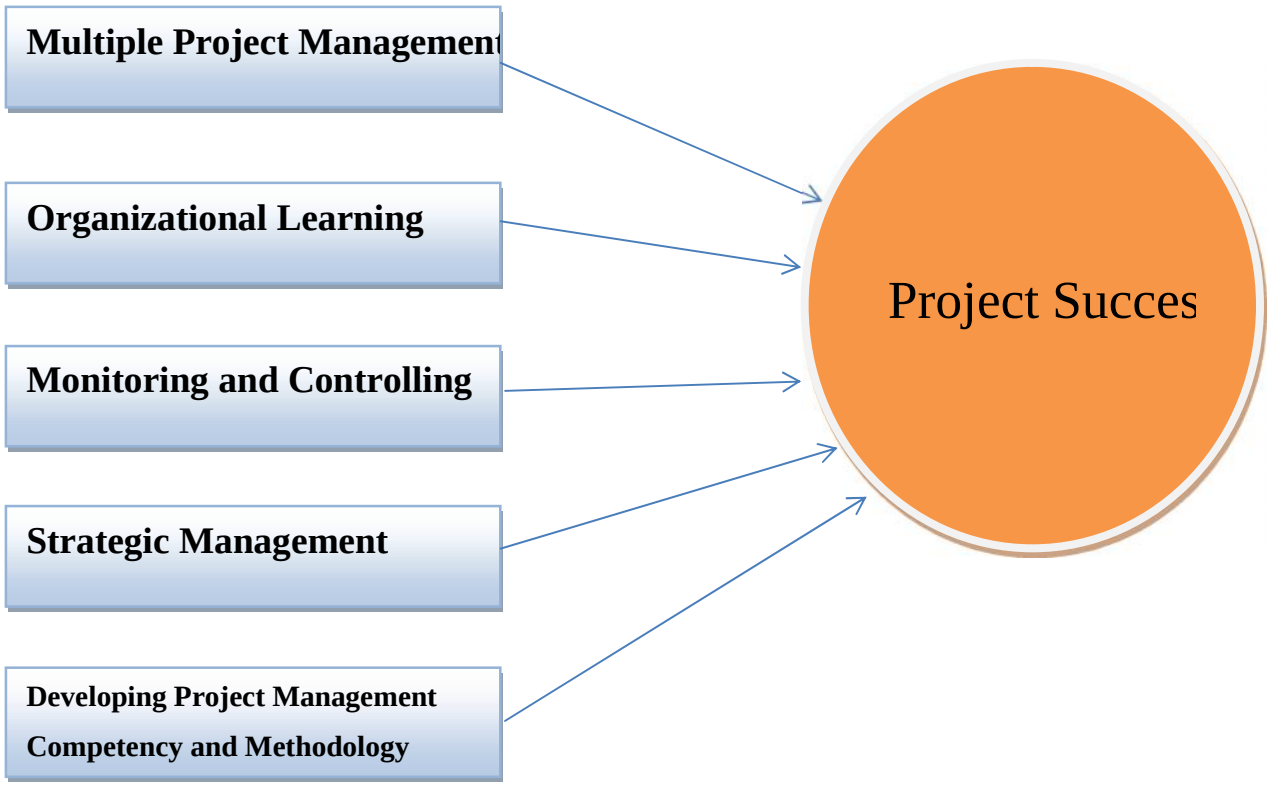

Figure 1: Conceptual Framework of Current Study (Source: Summarized and prepared from Literature by the researcher).

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

This chapter aims to provide an overview of the methodological approaches and research design selected to identify the role of project management office in achievement of project success following by Ethiopian water work design and supervision enterprise under Ethiopian construction work design and Supervision Corporation. Methods used data sources, population and sampling techniques, data collection instruments and procedures, and data analysis technics while attempt the research is explained briefly as follow.

3.2. Research Design

Provision of efficient information and answers for the problem under study is the feature of a well set research design (Kothari, 2014). The researcher is directed to choose the right research design based on the research purpose and the way the research questions are established. For example, why questions are answered by explan tory research design but not what and how research questions. On the other hand, a phenomenon is studied to assess and explain the association between two or more variables by explanatory type of study. The objective of the current study is to assess the role of Project Management Office in achieving Project Success by employing a questionnaire survey, by collecting the required data. Hence, the explanatory research design was applied for this study.

3.3. Research Approach

The alternatives that direct the process of data collection and data analysis of the research are described as research approach. The approaches are differentiated by the type of data they generate. Quantitative approaches bring numerical data that help answer the research questions. Hence, quantitative approaches were utilized for this study. Both descriptive and inferential methods were used to analyze the data (Saunders *et al*., 2017).

3.4. Research Instrument

A research instrument is a data collection tool that is used to collect and measure data from the research target. A self-administered questionnaire was utilized as an instrument to get the quantitative data. Category and rating questions were included in the self-administered questionnaire. A five-point Likert scale used as a basis for the rating questions, in which the respondent was inquired how strongly he/she disagreed or agreed with a statement. The paper-based approach was used to distribute the instrument.

3.5. Sources of Data collection

Primary data were used for this research. Primary data is the data that is observed, measured, and collected for the first time. Primary data were collected from the target population in order to test the hypotheses for this research (Kothari, 2014). Self-administered questionnaire were used to collect primary data from PMO employees and project management professionals who participated and worked on Project of water work design and supervision.

3.6. Target Population and Survey Type

The subset of all cases from which a sample is taken from is the population for the study. A sample organization and a sample of employees to collect data needs to be selected by the researcher. This allows enough time to design the research instrument, as well as check the accuracy of data prior to analysis (Saunders *et al.*, 2017). For this study, the target population is the PMO staff members, project managers, and project team members who took part in projects. The total target population comprises 85 people. A census survey approach was followed for this study as data were collected from the entire target population.

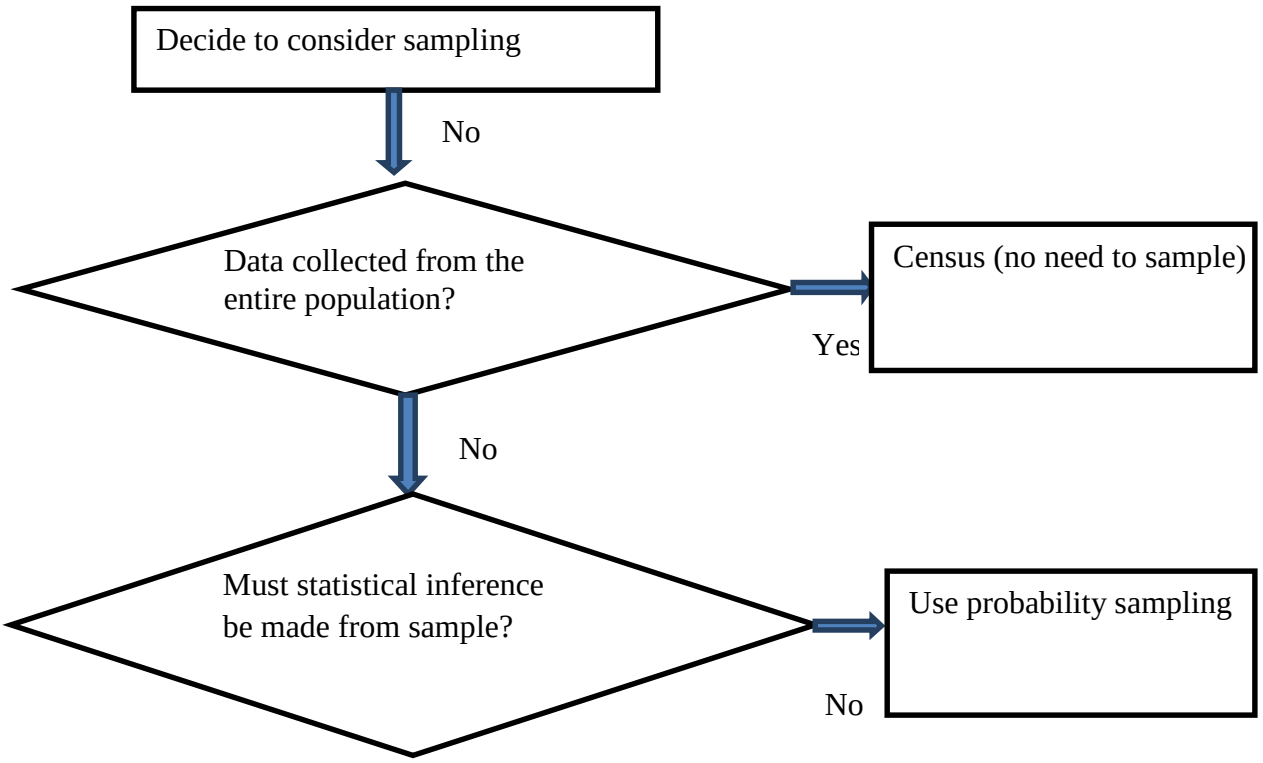

Figure 2 Method of Choosing Sampling. (Source; Modified from Saunders *et al.,(*2017)

3.8. Validity and Reliability

3.8.1. Validity

All possible efforts were exerted to make the data collection instruments easily understandable by the respondents so that the intended information can be collected thereby increasing trustworthiness of the ultimate findings. Also, subject matter experts were chosen, and constructive comments were collected. The data collection tool was shared to the research advisor and senior project managers prior to the data collection to examine the instrument for the content validity.

3.8.2. Reliability

There will be an inter-correlation in any test scores observed from collected data. Hence to make sure that test scores have internal consistency estimates of reliability of test scores was administered using Cronbach's alpha. The reason why intercorrelations

among t est items are maximized when all items measure the same construct, Cronbach's alpha is universally accept to indirectly imply the level to which a set of items estimated a single unidimensional latent construct. As reported by Kline (1999). George & Mallery (2003) a commonly accepted rule of thumb for describing internal consistency using Cronbach's alpha is describes,$\alpha < 0.5$ unacceptable,$0.5 \leq \alpha < 0.6$ poor,$0.6 \leq \alpha < 0.7$Questionable,$0.7 \leq \alpha < 0.8$ Acceptable,$0.8 \leq \alpha < 0.9$ Good, and $\alpha \geq 0.9$ Excellent. Prior to the analysis of the data Cronbach's alpha internal consistency test is undertaken to the internal consistency of the collected data. Since all of the values obtained were all above 0.7 the reliability of the data is acceptable.

Table 3.1: Reliability analysis results for the current study

Constructs	**Number of items**	**Alpha (α) values**
PMO Independent variables	23	0.927
Project success	20	0.898
Overall Cronbach's alpha for constructs of the study	43	0.948

3.9. Method of Data Analysis

The statistical package for social sciences (SPSS) version 23 was used in the current study used for both descriptive and explanatory (inferential) analysis. Descriptive statistics namely frequency and percentage were used to summarize information (data) about background of respondents. For interpretation of research variables, descriptive statistics namely, standard deviations, mean as well as minimum and maximum values of the variables were used. This was done in order to create general awareness about the variables in the study. Next, inferential statistics were used to describe the cause and effect relationship of the study variables. Pearson correlation coefficient was used to investigate the link between two continuous variables (Pallant, 2010). Pearson correlations was utilized to test the relationships among the variables and to measure the degree of relationship between the variables. Regression analysis was utilized to investigate the effect of the independent variables on the dependent variable. Acceptance or rejection of the hypothesis was made by using *p-values* with respect to each variable. The specific study model used for this study is stated below:

$PS=\beta_0+ \beta_1 MPM+ \beta_2 OL+ \beta_3 MC+ \beta_4 SM+ \beta_5 DPMM\&C+$

Where:

- PS=Dependent variable(Project Success)
- MPM=Multi Project Management
- OL=Organizational Learning
- MC = Monitoring and Control
- SM=Strategic Management
- DPMM&C=Development of Project Management Methodologies & Competence
- =Residual (error)

3.10. Ethical Considerations

The following activities were performed by the researcher to maintain high level of ethical and moral integrity. First, names and any identifying remarks were not filled during the course of administering the questionnaire. The confidentiality of the respondents' responses was maintained by the researcher who also refrained from making personal biases while evaluating data. Data analysis was performed merely based on the responses to the questionnaire. To this effect, the opinion of the researcher and inputs were not involved. Any result, analysis as well as interpretations and meaning arrived thereof are merely based on the gathered data.

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CHAPTER FOUR

DATA ANALYSIS, DISCUSSION AND PRESENTATION

This chapter deal with analysis, discussion and presentation of the data obtained through questionnaire. The results are depicted in the form of tables using descriptive and inferential statistical procedures. The data collected from Enterprise Project Management office (EPMO) of Ethiopian Water Work Design and Supervision Enterprise using questionnaires are presented and analyzed in this chapter. This section of the study deals with the statistical testing of hypothesis and interpretation of the result making use of SPSS version 23 software. The first part of the questionnaire is composed of five questions about the respondents' demographic facts. It involves information about participants' gender, age, background, educational year of experience, and other personal information. The demographic features of the respondents are shown in the table below. The extent of the project management office's role, as well as the success of the project responsible for testing hypothesis, was discussed in the second and third sections.

4.1. Survey response rate

As reflected in the previous chapters of this paper, questionnaire were designed and distributed to a total of 85 employees of the concerned target population. Accordingly, 66 questionnaires were appropriately filled and returned which gives a 77.6 % return rate that is assumed to be suitable for further analysis.

4.2. Demographic Profile of Respondents

A descriptive statistical method was employed to evaluate information on the respondents' gender, age, education level, years of service, and current role. As shown in Table 4.1, of the respondents 48 (72.7%) were male and the remaining 18 (27.3%) were females. With regard to respondents` age category frequency and percentage are respectively 25 (37.9%) of the respondents fall under the age category of 31-35. The next groups were frequency and percentage respectively 21 (31.8%) of respondents fall under the age category of 36-40 and the remaining group 18 (27.3%) were under the age categories of over 40. Table 4.1 demonstrates educational background of the

respondents. Accordingly, 57 (86.4%) of the total respondents were holders of MA/MSc and the rest 9 (13.6%) are holders of first degree.

Table 4.1: Summary of demographic information of the respondents

Variable	Category	Frequency	Percent
Gender	Male	48	72.7
	Female	18	27.3
	Total	66	100.0
Age	26-30	1	1.5
	31-35	25	37.9
	36-40	21	31.8
	over 40	19	28.8
	Total	66	100.0
Education	Bachelor's	9	13.6
	Master's	57	86.4
	Total	66	100.0
Service year	1-5 years	5	7.6
	6-10 years	7	10.6
	11-15 years	36	54.5
	greater than 16 years	18	27.3
	Total	66	100.0
Current role	Project manager	38	57.6
	Technical team leader	5	7.6
	Business team leader	8	12.1
	Technical team member	15	22.7
	Total	66	100.0

As shown in the above table, the first item in shows the service years of respondents. Accordingly, 5 (7.6%) of the respondents have year of service from 1-5 years, followed by 7 (10.6%) respondents with having length of service from 6-10 years. The remaining 36(54.5%) and 18 (27.3%) respondents belong to groups 11-15 years and

above 16 years respectively. Regarding the role of respondents 38 (57.6%) and 5 (7.6%) of them were working as project. Managers and Technical team leader personnel respectively and the remaining 8 (12.1%) and 15 (22.7%) fall under the category business team leader and Technical team member respectively.

4.2. Role of Project Management Office (PMO)

Respondents were asked to contribute their opinion concerning the role of PMO as well as its key elements such as; Multiple-project management ,Organizational learning, Monitoring and Controlling pr oject performance, Strategic Management, development of project management competencies and methodologies, Finally they were asked about the achievement of projects due to Project management office role. In line with this, respondents were asked to specify the degree to which they agree to the statements given with regarding the role of project management and achievement of projects. Response were measured using a Likert scale where options ranged from 1 to 5, with 1 representing 'strongly agree', 2=agree, 3=neither agree nor disagree, 4=disagree, and 5= strongly disagree.

PMO Role: the third variable in the questionnaire looked at the role of 'Monitoring and controlling role of PMO' in the Ethiopian Water Work Design and Supervision Enterprise, where the participants worked for. This variable was measured using four questions: (1) Report project status to upper management, (2) Monitor and control project performance, (3) Develop and maintain a project scoreboard. and (4) Implement and operate a project information system. Table 4.2 summarizes the descriptive statistics for these questions.

Participants response related to the role PMO of Monitoring and Controlling Project Performance in general shows agreement (M=1.87 and SD=0.51). Finally looked at the role of "Development of PM Competencies and Methodologies" the aspect measured using (1) Promote project management within the organization (2) Develop and implement a standard methodology (3) Provide a set of tools without an effort to standardize, (4) Develop competency of personnel, including organizing through training and mentoring for project managers and (5) Provide mentoring for project managers. Respondents response related to the role in general shows agreement (M=2.32, SD=0.74).

The first question in the variable is about Project management office role "Multi-Project Management". The dimension measured using five questions; (1) Identify, select, and prioritize new projects (2) Coordinate between projects (3) Manage one or more portfolios (4) Allocate resources between projects and (5) Manage one or more program The overall answer of the respondents related to multi-project management role agree (M=2.11, SD=0.58).

The fourth question deals with PMO role of "Strategic management", to assess the role the participants asked the following questions, (1) Participate in strategic planning (2), Provide advice to upper management (3) Manage benefits, and (4) Conduct networking and environmental scanning. The overall response of the participants shows agreement with (M=2.06, SD=0.90).

The second question in the variable, "Organizational Learning" role of PMO assessed using five questions; (1) Conduct post-project reviews 2) Monitor and control the performance of the PMO (3) Conduct project audit, (4)Manage archives of project documentation, (5) Implement and manage database of lessons learned. The overall answer of the respondent shows agreement of the role (Mean=2.12 and S.D=0.90).

Table 4.2: Descriptive outputs for role of Project Management Office

Project Management Office Role	N	Mean	Std. Deviation
Monitoring and Controlling Project Performance	66	1.87	0.51
Development of Project Management Competencies and Methodologies	66	2.32	0.74
Multi-Project Management	66	2.11	0.58
Strategic Management Role of PMO	66	2.06	0.90
Organizational Learning Role of PMO	66	2.12	0.90

4.4 Correlation and Regression Analysis

4.4.1 The Relationship between Project Success and project management office Roles

Pearson correlation was calculated to see the relationship between the dependent variable project success and 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. As can be seen from Table 4.3, all the independent variables showed positive correlation with the dependent variable. In their order of strength of relationship 'multi-project management' was strongly correlated to satisfaction with Pearson correlation coefficient r=0.686, p< 0.01, followed by 'Development of project management competencies and methodologies' with r= 0.669, p<0.01. Third was 'Organizational Learning' with r=0.613, p< 0.01.The fourth was Strategic management r =0.551, p< 0.01 and finally 'Monitoring and controlling' however had a moderate positive relationship r=0.447, p< 0.01.

Table 4.3: Pearson correlation between independent variables and projects success

Independent variables	Dependent variable	Correlation coefficient	Nature of correlation
Monitoring and controlling	Project success	0.447**	Positive, significant
PM competency and methodology	Project success	0.669**	Positive, significant
Multi-project management	Project success	0.686**	Positive, significant
Strategic management	Project success	0.551**	Positive, significant
Organizational learning	Project success	0.613**	Positive, significant
Independent Mean	Project success	0.698**	Positive, significant
** Significant at p<0.01			

4.4.2. Regression analysis and Hypotheses testing

A standard multiple regression analysis was conducted to evaluate how well the different elements of the PMO roles such as; development of project management methodologies and competencies, multi-project management, monitoring and control, strategy management and organizational learning determined on project success.

The model summary table shows the strength of the relationship between the model and the dependent variable. R, the multiple correlation coefficients, is the positive correlation between the observed and model-predicted values of the dependent variable. Its large value indicates a strong relationship. R^2, the coefficient of determination, is the squared value of the multiple correlation coefficient. It shows that 55.6% of the variation in project success is explained by PMO roles keeping other things constant. The adjusted R2 statistic penalizes models with a large number of parameters because it is a "corrected" R^2 statistic. The adjusted R^2 was 0.519, indicating that approximately 51.9% of the variance in success of project rated by participants can be accounted for by the linear PMO role. The remaining 48.1% of the variation in project success may be explained by other factors that were not considered in this model.

Table 4.4: Regression analysis and Hypotheses testing

Hypotheses	**Regression weight**	**B**	**t**	**p-value**	**Hypothesis supported**
H_{1a}	MPM → PS	0.352	2.517	0.015*	Yes
H_{1b}	OL → PS	0.006	0.053	0.958**	No
H_{1c}	MC → PS	0.155	1.336	0.187**	No
H_{1d}	SM → PS	-0.040	-0.396	0.694**	No
H_{1e}	DPMCM → PS	0.290	2.652	0.010*	Yes
$R=0.746$, $R^2=0.556$, Adjusted $R^2=0.519$, $\beta_o=0.552$					
$F(5,60)=15.018$, with $p<0.01$					
*=> $p<0.05$, **=> $p>0.05$					
MPM=Multi-project management, OLR=Organizational learning role, MC=Monitoring and control					
SM=Strategic management, DPMCM= Development of project management competencies and methodologies					
Other outputs from the regression analysis are given in the annex-II					

Hypothesis testing is a vital part of the scientific study technic, which is a systematic approach to evaluate theories through survey. A good theory is one that can make exact predictions. For an analyst who makes predictions, hypothesis testing is a rigorous way of backing up his forecast with statistical analysis. The multiple linear regression analysis method was utilized to test research hypotheses. To practice regression analysis, the multi-collinearity and linearity requirements were met according to (Hair *et al*., 2010) guidelines.

4.4.2.1 PMO role of multi-project management and project success

The regression coefficient for the PMO role of the multi-project management predictor was found to have values of t=2.517, β=0.352, and p=0.015. This predictor is significant, and hence the hypothesis (H1a) is supported. Accordingly, as per the participants rating of the PMO role, a one unit increase in multi-project management would improve the 'Success of project' by 0.352. Coordinating activities between projects, identifying, selecting, , prioritizing new projects, manage one or more portfolios, manage one or more programs and projects, allocation of resources between projects has positive impact on project success in study organization. Given that the result was statistically significant ($p<0.05$), the hypothesis H_{1a} is accepted.

4.4.2.2 PMO role of organizational learning and project success

Regarding the hypothesis about "organizational learning" it has an insignificant but positive effect on project success. The regression coefficient for the PMO role of the organizational learning predictor was found to have values of t=0.053, β=0.006, and p=0.958. The values indicated that this predictor is insignificant. Hence, H_{1b} is rejected. The finding indicates a 0.006 increase in project success with one unit increase in organization learning, keeping other factors constant.

4.4.2.3 Project Management Office role of Monitoring and Controlling Project Performance with Project Success

Based on significance of each PMO role as interpreted from the generated results of the regression coefficients, the PMO role of monitoring and controlling project performance has positive but statistically insignificant effect on project success (t=1.336, β=0.15, p>0.05). Thus, this predictor was insignificant and the hypothesis (H_{1c}) was not supported. The research verified that reporting project status to higher

management, monitoring and regulating project accomplishment, operating and implementing ope rating a project information system, and maintaining and developing a project scoreboard are all important aspects of the PMO office at Ethiopian Water Work Design and Supervision Enterprise. Thus, a one-unit change in monitoring and controlling project performance results in a 0.155 unit change in project success in the positive direction holding other variables constant.

4.4.2.4 PMO role of strategic management and project success

For hypothesis four, "strategic management" explained -0.040 percent variance project success (standardized β=-.040). This finding indicated that "strategic management" dimension has a negative and insignificant effect on project success. Thus, H_{1d} is rejected. Accordingly, as per the participants rating, a one unit increase in strategic management would diminish the project success by 0.040.

4.4.2.5 Project Management Office role of Development of Competencies and Methodologies and project success

The findings of "development of PM competencies and methodology" had a positive effect on project success. The result also indicates a 0.290 increase in project success results from a unit change project management competencies and methodology. Growth and executing a standard methodology, promotion of PM within the company, growth of capability through mentoring and training for project managers, contributing a set of tools has positive effect on project achievement in study organization. The regression coefficient of the PMO role of development of project management competencies and methodologies was found to have values of t=2.652, β= 0.290, and p<0.05. This means the predictor had significant influence on project success and the hypothesis H_{1e} is accepted.

To summarize on the findings, the multiple linear regressions have shown that the independent variables multi-project management and development of competencies and methodologies of talent were having statistically significant influence ($p<0.05$) on project success. On the other hand monitoring and controlling, strategic management and organizational learning were not having a statistically significant influence ($p>0.05$) on project success. After replacing the coefficients obtained in the study for

the general critical regression model variables, the regression equation becomes as shown here under;

PS=0.552+0.352*MPM+0.006*OLR+0.155*MC-0.04*SM+0.290*DPMC&M+ε

Further on Diagnostic Tests

To test model stability tests such as assumptions of normality, linearity Autocorrelation test, homoskedasticity ,hetroskedasticity, , and absence of multicollinearity conducted.

First, the assumption of normality checked. In order that make proven reasoning from the regression, the errors of the regression should follow a normal spread. The errors are simply the residuals terms, or the differences between the predicted value and the observed value of the dependent variable. If we investigate a normal Predicted Probability (P-P) plot on (Annex II) section, we can see that the errors are normally spread. Autocorrelation assumption describes, autocorrelation exists if resudals in one time period are related to residuals in another period. With regard to this scale of the Durbin Watson statistics (1950) accepted between 1.5 to 2.5.So the result of the study showed 2.36. Details are given on Annex II (Table 4.5).

The next assumption of homoscedasticity checked. Considering that scatterplot of the errors (Annex II) ideally, looks like you shot it out of a shotgun—it does not have a clear pattern, there are points equally distributed below and above zero on the Y axis and to the left and right of zero on the X axis.

Multicollinearity appears when independent variables in a regression model are correlated. The condition of multicollinearity is tested using VIF. A VIF supply a measure of multicollinearity among the independent variables in a multiple regression model. A VIF result of regression analysis was found between 1 and 4. So there is no correlation among the independent variables. Summary of multicollinearity test were presented on table 4.7 (Annex II).

Linearity means that the independent variables in the regression have a straight-line relationship with the outcome variable. From Anova table (Annex II) the test for linearity has a significance value (p=0.000) smaller than 0.05, indicating that there is a linear relationship between project success and PMO.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summaries of the findings, conclusions derived from the analysis and the recommendations that are suggested that will help to improve project success at: Water Works Design and Supervision Enterprise.

5.1. Summary of Major Findings

The objective of any Project Management Office is to build a model that will aid all stakeholders and project teams in increasing the likelihood of a successful delivery. An organization initiate on a project with the objective of achieving a specific result. This requires the expenditure of costly resources (time, money, people). If the Project Management Office does not increase the Opportunity of a successful project delivery, it is not doing its job.

The PMO unit could add the value provided by the regression analysis to its host organization, which was equal to 0.556, based on the potential correlations between independent and dependent variables. This figure indicates that various PMO role can account for 55.6 percent of the organization's project success.

The PMO role of Multi-project management (MPM) gained the coefficient value of (0.352) indicating that it has a considerable impact on project success. This PMO role is responsible for a Coordinate between projects. Identify, select, and prioritize new projects. Manage one or more portfolios. Manage one or more programs. And Allocate resources between project success on study organization

The key PMO role of Multi-project management (MPM) dimension identified as a prime factor on affecting project success. Multi-project management (MPM) explained 35.2 percent of project success. The finding also indicated that Development of project management competencies and methodologies (DPMCM) dimension has significant effect on project success. Thus, **H_{1a} and H_{1e}** are accepted. Unlike the rest of dimensions are organizational learning, strategic management and monitoring and controlling has insignificant on project success respectively.

The respondents' response shows that PMO role of strategic management has negative effect on project success. Hence, $\mathbf{H_{1d}}$ is rejected. Participants pointed out that having Provide advice to upper management. Participate in strategic planning.

Manage benefits. Conduct networking and environmental scanning not have positive effect on current project success. Furthermore, participants of study organization responded that organization learning and monitoring and controlling have insignificant impact on project success.

5.2. Conclusion

The major objective of this study was to assess the role of Ethiopia water work designed and supervision enterprise project management office (PMO) in project success. Out of 85 participants only 66 people responded and returned their questionnaires, resulting in a response rate of 77.65 %. Participants of different ages, educational backgrounds, and years of service were polled. The background of respondents revealed that the bulk of the total respondents 48 (72.2 %) are male, while the remaining 18 (27.3 %) are female. When it comes to age, the majority of responders are between the ages of 31 and 35, indicating that they are mature enough to supply accurate data. The majority of the employee sample group, 25 in total, was MA/MSC holders, accounting for 57 % of the total employee participants in this study. Also, the majority of respondents have working experience ranging from 11 to 15 years, with a total of 36 representing 54.5 % of the employee participants in this study, and 7 (10.6 %) of the respondents having experience ranging from six to ten years, and the remaining 5 (7.6 %) having working between 1 to 5 years, and 18 (27.3 %) of respondents have experience spanning more than 16 years in the organization. In terms of current role of job positions 15 (22.7%) of respondents were in technical team member, 38 (57.6 %) were Project Managers, 8 (12.1 %) were business team leader, and the remaining 5(3%) were technical team leaders.

The levels of association between the independent (PMO role) and dependent variables (project success) is determined using the correlation analysis output. PMO role of Monitoring and controlling, PM competency and methodology, Multi-project management, Strategic management and Organizational learning strongly related to project success ($r=0.447$, $r=0.669$, $r=0.686$, $r=0.551$, $r=0.613$, respectively, all with $p<0.01$). This signifies that stated variables move in the same direction. The result of regression analysis demonstrated existence of positive and significant relationship between multiple project management and development project management competence and methodologies with project success. On the other hand, insignificant relationship exists among monitoring and controlling, strategic management and organizational learning with project success. The findings show that when developing competence of personnel with organizing mentoring for project manager besides

implementing standard methodology and finally allocate resource are used more effectively in a multi-project environment will influence project success positively and significantly. In general, projects that are not managed by a well-established project management office are more likely to fail. Many projects are successful because of good project management office.

A well-functioning project management office is an essential component of successful project delivery.

5.3. Recommendations

Based on the result of the study and the literature, the following recommendations are made:

- PMO roles of multiple project management role holding a multiple project management role within a PMO can be highly beneficial for an organization, further improved through using resource allocation, standardization of project management processes across various project and allows for centralized oversight. And coordinate among project.
- PMO roles of development of project management competencies and methodologies further improved through foster a culture of continuous learning and improvement, leading to the development of robust project management competencies and methodologies by using project management software.
- PMO roles of Strategic Management to address this weakness, PMO can implement a strategy alignment framework that ensures project are directly contributing to the organization an improved by employing the following method; associate commercial strategy to projects and programs and incorporate PMO on Strategic Management.
- PMO role of Monitoring and Controlling of project performance in the PMO,EWWD& SE consider and implementing ,encouraging a culture of continuous improvement within the PMO by conducting post project review ,lesson learned and implementing feedback mechanism from stockholders by in comparting these strategies they can enhance monitoring and control aspects of the PMO role to drive better project performance and ensure that project stay on track and deliver value to stakeholders,
- PMO role of Organization Learning the PMO could implement knowledge management platform where project team can document their experience, challenge and success. Regular knowledge sharing session could also be organized to facilitate cross team learning and collaboration. In addition, establishing mentorship programs with the PMO can help foster knowledge transfer and skill development among team member.
- PMO of the WWDSEE must be dynamic, not static, and proactive, rather than reactive. PMO of water work can achieve this position by aligning projects with

organizational strategy. Clarify project activity, and providing to a cooperative culture within your organization and with its customers.

- To make better decisions for future projects water work should have a repository of standard operating procedures templates and procedures. By sharing lessons learned as best practices for future projects, project managers can be more successful and the organization can accomplish better results.
- PMO of the Water Works Design and Supervision Enterprise should concentrate on the most effective role (multiple-project management, and development of project management competencies and methodologies), as these aspect may empower project management office to make best use of their resources while supporting projects.
- Since only 55.6 variations in project in project success explained by PMO role dimensions adapted for the study. As a result, more research should be done on the whole industry wide practice, taking into account the numerous private water work design.

5.4. Research limitations and directions for further research

The research focused only on PMO role with five dimensions, furthermore the structure of the organization as well as maturity level of the PMO were not included in the study. Thus, further research should be required through inclusion of the aforementioned variables since they are believed to have influence on the achievement of project success. Further in-depth research should be done on different types of PMOs in various organizational contexts and using retrospective and longitudinal studies would provide more insights and practical guidance on how to design, organize, and sustain a PMO that contributes significantly to project success.

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Appendix

Addis Ababa University

College Of Business and Economics

School of Commerce MA Program in Project Management

Department of Business Administration & Information System

This questionnaire is intended to collect primary data to be used for thesis entitled "The Role of Project Management Office in Achievement of Project Success: In case of Ethiopian Water Work Design and Supervision Enterprise under Ethiopian Construction Design and Supervision Works Corporation (ECDSWCO)" in partial fulfillment of requirement for Masters of Arts Degree in Project Management. Therefore, your participation in giving reliable information is important for the success of this study. So, I respectfully request your kind cooperation in answering the questions as clearly as possible. I would like to assure you that the information you provide will be used for academic purpose only and all responses will be treated in strict confidentiality.

Note:

- Please encircle in the number in the box to the point which highly reflect your idea;
- Your honest and unbiased response will greatly contribute for the research to achieve its objective and there is no need to write your name.

Thank you very much, in advance, for your sincere cooperation. If you have any comment and questions you can contact me through the following address; **Tesfaye Berhanu (+251-973857607) (Sadortesfaye21@gmail.com).**

Thank you for agreeing to complete this questionnaire!

Part I: Demographic information

1. Gender	☐	Male	☐	Female		
2. Age	☐	18- 25	☐	26-30	☐	31-35
	☐	36-40	☐	Over 40		
3.Educational Level	☐	Diploma	☐	Bachelors	☐	Masters
	☐	PhD	☐	Others_____		
4.Years of Service	☐	< 1 year	☐	1-5 years	☐	6-10 years
	☐	11-15 years	☐	> 16 years		
5.Your Current Role	☐	Project Manager	☐	Technical Team Leader	☐	Business Team Leader
	☐	Technical Team Member	☐	Business Team Member	☐	Other_____

Part II: 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.

Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
5	4	3	2	1

1. Questions Related with Monitoring and Controlling of PMO on Project Performance

1.	Report project status to upper management.	5	4	3	2	1
2.	Monitor and control project performance.	5	4	3	2	1
3.	Implement and operate a project information system.	5	4	3	2	1
4.	Develop and maintain a project scoreboard.	5	4	3	2	1

2. Development of Project Management Competencies and Methodologies

1.	Develop and implement a standard methodology.	5	4	3	2	1
2.	Promote project management within the organization.	5	4	3	2	1
3.	Develop competency of personnel, including organizing through training and mentoring for project managers.	5	4	3	2	1
4.	Provide a set of tools without an effort to standardize.	5	4	3	2	1
5.	Provide mentoring for project managers					

3. Questions Related to Multi-Project Management Role of PMO

1.	Coordinate between projects.	5	4	3	2	1
2.	Identify, select, and prioritize new projects.	5	4	3	2	1
3.	Manage one or more portfolios.	5	4	3	2	1
4.	Manage one or more programs.	5	4	3	2	1
5.	Allocate resources between projects.	5	4	3	2	1

4. Questions related to Strategic Management Role of PMO

1.	Provide advice to upper management.	5	4	3	2	1
2.	Participate in strategic planning.	5	4	3	2	1
3.	Manage benefits.	5	4	3	2	1
4.	Conduct networking and environmental scanning.	5	4	3	2	1

5. Questions Related to Organizational Learning Role of PMO

1.	Monitor and control the performance of the PMO.	5	4	3	2	1
2.	Manage archives of project documentation.	5	4	3	2	1
3.	Conduct post-project reviews.	5	4	3	2	1
4.	Conduct project audits.	5	4	3	2	1
5.	Implement and manage database of lessons learned.	5	4	3	2	1

Part III: Project Success Related Questions

Dear Respondent, please kindly evaluate the effectiveness of each criterion that could be used in the measurement of a success of a project in your organization.

1. Questions Related to Project efficiency

1.	Projects meet their schedule objectives	5	4	3	2	1
2.	Projects stay within budget limits	5	4	3	2	1
3.	Projects stay within specified scope	5	4	3	2	1

2. Questions Related to Impact on a customer

1.	The project meets functional performance	5	4	3	2	1
2.	The project meets technical specification	5	4	3	2	1
3.	The project fulfils customer needs	5	4	3	2	1
4.	The project solves customer problem	5	4	3	2	1
5.	The customer is using the product and get satisfaction from the product	5	4	3	2	1

3. Questions Related to Impact on the Team

1.	The level of growth and learning achieved by the team	5	4	3	2	1
2.	Newly acquired skills by the team members	5	4	3	2	1
3.	New management and professional capabilities attained by the team	5	4	3	2	1
4.	Overall team loyalty with organization and team member retention after the completion of the project	5	4	3	2	1

4. Questions Related to Business and Direct Organizational Success

1.	The project Commercial success	5	4	3	2	1
2.	Creating a large market share	5	4	3	2	1
3.	Service Quality	5	4	3	2	1
4.	The project solves customer problem	5	4	3	2	1

5. Questions Related to Preparing for the future

1.	Creating a new market	5	4	3	2	1
2.	Creating a new product line	5	4	3	2	1
3.	Developing a new technology	5	4	3	2	1
4.	Developing a new core competencies and organizational capabilities	5	4	3	2	1

Thank you for responding!

Annex II

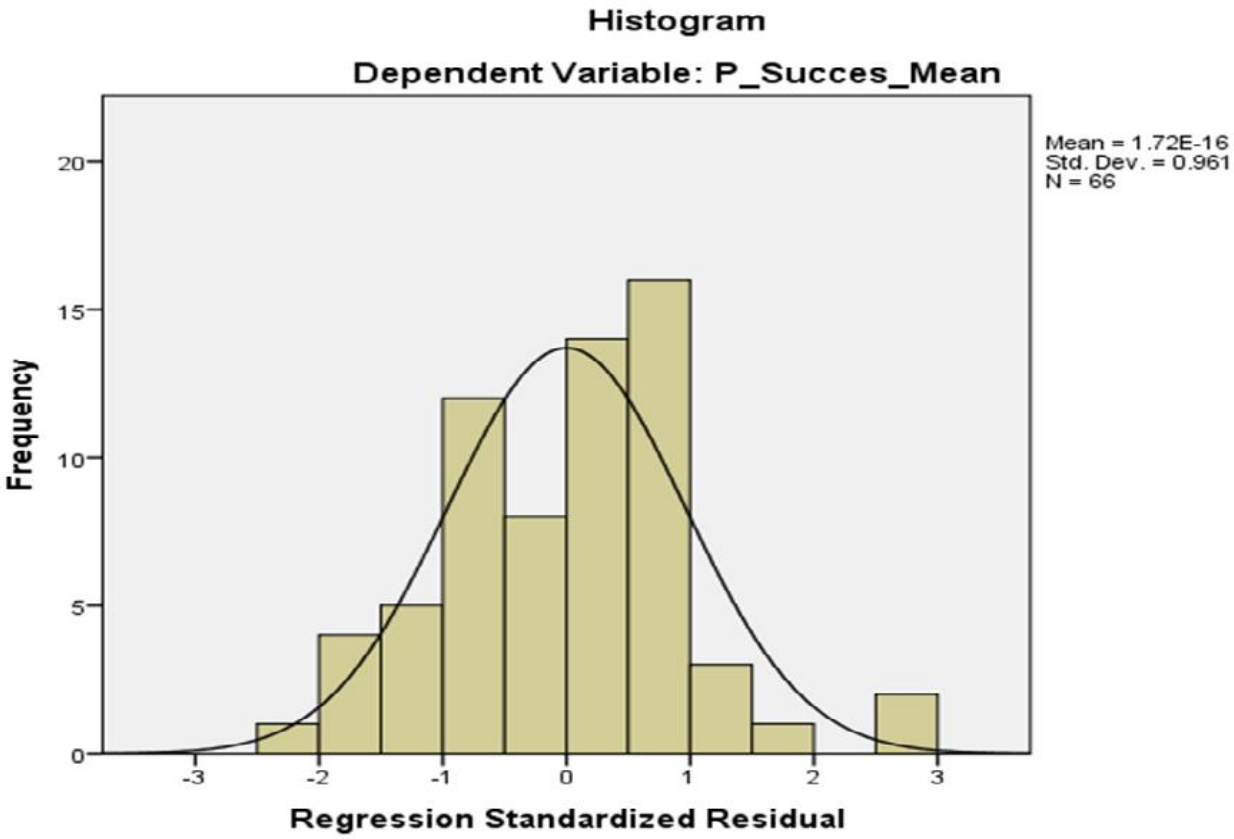
Regression outputs for the current study

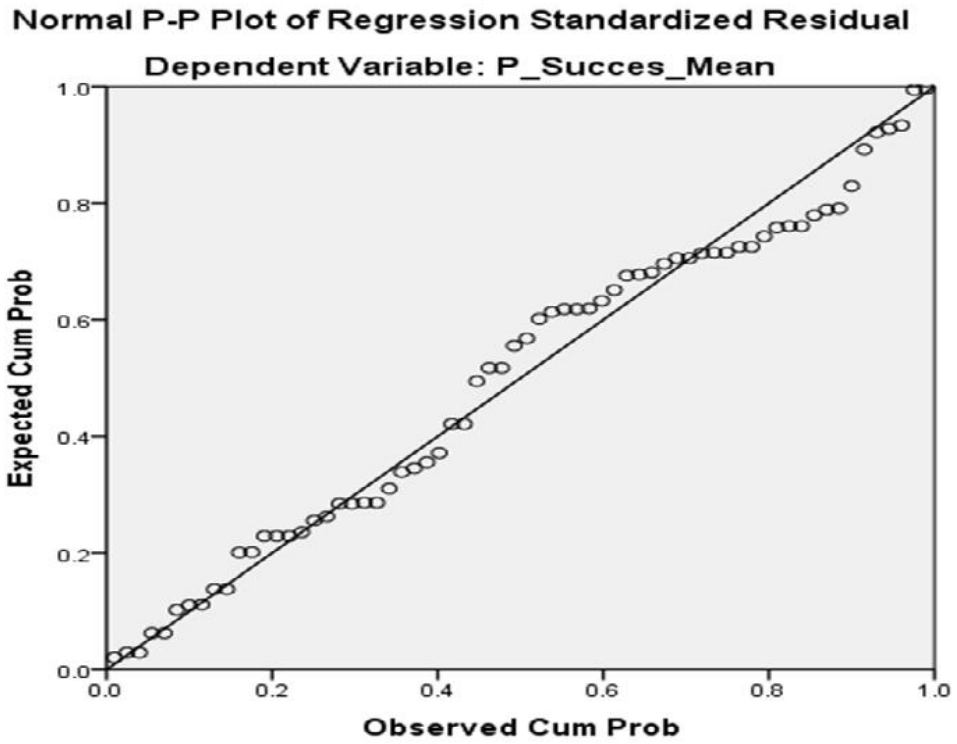
Model Summary[b]

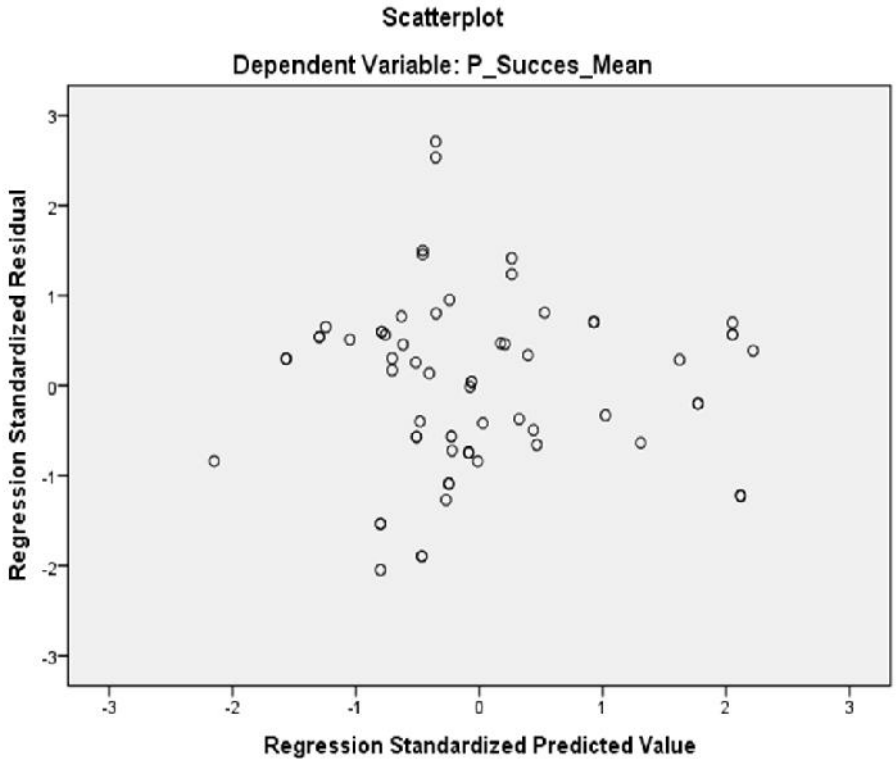
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.746[a]	.556	.519	.37777	2.363

a. Predictors: (Constant), Org_learnMean, MonandConMean, MultiP_Mean, ManandConMean, Strategic_Mean

b. Dependent Variable: P_Succes_Mean




Normal P-P Plot of Regression Standardized Residual
Dependent Variable: P_Succes_Mean
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0


Scatterplot
Dependent Variable: P_Succes_Mean
Regression Standardized Residual
Regression Standardized Predicted Value
-3
-2
-1
0
1
2
3