ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

ASSESSMENT OF PROJECT COST MANAGEMENT ON THE OVERALL SUCCESS OF PROJECT MANAGEMENT: THE CASE OF SUZO INDUSTRIES

BY

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MAY, 2019

ADDIS ABABA, ETHIOPIA

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This is to certify that the thesis prepared by Samrawit Legesse Debela entitled: **"Assessment of Project Cost Management On the Overall Success Of Project Management: The Case Of Suzo Industries**"and submitted in partial fulfillment of the requirements for degree of masters of project management complies the regulations of the university and meets the standards with respect to originality and quality.

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DECLARATION

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

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St. Mary's University, Addis Ababa **May, 2019**

ENDORSMENT

This thesis has been submitted to St. Mary University, school of graduate studies for examination with my approval as a University advisor.

Dr. Dereje Teklemariam (Assoc. Professor)

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Signature

St. Mary's University, Addis Ababa **May, 2019**

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Acronyms

PMI Project Management Institute

WBS Work Breakdown Structure

PM4DEV Project Management for Development Organization

IBM SPSS International Business Machines Statistical Package for the Social Sciences

PMBOK Project Management Body of Knowledge

SMT Senior Management Team

Abstract

Project is a series of activities aimed at bringing about clearly specified objectives within a defined time and with a defined budget. To say one project is successful, the project must have done as per agreed quality, completed with approved time and most importantly completed with approved budget (cost). Furthermore, Project Cost (Budget) Management is one of the three main points that affects the project success or failure. A successful project manager needs to give his attention to managing project cost. Because it is not possible to be successful for a project manager without managing the project cost properly. Therefore, the main objective of this project work is evaluate the Effect of Project Cost Management on the Overall Success of Project Management: in the Case of Suzo industries expansion project. The researcher employed a quantitative approach to investigate the problem under study. The data were collected from project personnel's in Suzo industries. The collected data analyzed by using IBM SPSS statistics 20. The results indicate that, resource-planning, Cost estimating, cost budgeting and cost control practices. And the result reviled that project cost management has an impact on the overall success of project management, since all of those components of project cost management has significant association with the dependent variable overall success of project management.

Key Words: Project; Project cost; Project cost management, cost overrun

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

A project is a temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates that a project has a definite beginning and end. The end is reached when the project's objectives have been achieved or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists. A project may also be terminated if the client (customer, sponsor, or champion) wishes to terminate the project. Temporary does not necessarily mean the duration of the project is short. It refers to the project's engagement and its longevity. Temporary does not typically apply to the product, service, or result created by the project; most projects are undertaken to create a lasting outcome. For example, a project to build a national monument will create a result expected to last for centuries. Projects can also have social, economic, and environmental impacts that far outlive the projects themselves (PMI, 2013).

Project cost management includes the processes required to ensure that the project is completed within an approved budget. Project Cost Management is defined in the PMI (1999) as "the processes involved in planning, estimating, budgeting, and controlling costs so that the project can be completed within the approved budget." A holistic approach to managing project costs is later identified in the PMBOK as life-cycle costing. This is an approach that focuses not only on the elements needed to have project resources complete scheduled tasks, but overall project decisions made that may affect costs as well. This paper evaluates tools and techniques from the perspective of life-cycle costing (PMI, 2013).

The Project Cost Control Tools & Techniques elements adapted from the PMBOK are Estimating, Budgeting, and Controlling. Cost Estimating is developing estimates and measurement for the costs needed for a resource to complete the project tasks and activities. Cost Budgeting is collecting the cost estimates, combining them to develop an overall cost and baseline. Cost Controlling is managing and controlling factors that change or affect the budget (PMI, 2013).

In many organizations, predicting and analyzing the prospective financial performance of the project's product is performed outside of the project. In others, such as a capital facilities project, Project Cost Management can include this work. When such predictions and analyses are included, Project Cost Management may address additional processes and numerous general financial management techniques such as return on investment, discounted cash flow, and investment payback analysis. The cost management planning effort occurs early in project planning and sets the framework for each of the cost management processes so that performance of the processes will be efficient and coordinated (PMI, 2013).

The fundamental role of a project manager is to meet the cost, time, performance and quality goals of the project. In a recent Standish group report IT projects continue to struggle, with only 29 percent completed on time, 18 percent failed or terminated, and 53 percent behind schedule and over budget. As per Johnson & et al (2006), Effective Cost Management is essential to effective Project Management. "Increasingly keen competition and the demand for shorter times to market are driving innovative approaches within the product creation process key opportunities for future improvements originate in initiatives that span both the process and technology environments" (Layer & et al 2002). It could be argued that the probability of greater success is quite low without the proper tools in place to control costs.

The current research work is aimed at assessing the effect of project cost management on the success of project accomplishment with respect to Suzo Industrial plc Gelan expansion project.

Suzo Industry is a paper recycling company in Ethiopia. It was established in 2008. On March 2011, the company commenced with the production 5 tons of paper raw materials per day and started supplying these raw materials to 16 paper converting companies in Ethiopia. Since the company recycles discarded paper materials such as old newspapers and magazines, it has saved millions of hard currencies that would otherwise have been used to import raw materials. This indicates the contribution of the company for the national economy. Thus, the study aims to investigate Cost management practice components which significantly affect project success. The company has been operating by a total of 62 permanent and 35 contract employees. The company's objective is to recycle paper product and produce different type of sanitary napkins for the domestic market. The expansion project is attempted to scale up the industry by introducing modern technology and improve the quality as well as volume of production in order appear competitive in the market.

1.2 Statement of the Problem

The success or failure of any Project is evaluated in terms of planning, budgeting, implementing and monitoring tools used in the process. These variables are assumed to determine the quality of implementation and efficiency project management. The cost aspect of any project which requires effective budgeting and cost management are key indicators for project success. Despite this fact, literature shows that more emphasis is given for project budget disbursement and execution of planned activity than the concern for cost management and budget utilization efficiency. This hence, gives importance to address the cost management practices in project implementation.

The question of whether a project is completed within a given time and capital resource is what is hypothesized to determine project success. According to PMI (1999), it was stated that with the concern for quality, time and budget, there are factors that affect the success of a project. To ensure this, a balance between managing cost, time and quality has to be maintained.

The lack of a cost management system can affect profits and business processes of the projects and implementing appropriate cost control help us to improve the project success (Mario and Amanda, 2016). As a result, managing the project cost will affect project success or failure as per Aftab & et al (2012), Time and cost performance is the fundamental criteria for success of any project. This shows that cost management is one of the basic criteria for project success. As per PMI, (1999), Project Cost (Budget) Management is one of the three main points that affects the project success or failure. The successful project manager needs to give his attention to managing project cost. Because it is not possible to be successful for a project manager without managing the project cost properly. Angelo and Reina (2002) stated that the problem of cost overruns is critical needs to be studied more to alleviate this issue in the future.

Considering the theoretical understanding of Project cost management as it implies the processes involved in planning, estimating, budgeting, and controlling costs, many companies gets ignorant of the related factors and focus on specific issues in the process. With this notion, the current study is proposed to evaluate the efficiency in project cost management & its associated impact on the overall success of the project in SUZO industries, as a case in point.

1.3Research Questions

The study was guided by the following key research questions:

- How project cost estimated and managed in SUZO industries?
- What project cost management practice components significantly affect project success?
- What essential procedures are required to improve project cost management practices in Suzo?

1.4Research Objective

1.4.1 General objective

The overall aim of the study was to assess the major cost management practices and its effect on the success of a project in Suzo Industry.

1.4.2 Specific Objectives

The Specific Objectives of the research are;

- To explore techniques and tools executed for estimating and managing cost used in SUZO industries.
- To investigate components of project cost management which significantly affect project success
- To verify essential procedures required to improve project cost management practices

1.6 Significance of the Study

This study identified practices in PCM including its strength and weaknesses in view of the success of a project. The research can show the successful practical implementation of Project Cost Management for all related authorities and decision makers, project managers, shareholders, project management team and project evaluators. The findings of this research are also expected to pave the way for further research in project cost management and project performance evaluation. It is worth stating that, the research in no doubt contributes to the body of knowledge in the field of planning and management of projects.

1.7 Scope of the Study

Project cost management is a wider concept that has multifaceted application in business management. It implies a careful allocation and budgeting of resource for implementation of a given project. Despite the scope of the concept and its application, the current research was limited to assessing the effect of proper cost management practices on the success of a project. An extended study on various industries enables to capture solid effect of the project cost management, but due to time and related resources, the current research is focused on the case of Suzo industry expansion project based in Galan. Operationally, the study was also restricted to selected but key management functions in the industry. This includes, cost planning, cost estimating, budgeting and controlling. Within this domain, the study will not address on the effect of other factors which affect project cost management, and hence project success. Furthermore, those factors that affect the success of project management like time & quality are not part of this project work.

1.8 Limitation of the study

Due to time and many constraints this study only focused on resource planning, cost estimating, cost budgeting and cost control that affected success of project management (budget, time, quality).

1.9 Organization of the Research Report

This project work was organized in five chapters. Chapter one deal with the introduction of research which consists of background of the project work, statement of the problem, research questions, objective of the research, significance of the project work, scope of the project work, and limitation of the project work. Chapter two is discussing the literature review related to the study. In the third chapter, the research methodology of the study is deliberated. Chapter four includes data result and analysis. The last Chapter discusses conclusion and recommendation.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Theoretical Review

2.1.1 Project Management

As per the definition by PMI (2013), Project management is the application of knowledge, skills, tools, and techniques to project activities to meet or exceed stakeholder needs and expectations from a project. Meeting or exceeding stakeholder needs, and expectations invariably involves balancing competing demands among; Scope, time, cost, and quality. Project management is the application of processes, methods, knowledge, skills and experience to achieve the project objectives.

The term project management is sometimes used to describe an organizational approach to the management of ongoing operations. This approach, more properly called management by projects, treats many aspects of ongoing operations as projects in order to apply project management to them. Although an understanding of project management is obviously critical to an organization that is managing by projects, a detailed discussion of the approach itself is outside the scope of this document (PMI 1999).

In many organizations, predicting and analyzing the prospective financial performance of the project's product is performed outside of the project. In others, such as a capital facilities project, Project Cost Management can include this work. When such predictions and analyses are included, Project Cost Management may address additional processes and numerous general financial management techniques such as return on investment, discounted cash flow, and investment payback analysis.

Organizations use governance to establish strategic direction and performance parameters. The strategic direction provides the purpose, expectations, goals, and actions necessary to guide business pursuit and is aligned with business objectives. Project management activities should be aligned with top-level business direction, and if there is a change, then project objectives need to be realigned. In a project environment, changes to project objectives affect project efficiency and success. When the business alignment for a project is constant, the chance for project success greatly increases because the project remains aligned with the

strategic direction of the organization. Should something change, projects should change accordingly PMI (2013).

The subject of management is not new. However, the pursuit through processes, tools, and techniques of effective ways of managing businesses and projects remains ongoing in the private and public sectors. The search for a better approach of managing business motivated the founders of management as a discipline, including Frederick Taylor (principles of scientific management) and Peter Drucker (inventor of modern management), to shape and chart the course of management history and the emergence of modern project management.

According to Kerzner (2009), a project can be considered to be any series of activities and tasks that have a specific objective to be completed within certain specifications, have define start and end dates, have funding limits (if applicable), consume human and non-human resources (i.e. money, people, equipment), are multifunctional (i.e. cut across several functional lines).As Besner and Hobbs (2006) contended, proven principles and an emphasis on the benefits of standard processes and measured performance have spawned project management's most used tool. The theory of scientific management, as Taylor (1998, 2007) asserted, is to (a) discover the one right way to implement job activities, (b) define clearly the roles and responsibilities for each member of staff, (c) personally direct personnel and motivate the workforce through the mechanism of reward and punishment, and (d) manage activities through effective planning and control system. Cooper and Taylor (2000) and Hough and White (2001) argued that the principal objective of management should be to secure maximum prosperity for the employer and each employee through effective management practices.

Although Taylor's (1998, 2007) theory is true from the human element perspective, Drucker (1954), from the perspective of the discipline of modern management practices, defined management as an organized body of knowledge, a practice rather than a science that is based on knowledge and responsibility. Drucker's five management practices can effectively enhance project success: effective time management; strategic decisions as to what contributes to the growth of the practical organization; knowledge and understanding of where and how to mobilize strength for best results; the right priorities; and linkage of all of the management variables to effective decision Project practitioners have entrenched the core principles of scientific management (Buunk & Gibbons, 2007), namely, bench marking, process design, and work out; Drucker's modern management principles of effective knowledge work systems

(Eschenbach, 2010; Kozak et al., 2003); the development of institutionalized innovations (Wallman, 2010); and the ability to be stakeholder focused (Barwise & Meehan, 2010), into the practice of project management.

2.1.1 Project Cost Management

Project Cost Management is primarily concerned with the cost of the resources needed to complete project activities. Project Cost Management should also consider the effect of project decisions on the subsequent recurring cost of using, maintaining, and supporting the product, service, or result of the project. For example, limiting the number of design reviews can reduce the cost of the project but could increase the resulting product's operating costs PMI (2013).

As per described in PMI (1999), Project Cost Management includes the processes required to ensure that the project is completed within the approved budget. Project Cost Management has four components:

- Resource Planning: determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities.
- Cost Estimating: developing an approximation (estimate) of the costs of the resources needed to complete project activities.
- Cost Budgeting: allocating the overall cost estimate to individual work items.
- Cost Control: controlling changes to the project budget.

These processes interact with each other and with the processes in the other knowledge areas as well. Each process may involve effort from one or more individuals or groups of individuals based on the needs of the project. Each process generally occurs at least once in every project phase. Although the processes are presented here as discrete elements with well-defined interfaces, in practice they may overlap and interact in ways not detailed here. Project cost management is primarily concerned with the cost of the resources needed to complete project activities.

However, project cost management should also consider the effect of project decisions on the cost of using the project product. For example, limiting the number of design reviews may reduce the cost of the project at the expense of an increase in the customer's operating costs. This broader view of project cost management is often called life-cycle costing.

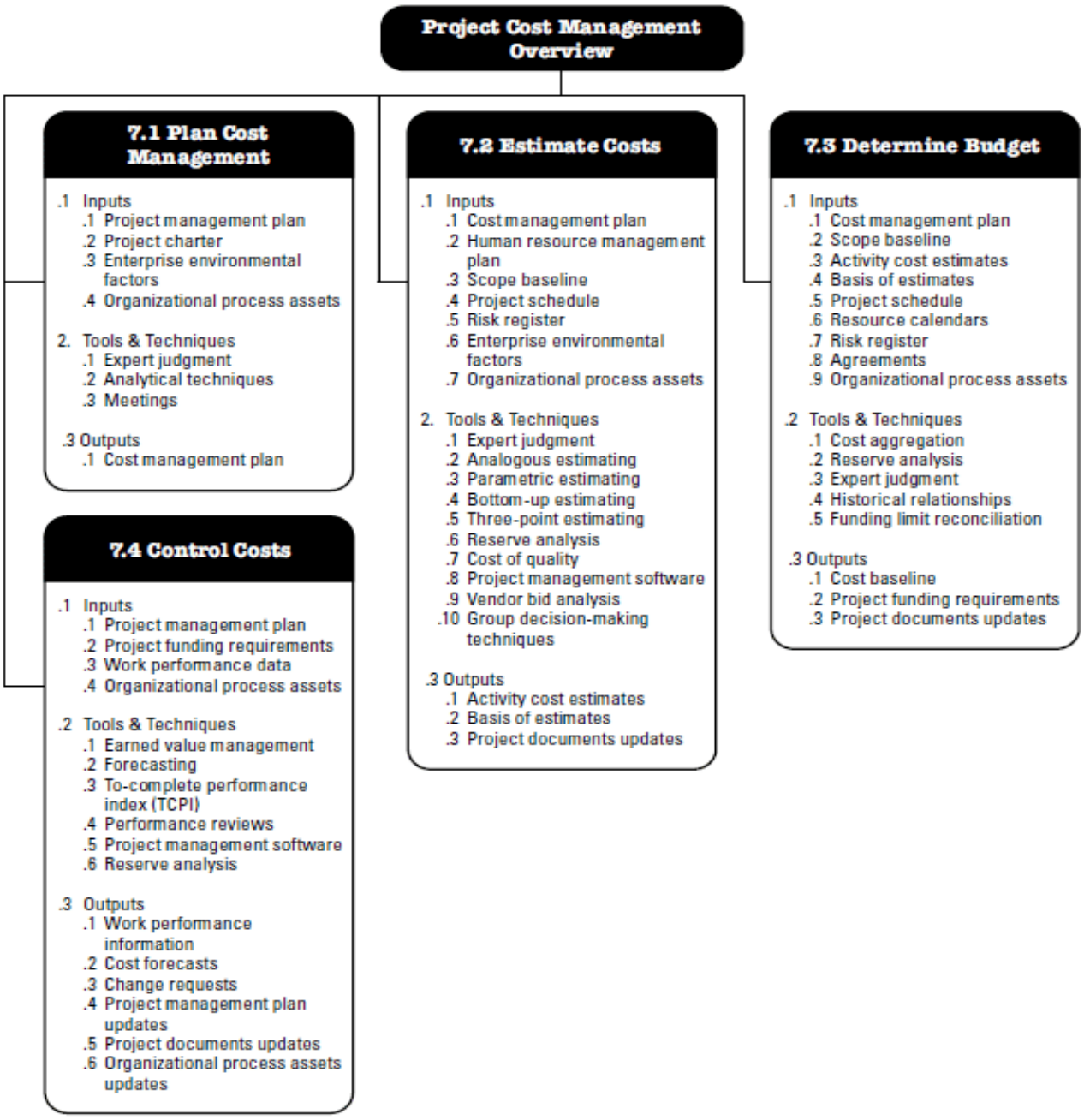
In many application areas predicting and analyzing the prospective financial performance of the project product is done outside the project. In others (e.g., capital facilities projects), project cost management also includes this work. When such predictions and analysis are included, project cost management will include additional processes and numerous general management techniques such as return on investment, discounted cash flow, payback analysis, and others.

Project cost management should consider the information needs of the project stakeholders' different stakeholders may measure project costs in different ways and at different times. For example, the cost of a procurement item may be measured when committed, ordered, delivered, incurred, or recorded for accounting purposes. When project costs are used as a component of a reward and recognition system, controllable and uncontrollable costs should be estimated and budgeted separately to ensure that rewards reflect actual performance (PMI, 1999).

McNamara (2002) stated that project management is a carefully planned and organized effort to accomplish a specific (and usually) one-time effort, for example, constructs a building or implements a new computer system. Project management includes developing a project plan, which includes defining project goals and objectives, specifying tasks or how goals will be achieved, what resources are need, and associating budgets and timelines for completion. It also includes implementing the project plan, along with careful controls to stay on the "critical path", that is, to ensure the plan is being managed according to plan. Project management usually follows major phases (with various titles for these phases), including feasibility study, project planning, implementation, evaluation and support/maintenance. (Program planning is usually of a broader scope than project planning, but not always.)

Heerkens (2012) Stated "The project management process calls for the creation of a small organizational structure (the project team), which is often a microcosm of the larger organization. Once the team has produced the desired outcome, the process then calls for the decommissioning of that small organizational structure."

The project management overview shows four major components of a project that deserves due attention in project execution. This includes, project resource planning, project cost estimating, project budgeting and cost control. These require effective tools and techniques to ensure efficiency in management and success of the project.



Source: Project Management Body of Knowledge (PMI 2013)

The project management overview shows four major components of a project that deserves due attention in project execution. This includes, project resource planning, project cost estimating, project budgeting and cost control. These require effective tools and techniques to ensure efficiency in management and success of the project.

As per the above table from PMI (2013) in puts from resource planning, cost estimating, cost budgeting and cost control will be defined as follows:

- **Work breakdown structure**: the work breakdown structure (WBS) identifies the project elements that will need resources and thus is the primary input to resource planning.
- **Historical information**: Historical information regarding what types of resources were required for similar work on previous projects should be used if available.
- **Scope statement**: the scope statement contains the project justification and the project objectives, both of which should be considered explicitly during resource planning.
- **Resource pool description**: Knowledge of what resources (people, equipment, and material) are potentially available is necessary for resource planning.
- **Organizational policies**: the policies of the performing organization regarding staffing and the rental or purchase of supplies and equipment must be considered during resource planning.
- **Resource requirements:** the output of the resource planning process is a description of what types of resources are required and in what quantities for each element of the work breakdown structure.
- **Resource rates:** The individual or group preparing the estimates must know the unit rates for each resource in order to calculate project costs.
- **Activity duration estimates:** will affect cost estimates on any project where the project budget includes an allowance for the cost of financing.
- **Historical information:** Information on the cost of many categories of resources.
- **Chart of accounts:** A chart of accounts describes the coding structure used by the performing organization to report financial information in its general ledger.
- **Project schedule**: The project schedule includes planned start and expected finish dates for the project elements that costs will be allocated to.
- **Performance reports**: Performance reports provide information on cost performance such as which budgets have been met and which have not.
- **Change requests**: Change requests may occur in many forms—oral or written, direct or indirect, externally or internally initiated, and legally mandated or optional.

Tools and Techniques resource for planning, cost estimating, cost budgeting and cost control as per PMI (2013) will be defined as follows:

- **Expert judgment**: Expert judgment will often be required to assess the inputs to this process. Such expertise may be provided by any group or individual with specialized knowledge or training.
- **Alternatives identification**: this is a catchall term for any technique used to generate different approaches to the project.
- **Analogous estimating**: Analogous estimating, also called top-down estimating, means using the actual cost of a previous, similar project as the basis for estimating the cost of the current project.
- **Parametric modeling**: Parametric modeling involves using project characteristics (parameters) in a mathematical model to predict project costs.
- **Bottom-up estimating**: This technique involves estimating the cost of individual work items, then summarizing or rolling-up the individual estimates to get a project total.
- **Cost change control system**: A cost change control system defines the procedures by which the cost baseline may be changed.
- **Performance measurement**: Performance measurement techniques, help to assess the magnitude of any variations which do occur.
- **Additional planning**: Few projects run exactly according to plan. Prospective changes may
- Require new or revised cost estimates or analysis of alternative approaches.
- **Computerized tools**: Computerized tools such as project management software and spreadsheets are often used to track planned costs vs. actual costs, and to forecast the effects of cost changes.

Outputs for planning cost estimating, cost budgeting and cost control as per PMI (1999) will be defined as follows:

- **Resource requirements**: the output of the resource planning process is a description of what types of resources are required and in what quantities for each element of the work break down structure.
- **Cost estimates**: Cost estimates are quantitative assessments of the likely costs of the resources required to complete project activities. They may be presented in summary or in detail. Costs must be estimated for all resources that will be charged to the project.
- **Cost management plan**: The cost management plan describes how cost variances will be managed. A cost management plan may be formal or informal, highly detailed or broadly framed based on the needs of the project stakeholders.

- **Cost baseline**: The cost baseline is a time-phased budget that will be used to measure and monitor cost performance on the project.
- **Revised cost estimates**: Revised cost estimates are modifications to the cost information used to manage the project.
- **Budget updates**: Budget updates are a special category of revised cost estimates. Budget updates are changes to an approved cost baseline. These numbers are generally revised only in response to scope changes. In some cases, cost variances may be so severe that "rebase lining" is needed in order to provide a realistic measure of performance.
- **Corrective action**: Corrective action is anything done to bring expected future project performance into line with the project plan.
- **Estimate at completion**: An estimate at completion (EAC) is a forecast of total project
- Costs based on project performance.
- **Lessons learned**: The causes of variances, the reasoning behind the corrective action chosen, and other types of lessons learned from cost control should be documented so that they become part of the historical database for both this project and other projects of the performing organization.

Cost Management Plan is a component of the project management plan and describes how the project costs will be planned, structured, and controlled. The cost management processes and their associated tools and techniques are documented in the cost management plan.PMI (2013).

It will provide the planning structure necessary to control the costs of project, keeping them within the limits of the budget. The exact nature of cost management may vary greatly.

Cost Estimation is the process of developing or approximation of the monetary resources required to complete project activities. The key benefit of this process is that it determines the volume and quality of work expected of project work (PMI2013).

Cost estimates are a prediction that is based on the information known at a given point in time. Cost estimates include the identification and consideration of costing alternatives to initiate and complete the project. Cost tradeoffs and risks should be considered, such as make versus buy, buy versus lease, and the sharing of resources to achieve optimal costs for the project.

Cost estimates are generally expressed in units of currency (i.e., dollars, euros, yen, etc.), although in some instances other units of measure, such as staff hours or staff days, are used to facilitate comparisons by eliminating the effects of currency fluctuations. Costs are estimated for all resources that will be charged to the project. This includes, but is not limited to, labor, materials, equipment, services, and facilities, as well as special categories such as an inflation allowance, cost of financing, or contingency costs. A cost estimate is a quantitative assessment of the likely costs for resources required to complete the activity. Cost estimates may be presented at the activity level or in summary form.

Determine Budget is the process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline. The key benefit of this process is that it determines the cost baseline against which project performance can be monitored and controlled (PMI, 2013). A project budget includes all the funds authorized to execute the project. The cost baseline is the approved version of the time-phased project budget but excludes management reserves.

Controlling Costs is the process of monitoring the status of the project to update the project costs and managing changes to the cost baseline. The key benefit of this process is that it provides the means to recognize variance from the plan in order to take corrective action and minimize risk (PMI, 2013).

Updating the budget requires knowledge of the actual costs spent to date. Any increase to the authorized budget can only be approved through the Perform Integrated Change Control process. Monitoring the expenditure of funds without regard to the value of work being accomplished for such expenditures has little value to the project, other than to allow the project team to stay within the authorized funding. Much of the effort of cost control involves analyzing the relationship between the consumption of project funds to the physical work being accomplished for such expenditures. The key to effective cost control is the management of the approved cost baseline and the changes to that baseline. Project cost control includes:

- Influencing the factors that create changes to the authorized cost baseline;
- Ensuring that all change requests are acted on in a timely manner;
- Managing the actual changes when and as they occur;

- Ensuring that cost expenditures do not exceed the authorized funding by period, by WBS component, by activity, and in total for the project;
- Monitoring cost performance to isolate and understand variances from the approved cost baseline; Monitoring work performance against funds expended;
- Preventing unapproved changes from being included in the reported cost or resource usage;
- Informing appropriate stakeholders of all approved changes and associated cost; and
- Bringing expected cost overruns within acceptable limits.

Hanid et al. (2011) reported the fact that effective cost management is key factor for successful investment. This entails that, clear guidance to decision makers should be central to consideration of value, achievement of maximal accuracy and minimizing project cost. These are, according to the authors a very important premise in cost estimation exercise.

As per Hanid et al. (2011), effective cost management is important for the achievement of the investment put forward by the sponsor of the project. Therefore, in order to provide accurate guidance to the decision maker in initiating and making their decision, consideration of value, achievement of maximal accuracy and reduction in cost are very important to be achieved in every cost estimation exercise.

As per Doloi (2013), the subject of poor cost performance has been widely published in the mainstream project and construction management literature. Nevertheless, the underlying responsibilities of the key stakeholders (clients, consultants, and contractors) in managing this chronic problem in the Australian construction industry remain unclear. By performing an in-depth analysis of the roles and responsibilities of these key stakeholders, this research is intended to unfold the industry wide perception of cost performance being heavily reliant on the contractor's performance alone. Based on a thorough literature review and relevant industry inputs, 73 attributes associated with cost performance were identified for investigation. Based on the relative importance weighing technique on 48 selected attributes, planning and scheduling deficiencies have the highest impact on cost performance from clients, consultants, and contractors' perspectives. Confirmatory factor analysis on the combined responses across all three groups suggests that robust control procedures and adequate programming, along with efficient design and effective site management, are the most critical factors. These factors are primarily associated with the responsibilities of contractors and consultants for managing cost overruns in projects. However, the client's

responsibility in facilitating effective management of these factors within the project environment is crucial. Multivariate regression analysis performed on eight factors' scores highlighted the influence of five significant factors ($p < 5\%$)on managing cost overruns.

PM4DEV (2015), reported on project budget management indicated that it is the total sum of money allocated for the particular purpose of a project for a specific period of time. The essence of budget management is hence, to control project costs within the approved budget limit and deliver the expected project goals. The definition of a successful project is coined in line with four success factors (criteria). These are, project delivery on time, within approved budget, with the required quality expectations, and the quantity demanded by beneficiaries. For project managers to be truly successful they must concentrate on meeting all of those criteria. These success factors are the basic determinants of project success They gap in project management is the fact that emphases have been given for managing and controlling the project schedule, with little concern for monitoring and controlling the budget.

Project Budgeting is performed on the initial stages of project planning and usually in parallel with the development of the project schedule. The steps associated with budgeting are highly dependent to both the estimated lengths of tasks and the resources assigned to the project. Budgeting serves as a control mechanism where actual costs can be compared with and measured against the budget. The budget is often a fairly set parameter in the execution of the project. When a schedule begins to slip, cost is proportionally affected. When project costs begin to escalate, the project manager should revisit the Project Plan to determine whether the scope, budget, or schedule needs adjusting. To develop the budget, the applicable cost factors associated with project tasks are identified. The development of costs for each task should be simple and direct and consist of labor, material, and other direct costs. The cost of performing a task is directly related to the personnel assigned to the task, the duration of the task, and the cost of any non-labor items required by the task(PM4DEV, 2015).

2.1.2 Project Cost Management and Success factors for Project Management

Since projects are temporary in nature, the success of the project should be measured in terms of completing the project within the constraints of scope, time, cost, quality, resources, and risk as approved between the project managers and senior management. To ensure realization of benefits for the undertaken project, a test period (such as soft launch in services) can be

part of the total project time before handing it over to the permanent operations. Project success should be referred to the last baselines approved by the authorized stakeholders.

The definition of project success is ambiguous, Salleh (2009). PMBOK4thed. (2008) stated that a project is successful if it achieves the triple objective outcome of within time, scope, and quality. This is the traditional view of project management as used by Munns and Bjeirmi (1996). It implies the successful achievement of time, cost and quality objectives, as well as the quality of the project process, Erling (2006). Turner (2004) identifies on time, within budget and to specification especially for information technology projects as the standard for judging success. Erling (2006) stated that overall project success deals with the wider and longer term impact of the project, which means both project management success and project product success. They noted that project management can be determined at the end of the project, which means in many cases, success criteria will be determine months or years after finishing the project, especially public projects. Hence, determining if a project is successful is difficult if viewed from the above two success criteria, Erling (2006).

According to Pinto and Slevin (1987), as a project comprise a defined time frame to completion, a limited budget, and a specified set of performance characteristics, a project is generally considered to be successfully implemented if it comes in on-schedule (time criterion); comes in on-budget (monetary criterion); achieves basically all the goals originally set for it (effectiveness criterion) and is accepted and used by the clients for whom the project is intended (client satisfaction criterion).

Crawford (2000) addressed the major concern of the field of project management and a recurring theme of the literature as that of project success. She highlighted that there are two major strands to this concern – how success is judged (success criteria), and the factors that contribute to the success of projects (success factors).

Sheena et al. (2001) associated four (4) dimensions of success with a timeframe of expected results. Dimension 1 has a short-term goal of project efficiency (meeting cost time goals). Dimension 2 has a medium-term goal of customer success (meeting technical specifications, functional performance solving customer's problem that triggered the project right through to matching intangible and tangible outcomes). Dimension 3 has a long-term goal of business success (commercial success and gaining increased market share that for aid projects could be generating confidence, satisfaction and also influence). Finally, Dimension 4 has a very long-

term goal of preparing for the future (developing new tools, techniques, products, markets etc).

Project Management is the application of a collection of tools and techniques to direct the use of diverse resources toward the accomplishment of a unique, complex, one-time task with in time, cost and quality constraints. Each task requires a particular mix of these tools and techniques structured to the task environment and life cycle (from conception to completion) of the task (PMI, 1999).

According to Jari&Pankaj (2013), Project success factors are the elements of a project that can be influenced to increase the like hood of success; these are independent variable that makes success more likely. Project success criteria are the measures by which we judge the successful outcome of a project; these are dependent variable which measure project success. Primal success criteria have been an integrated part of project management theory given that early definitions of project management included the so called „Iron Triangle' success criteria cost, time and quality. Success factors are those inputs to the management system that lead directly or indirectly to the success of the project or business. Project success factors are not Universal for all projects since different projects and different people prioritize different sets of success factors. Project success criteria also vary from project to project and what is acceptable in one project without impact on perceived success is deemed an abject failure in another project. For instance, taking a week delay in an IT project to ensure the objectives are achieved may have a minor impact for this project in terms of success. However, this delay might be a disaster in building a function center, which is supposed to be undertaken before its opening day.

The project management success criteria can be described in iron triangle. The iron triangle consists of cost, time and quality. This shows that project management success is determined by those three iron triangle elements. Thus, to be successful or say the project management is in success, the below are the criteria:

- The project should be finished on agreed time.
- The project cost should be finalized within approved cost or budget.
- The project quality is as per the agreed criteria.

2.2 Empirical Literature Review

In this section previous studies related to the current topic were reviewed. One of the prominent work was that of Irya Hyvari (2006) who have done on a cross industry study. The author compared rankings of important factors that varied across project phase. The key factors she identified include: project mission; top management support; project schedule/plans; client consultation; personnel; technical task; client acceptance; monitoring and feedback; communication; and trouble shooting. This suggests that while the identity of success factors can be reasonably understood from the literature and there is general agreement about these factors being important, there is variation both across studies and phases as to the relative importance of these factors. However, in the measuring success study by Ramage and Armstrong (2005), they find that the various historical methods for evaluating success encounter barriers to performance measurement.

Difficulties arise in ensuring that measurement instruments guarantee reliability, validity and responsiveness. To assist in the categorization of factors impacting on these aspects, they extend the framework developed by de Lancer and Holzer (2001) to produce a more comprehensive categorization of influences. These may align, coincidentally, with the antecedents to Project Management Best Practice or Success necessary to be in place in the Aid / Relief Project Management research world.

As per Roger (1999), in his previous study "Project management: cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria" identified that "Cost, time and quality (The Iron Triangle), over the last 50 years have become inextricably linked with measuring the success of project management. This is perhaps not surprising, since over the same period those criteria are usually included in the description of project management. Time and costs are at best, only guesses, calculated at a time when least is known about the project. Quality is a phenomenon; it is an emergent property of people's different attitudes and beliefs, which often change over the development life-cycle of a project. Why has project management been so reluctant to adopt other criteria in addition to the Iron Triangle, such as stakeholder benefits against which projects can be assessed? This paper proposes a new framework to consider success criteria." This paper agreed that project cost management and project success have direct relationship.

In their study on “Effect of Project Management on Project Success”; Akewushola, et al (2012) identified relationship between project quality and business success, Project quality and technical success. The study also reveals that there is a significant relationship between Project cost and acceptability by clients. It was therefore recommended among others that total project cost on the side of clients should be minimized by ensuring that the project manager is innovative enough and creative in the apportion of project cost without reducing the quality of the project. In this study also, project cost management and project success have direct relationship.

Mario and Amanda (2016) explained the fact that lack of effective cost management system affects profitability of business projects, when appropriate cost control techniques help to improve the project success. Aftab et al (2012) agrees with Mario and Amanda (2016) in reporting that time and cost performance are fundamental criterion for success of any project. This shows how cost management appears as basic factor that determine success of a project in a business company. As per PMI (1999), project cost (budget) management is one of the three main elements that affect the project performance. The successful project manager needs to give attention to managing project cost.

According to Aftab and et al (2012), work in Central Regions of Peninsular Malaysia, the construction industry has been regarded as industry facing poor performance leading to failure in achieving effective time and cost performance. Consequently, most of the project face huge amount of time and cost overrun. The study assessed time and cost performance of construction projects in using structured questionnaire survey. The findings of study revealed that 92% of construction projects were overrun and only 8% of project could achieve completion within contract duration. The amount of time overrun was in between 5-10% as agreed by respondents. In terms of cost performance only 11% of respondents mentioned that normally their projects are finished within the budgeted cost while 89% of respondents agreed that their projects were facing the problem of cost overrun with average overrun at 5-10% of contract price. The major contributors of this poor performance include design and documentation issues, financial resource management and project management and contract administration issues. Further, qualitative study was carried out using semi-structured interviews with the experience personnel involving in managing construction project which resulted in developing 13 mitigation measure to improve time performance and 15 mitigation measure to improve cost performance in construction project. The study will help the

practitioners to implement the mitigation measure at planning stage in order to achieve successful construction projects.

Longman, Mullins. J (2004) presented their findings about essentials of project management on Journal of business strategy. According to the authors, by working with organizations large and small, in the public and private sectors, in the USA and overseas, in manufacturing sites and corporate headquarters, in strategic and operational project situations, they have found seven essential conditions for project success which are applied to all projects, whether related to top level strategic business or operational ones. As of them perform poorly against even one of these conditions and you risk crippling your strategy implementation, however brilliantly formulated it may be.

According to Tesfaye Hailu (2016), work in Addis Ababa, the construction industry from the results of survey analysis, the author deducted that project either has done more on paper work than on implementation or the results were over emphasized. Research output has shown that the triple constraints like cost, quality and time as well as communication processes of the subject groups are the most effective project management processes towards success of a project. Moreover, planning process from the process groups is effective for achieving success of a project. The result of his research showed that significant numbers of projects in Ethiopia are under failed category. Hence, the author recommends that effective project management processes like Planning, Time, Quality, Cost and Communication processes have to be given great attention during execution of a project since they are the main driving force for success of a project.

2.3 Conceptual Framework

Following the previous paragraphs describing the theoretical framework, a conceptual framework was developed whereby project management practices were presumed to be the project management knowledge areas (PMI,2013)as the independent variables. This framework focuses on four knowledge areas namely: costplanning,cost estimating, cost budgeting and cost controlling and how these practices influence organizational performance or project success as the independent variable.

Independent variables **dependent variable**

Project cost management practices **project success**

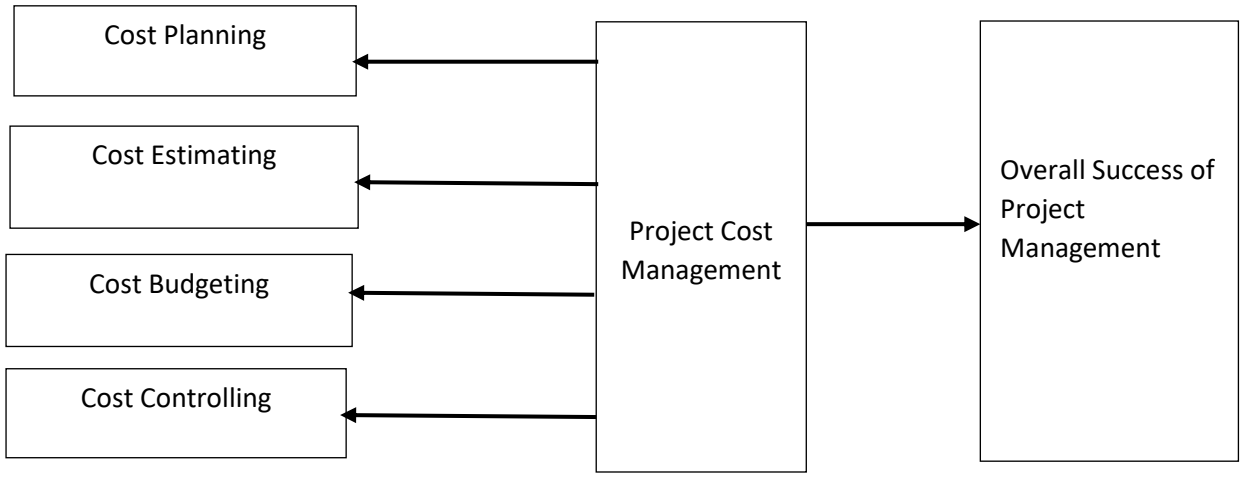


Fig. 2.1 Conceptual framework of the study Adapted from PMI (2013)

according to the proposed ,project cost management practices including cost planning , cost estimating , cost budgeting and cost controlling carried out are for the purposes of effectively managing projects to achieve satisfactory project performance through better time performance ,cost performance and quality performance resulting in improved organizational performance .Each project team member has a function to perform within the project cost management process .A combination of these practices results in a set of evolved practices within a project`s life time. Through these practices adopted, an environment is created where each person on the project understands what must be delivered and how performance will be measured. This avoids the uncertainty that often permeates a project as it approaches critical delivery times. This approach integrated the project deliverables and clearly demonstrates contribution towards organizational performance outcomes or project success.

Based on the above conceptual frame work, the following hypotheses are presented: On the Success of Project Management, the main process in Project Cost Management listed below has positive impact:

- Planning
- Estimating

- Budgeting
- Controlling.

Project cost management practice has important role for success of projects. The contribution of project management is viewed in this study also using the above perspective which is the contribution of project cost management to success of suzo industry projects.

According to PMI (2013), since projects are temporary in nature, the success of the project should be measured in terms of completing the project within the constraints of scope, time, cost, quality, resources, and risk as approved between the project managers and senior management. This means the project success can be affected by the Project cost management, Project quality management and Project time management.

Project cost management is the process involved in planning, estimating, budgeting and controlling costs so that the project can be completed within the approved budget. Hence each process of project cost management has Input, output and outcomes. Thus, this project work tries to evaluate the planning, estimating, budgeting and controlling processes in relation to their input, output and outcomes. Likewise, it also tries to appraise the effect of project cost management on the project success. Moreover, all costs incurred over the life of the product by investment in preventing nonconformance to requirements, appraising the product or service for conformance to requirements, and failing to meet requirements (rework).

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter is supposed to describe basic components such as the research design, the study site, data type and data source, data collection procedure, and data analysis,

3.1 Description of the study Organization

SUZO expansion project was in Oromia Special Zone Gelan town. This is an industrial area where the company machineries were planted. The main office of the company is located in Addis Ababa. Relevant data will be collected from factories and the head office of the company as required.

3.2 Research Approach and Design

3.2.1 Research approach

In this research, a mixed research approach including qualitative and quantitative approaches is designed. The quantitative approach deploys quantitative data which is collected and described. According to Kothari (1990), this research approach helps to evaluate the impact of cost management on the success of a project. According to Best and Kahn (2006), Quantitative method can describe events and persons scientifically with the use of numerical data. Thus, to make the descriptive approach more reliable in this research quantitative approach is used.

The research focuses on assessment of project cost management on project performance through planning procedure, estimation cost methods, implementation techniques to budgeting cost and system employed for controlling cost in the project cost management. The data are numeric as well as qualitative in nature, which entails the essence of mixed research approach (qualitative and quantitative). The analysis also follows the type of data where both descriptive and statistical analysis may be deployed as the data requires.

3.2.2 Research Design

According to Creswell (2009), Research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. In this project work, descriptive research approach and quantitative research design is used. As per Kothari (1990), descriptive research studies are those studies which are concerned with describing the characteristics of an individual, or of a group. Mugenda (2003) indicate that descriptive design is indices that describe a certain sample giving clear information of element without interfering with it. This research approach enabled the researcher to evaluate the impact of project cost management on the success of project management assess. Moreover, this design was selected in order to collect enough information for this project work.

3.3 Data Type and Source

3.3.1 Data type

This research used primary data and secondary data. The primary data was collected from the manager of the company and from project management department as well from technical employees who have both direct and indirect involvement in the project. In doing so it was assumed that an in-depth information was obtained regarding the outcomes (success or failure) of the project and its relation to project cost management. Additionally, the proper execution of project cost planning, estimating, budgeting and control is closely analyzed with valid data attained. The secondary data types were journals, articles and archives

3.3.2 Data source

As discussed above, data was sourced from primary and secondary sources. The primary sources included employees of the organization and organizational documents like financial management guidelines, project management and evaluation tools and over all organizational relevant documents. The secondary resources were journals, articles and books that assist to achieve the objective of the research.

For the ultimate goal of the study; the researcher used primary source of data which collected questionnaires from the selected. The variables were measure using Likert scale with five response categories (strongly agree, agree, neutral, disagree and strongly disagree). The questionnaires were used as they were easy to administer and to save time. The questionnaires were designed in a way that the respondents were required to tick the appropriate answer

according to their assessment based on Likert scale. The researcher prepared a list of questions based on the research objectives in order to solicit information from the target population.

3.4 Target population and Sample Size

3.4.1 Target population

In this study, from the total population the target group was identified and selected accordingly. In this expansion project, 90 professionals were involved. This includes in project managers &team members (Engineers, Finance & Purchasing), in the subcontractors' project management team.

3.4.2 Sample size determination

The target population was the organization employees working in the organization and sample size formulated from the total number of a population. In order to determine a sufficient sample size, Yamane (1967) formula is used in determining the correct probability sample size (n) among the population. The formula described as under.

$$n = \frac{N}{1 + N(e)^2}$$

Where;

N = Total number of relevant people in the organization

n = Actual sample drawn (corrected sample size)

e = Margin of error (MoE), e = 0.05 based on the research condition.

$$\mathbf{N= \frac{90}{1+90(0.05)2}}$$

N= 74

3.4.3 Sample selection procedure

The sampling design that is conducted in the research study is purposive sampling the sample size established for the research selected on their convenience to the selected research question. The sampling methods selecting appropriate cases from the sample size that are compatible to answer the research question. In doing so 74 respondents were chosen from the 90 professionals. From the selected respondents the researcher was able to collect 68 questionnaires only.

3.5 Data Collection Methods and tools

Primary data are collected through structured questioner, whereas the secondary data collection is merely that of compilation via review, which is commonly collected from best performance cost management reports from both internal and external, project cost budget and estimating, earned value analysis, cost management checklist, guidelines.

3.6 Data Analysis and Presentation

3.6.1 Data analysis

The method of data analysis used for this study were descriptive statistical method were tables and simple percentages is used to analyze the information in the questionnaire supplied by the respondents so as to allow accuracy and easy decoding of information. Collected data were analyzed through descriptive and inferential statistical techniques using Statistical Package for Social Sciences (SPSS) software package and interpretative explanations. Qualitative explanations were in place of quantitative data to give meaning to them as well as explain their implications. And on this basis the discussion of findings made. Moreover, the data collected by primary source was analyzed by combining and summarizing the results.

3.6.2 Data Presentation

The analyzed data was grouped according the research question proposed early and will be presented under specific themes. This is tabulated and illustrated using figures. Mean, frequency scores and percentages is addressed using descriptive statistics.

3.7 Ethical Consideration

Ethics are standards of behavior that guide the moral choices about our behavior and our relationship with others. All parties in research should observe ethical behavior. Research ethics will put into consideration when developing and administering data collection tools and techniques, to avoid any form of destruction or violation. This would be done through obtaining consent before the research; ensuring confidentiality of data obtained and learning more about the organization's culture and project before the research and where necessary absolute sensitivity and caution would exercise.

CHAPTER FOUR

RESULT AND DISCUSSION

4.1 Introduction

As has been mentioned in the prior chapters, the main attempt of this study is to investigate the relationship between project cost management and project success. Data was collected from primary and secondary sources in the form of questionnaires and interview respectively. Hence, this chapter presents the analysis and discussions for research findings obtained from both sources, first the questionnaire followed by the interview.

4.2 Response rate of respondents

A total of 74 questionnaires administered to various project staffs in SUZO industries, out of which 68 questioners completely filled and returned. The remaining 6 questioners were not collected due to refusal to give response for the questionnaires. This gave a response rate of 91.89% According to Mugenda (2003) the statistically significant response rate for analysis should be at least 50%.

Table 4.1: Response Rate of Respondents

Status	No of Questionnaire	Response Rate (%)
Completed	**68**	**91.89%**
Not Completed	**6**	**8.14%**
Total	**74**	**100%**

Source: Researchers own compilation of survey data and SPSS output (2019)

Assessing reliability

In this project, work the reliabilities of project cost management and the overall success ofproject management were assessed with Cronbach's Alpha. The reliability values forall constructs are all greater than .70, which are considered acceptable.

Table 4.2: Reliability Statistics

Cronbach's Alpha	N of Items
.875	20

Source: Researchers own compilation of survey data and SPSS output (2019)

From the above table 4.2 the reliability statistics of the questionnaire given to respondents ranks 0.875. since the result is greater than .70, it is considered acceptable.

Table 4.3: Role, Demographic, Education Level and Work Experience

	Frequency	Percent
Role		
Project Manager	5	7.4%
Engineer	23	33.8%
Finance	18	26.5%
Purchasing	22	32.4%
Gender		
Male	45	66.2%
Female	23	33.8%
Age		
18-25	12	17.6%
26-35	28	41.2%
36-45	18	26.5%
>46	10	14.7%
Education Level		
PHD degree	2	2.9%
Masters	25	36.8%

First degree	41	60.3%
Work Experience		
Less than 5 years	25	36.8%
5-10 years	26	38.2%
Greater than 10 year	17	25.0%

Source: Researchers own compilation of survey data and SPSS output (2019)

From the above table 4.3 the result indicates that 7.4% respondents are project managers, 33.8% respondents are in the field of Engineers, 26.5% respondents are in the field Finance and 32.4% respondents are in the field of Purchasing.

The researcher also analyzed demographic state of respondents from the results it's observed that 66.2% are male and 33.8% are female. The age of respondents that range from 18-25 are 17.6%, from 26-35 are 41.2%, from 36-45 are 26.5% and 14.7% are above 46 years old.

Likewise, the education level of respondents is analyzed as follows, 2.9% have PHD degree, 36.8% have masters degree and 60.3% have first degree. Moreover, the respondents work experience results is 36.8% have experience of less than 5 years, 38.2% have experience of 5-10 years and the rest have 25.0% have experience greater than 10 years.

4.3 Techniques and Tools Executed for Estimating and Managing cost

The responses of participants are further analyzed and interpreted as follows questionnaires given to respondents are classified under the four components of cost management which are resource planning, cost estimating, cost budget and cost control.

Resource Planning

		Frequency	Percent
Valid	Strongly Disagree	6	8.8
	Disagree	7	10.3
	Neutral	10	14.7
	Agree	31	45.6
	Strongly Agree	14	20.6
	Total	68	100.0

Cost Estimating

		Frequency	Percent
Valid	Strongly Disagree	2	2.9
	Disagree	6	8.8
	Neutral	14	20.6
	Agree	37	54.4
	Strongly Agree	9	13.2
	Total	68	100.0

Cost Budgeting

		Frequency	Percent
Valid	Strongly Disagree	2	2.9
	Disagree	6	8.8
	Neutral	10	14.7
	Agree	34	50.0
	Strongly Agree	16	23.5
	Total	68	100.0

Cost Control

		Frequency	Percent
Valid	Strongly Disagree	3	4.4
	Disagree	7	10.3
	Neutral	15	22.1
	Agree	31	45.6
	Strongly Agree	12	17.6
	Total	68	100.0

Table 4.4: Project cost management on Suzo industries expansion project

From table 4.3 above, the researcher sought to establish the assessment of project cost management on the overall success of project management in the case of Suzo industries expansion project and here the respondents instructed to respond to the statements on a 5-point Likert scale and indicate the extent they agree with the statements. I.e.5-Strongly agree, 4-Agree, 3-Nutral, 2-Disagree, 1-Strongly disagree. Based on the findings in the above Table4.3, the project cost management of Suzo industries expansion project resource planning 45.6% agree, Cost Estimating 54.4% agree, Cost Budgeting 50% agree, and Cost control 45.6% agree. Therefore, respondents in this project work agreed with the company project cost management.

The researcher carried out a regression analysis to verify the association between the independent variables with the dependent variable on Suzo industries expansion project.

4.4 Components of project cost management and its effect on project success

The researcher carried out a regression analysis to verify the association between the independent variables with the dependent variables on Suzo industries expansion project. In order to proceed the researcher first applied autocorrelation, normality test, linearity test and multicolinearity tests.

4.4.1 Assumption tests

4.4.1.1 Autocorrelation (Durbin Watson)

The Durbin Watson (DW) statistic is a test for autocorrelation in the residuals from a statistical regression analysis. The Durbin-Watson statistic will always have a value between 0 and 4. A value of 2.0 means that there is no autocorrelation detected in the sample. Values from 0 to less than 2 indicate positive autocorrelation and values from 2 to 4 indicate negative autocorrelation. A rule of thumb is that test statistic values in the range of 1.5 to 2.5 are relatively normal. Values outside of this range could be cause for concern. Field (2009) suggests that values under 1 or more than 3 are a definite cause for concern.

Table 4.5: Autocorrelation (Durbin Watson)

Model Summary[b]

Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate	**Durbin-Watson**
1	.786[a]	.548	.513	1.16788	**1.922**

a. Predictors: (Constant), Cost Control, Cost Estimation, Cost Budgeting, Resource Planning

Source: Researchers own compilation of survey data and SPSS output (2019)

If the value of the Durbin Watson lies 1.5 to 2.5, then there are no serial correlations. So from the model summary table the value of the Durbin Watson is 1.922, this indicates that there is a relatively normal autocorrelation between the independent (resource planning, cost estimating, cost budgeting and cost control) and the dependent variables (budget, time, and performance).

4.4.1.2 Multicolinearity Test

According to Hill et al. (2003), multicollinearity is not a violation of the assumptions of regression but it may cause serious difficulties. Hill et al. (2003)propose that these serious difficulties include: (1) variances of parameter estimates may be unreasonably large; (2) parameter estimates may not be significant; and (3) a parameter estimate may have a sign different from what is expected. Multicollinearity occurs when the independent variables are too highly correlated with each other. Multicollinearity may be tested with three central criteria: (1) Correlation matrix – when computing the matrix of Pearson's Bivariate Correlation among all independent variables the correlation coefficients need to be smaller than 1. (2) Tolerance – the tolerance measures the influence of one independent variable on all other independent variables; the tolerance is calculated with an initial linear regression analysis. Tolerance is defined as $T = 1 – R^2$ for these first step regression analysis. With $T < 0.1$ there might be multicollinearity in the data and with $T < 0.01$ there certainly is. (3) Variance Inflation Factor (VIF) – the variance inflation factor of the linear regression is defined as $VIF = 1/T$. With $VIF > 10$ there is an indication that multicollinearity may be present; with $VIF > 100$ there is certainly multicollinearity among the variables.

Table 4.6: Multicollinearity

Coefficients[a]

Model	Collinearity Statistics	
	Tolerance	VIF
Resource Planning	.934	1.070
Cost Estimation	.983	1.018
Cost Budgeting	.972	1.029
Cost Control	.922	1.084

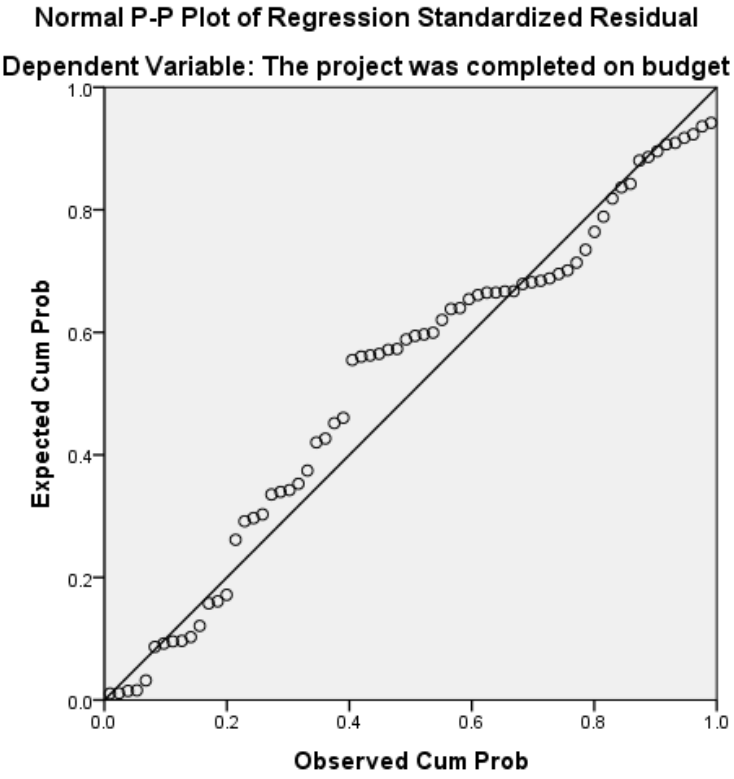
Source: Researchers own compilation of survey data and SPSS output (2019)

4.4.1.3 Linearity

Linearity refers to the degree to which the change in the dependent variable is related to the change in the independent variables. To determine whether the relationship between the dependent variables project completed on budget, project completed on time, performance quality and independent variables: resource planning, cost estimation, cost budgeting and cost control; plots of the regression residuals through SPSS software had been used.

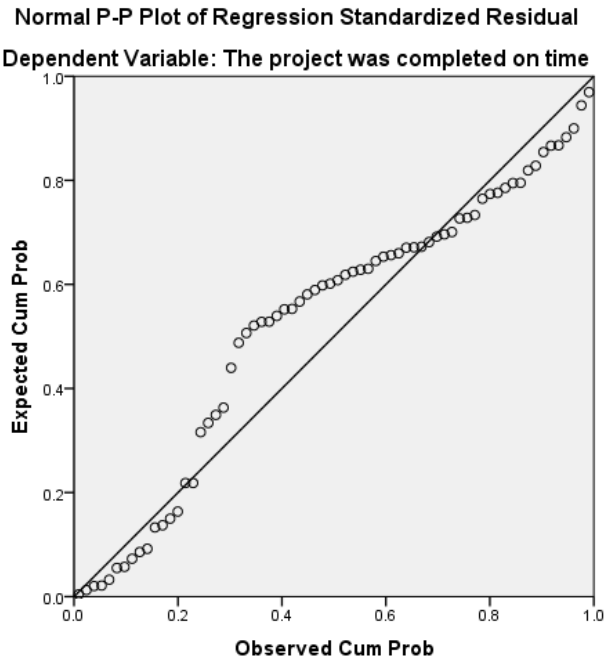
Malhotra et al. (2007 as cited in Devika, 2012) discussed that conventional regression analysis will underestimate the relationship when nonlinear relationships are present, i.e., R2 underestimates the variance explained overall and the betas underestimate the importance of the variables involved in the non- linear relationship. Linear regression needs the relationship between the independent and dependent variables to be linear. It is also important to check for outliers since linear regression is sensitive to outlier effects.

Figure 4: Normal Point Plot of Standardized Residual



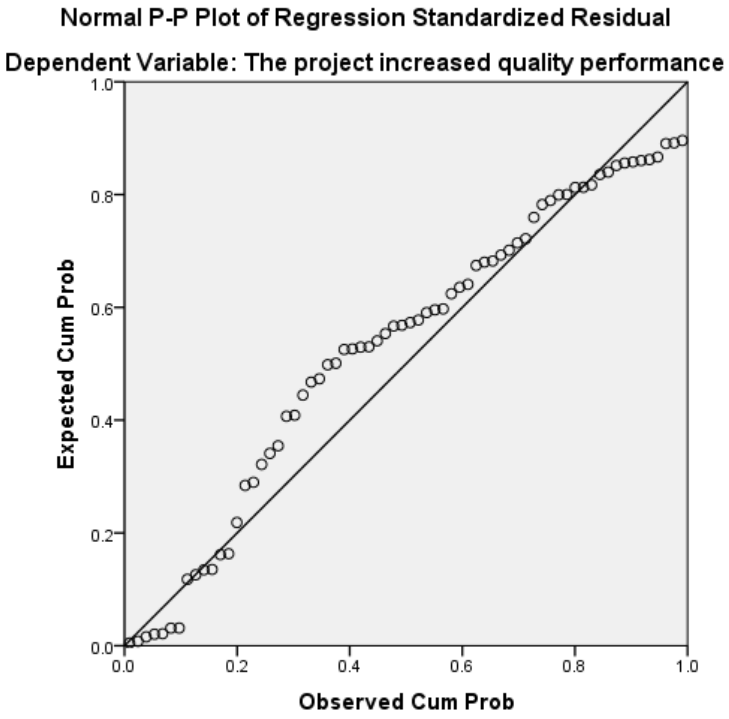
Source: Researchers own compilation of survey data and SPSS output (2019)

Figure 5: Normal Point Plot of Standardized Residual



Source: Researchers own compilation of survey data and SPSS output (2019)

Figure 6: Normal Point Plot of Standardized Residual



Source: Researchers own compilation of survey data and SPSS output (2019)

The scatter plot of residuals shows no large difference in the spread of the residuals as you look from left to right on figure 1,2 and 3. This result suggests the relationship we are trying to predict is linear. Similarly, the above figure shows the normal distribution of residuals around its mean of zero. Hence the normality assumption is fulfilled as required based on the above figure, it is possible to conclude that the inferences that the researcher will made about the population parameter from the sample is valid.

4.4.2 Regression analysis Results

After completing the above tests the researcher proceeded with regression analysis to verify the association between the independent variables with the dependent variables on Suzo industries expansion project.

4.4.2.1 Regression Analysis Results for Dependent Variable (on budget) and Independent Variables (resource planning, cost estimating, cost budgeting & cost control)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.312	1.403		3.074	.003
	Resource Planning	.209	.209	-.128	-1.002	.011
	Cost Estimation	.812	.225	.023	.183	.004
	Cost Budgeting	.070	.236	.038	.299	.022
	Cost Control	.160	.214	-.097	-.749	.013

a. Dependent Variable: The project was completed on budget

Source: Researchers own compilation of survey data and SPSS output (2019)

Table 4.7; shows there is significant association between the independent variables Cost Estimating, Cost Budgeting, Cost Control and Resource Planning with the dependent variable project was completed on budget in Suzo industries expansion project. Since the p-value for those project cost management components are less than 0.03and the resulting regression equation is as follows;

$Y = 1.312 + 0.812X1 + 0.041X2 + .070X3 + 0.160X4 + e$

Where Y= project was completed on budget,

X1= Cost Estimating;

X2 = Cost Budgeting;

X3 = Cost Control;

X4 = Resource Planning and

e= the residual amount.

The regression equation above shows as by considering all factors constant at zero, the project was completed on budget of Suzo industries expansion project will have a value of 1.312. In addition, the findings or the above regression equation show us, by taking all other independent variables at zero, a unit increase in resource planning, cost estimate and cost budgeting would lead to a 0.209, 0.812 and 0.070 increase in the project was completed on budget Suzo industries expansion respectively. Also a unit increase in cost control and resource planning in Suzo industries project taking all other independent variables at zero, would lead to a 0.160 decrease in the project was completed on budget.

Thus, the proposed hypothesis which states that project completed on budget is not affected by the independent variables resource planning, cost estimation, cost budgeting and cost control are rejected by the p-value less than 0.05. Hence hypothesis one is rejected.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.786[a]	.548	.513	1.16788	1.922

a. Predictors: (Constant), Cost Control, Cost Estimation, Cost Budgeting, Resource Planning

b. Dependent Variable: The project was completed on budget

Source: Researchers own compilation of survey data and SPSS output (2019)

From table 4.8; R value which is 78.6% (.786*100) indicates the correlation between independent variables (resource planning, cost estimating, cost budgeting and cost control) and the dependent variable (project completed on budget).

R-Square, which is the coefficient of determination, is a commonly used statistic to evaluate model fitness. The adjusted R2, also called the coefficient of multiple determinations, is the

percentage of the variation in the dependent variable explained uniquely or jointly by the independent variables.

R square which indicates 54.8% (resource planning, cost estimating, cost budgeting and cost control) of the variance in the dependent variable (project was completed on budget) is being explained by the independent variables the remaining 45.2% of the variance in the dependent variable is explained by other variables not explained in this research.

Table 4.9: ANOVA Result for project completed on budget

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.071	4	.768	25.096	.004[b]
	Residual	85.929	63	1.364		
	Total	89.000	67			

a. Dependent Variable: The project was completed on budget

b. Predictors: (Constant), Cost Control, Cost Estimation, Cost Budgeting, Resource Planning

Source: Researchers own compilation of survey data and SPSS output (2019)

Table 4.9above; show the P-value of 0.004 indicates that the regression relationship is significant in predicting how those four independent variables (cost estimate, budget estimate, resource planning and cost control) influence project was completed on budget. The F critical at 5% level of significance is 3.95. Since F calculated is 25.096 is greater than the F critical (value = 3.95) thus showing that the model is significant.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.668	1.246		1.338	.004
	Resource Planning	-.137	.186	-.092	-.738	.024
	Cost Estimation	.381	.199	.232	1.908	.061
	Cost Budgeting	.049	.209	.029	.234	.015
	Cost Control	.305	.190	.202	1.609	.004

a. Dependent Variable: The project was completed on time

Source: Researchers own compilation of survey data and SPSS output (2019)

Table 4.10; shows there is significant association between the independent variables Cost Estimating, Cost Budgeting, Cost Control and Resource Planning with the dependent variable project was completed on budget in Suzo industries expansion project. Since the p-value for those project cost management components are less than 0.04and the resulting regression equation is as follows;

$Y = 1.668 -0.137X1+0.381X2+0.049X3+0.305X4+e$

Where Y= project was completed on time,

X1= Cost Estimating;

X2 = Cost Budgeting;

X3 = Cost Control;

X4 = Resource Planning and

e= the residual amount.

The regression equation above shows as by considering all factors constant at zero, the project was completed on time of Suzo industries expansion project will have a value of 1.668. In addition, the findings or the above regression equation show us, by taking all other independent variables at zero, a unit increase in cost estimate, cost budgeting and cost control would lead to a 0.381, 0.049and 0.305 increase in the project was completed on time Suzo industries expansion respectively. Also a unit increase in resource planning in Suzo industries project taking all other independent variables at zero, would lead to a0.130 decrease in theproject was completed on time.

Table 4.11: Model Summary for Dependent Variable project was completed on time

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.895[a]	.757	.664	1.03762	1.657

a. Predictors: (Constant), Cost Control, Cost Estimation, Cost Budgeting, Resource Planning

b. Dependent Variable: The project was completed on time

Source: Researchers own compilation of survey data and SPSS output (2019)

From table 4.11; R value which is 89.5% (.895*100) indicates the correlation between independent variables (resource planning, cost estimating, cost budgeting and cost control) and the dependent variable (project completed on time).

R-Square, which is the coefficient of determination, is a commonly used statistic to evaluate model fitness. The adjusted R2, also called the coefficient of multipledetermination, is the percentage of the variation in the dependent variable explained uniquely or jointly by the independent variables.

R square which indicates 75.7% (resource planning, cost estimating, cost budgeting and cost control) of the variance in the dependent variable (project was completed on time) is being explained by the independent variables the remaining 24.3% of the variance in the dependent variable is explained by other variables not explained in this research.

Table 4.12: ANOVA Result project completed on time

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.450	4	1.612	13.498	.001[b]
	Residual	67.830	63	1.077		
	Total	74.279	67			

a. Dependent Variable: The project was completed on time

b. Predictors: (Constant), Cost Control, Cost Estimation, Cost Budgeting, Resource Planning

Source: Researchers own compilation of survey data and SPSS output (2019)

Table 4.12above; show the P-value of 0.001 indicates that the regression relationship is significant in predicting how those four independent variables (cost estimate, budget estimate, resource planning and cost control) influence project was completed on time. The F critical at 5% level of significance is 3.95. Since F calculated is 13.498 is greater than the F critical (value = 3.95) thus showing that the model is significant.

Thus, the proposed hypothesis which states that project completed on time is not affected by the independent variables resource planning, cost estimation, cost budgeting and cost control are rejected by the p-value less than 0.05. Hence hypothesis one is rejected.

4.4.2.3 Regression Analysis Results for Dependent Variable (quality performance) and Independent Variables (Cost Estimating, Cost Budgeting, Cost Control & resource planning).

Table 4.13: Regression analysis between dependent Variable project increased performance and independent variable (Cost Estimating, Cost Budgeting, CostControl & resource planning).

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.362	1.477		2.954	.004
	Resource Planning	.316	.220	.182	1.439	.001
	Cost Estimation	-.047	.236	-.025	-.200	.002
	Cost Budgeting	361	.248	-.180	-1.456	.050
	CostControl	-.084	.225	-.048	-.374	.010

a. Dependent Variable: The project increased quality performance

Source: Researchers own compilation of survey data and SPSS output (2019)

Table 4.13; shows there is significant association between the independent variables Cost Estimating, Cost Budgeting, Cost Control and Resource Planning with the dependent variable project increased quality performance in Suzo industries expansion project. Since the p-value for those project cost management components are less than 0.01and the resulting regression equation is as follows;

$Y = 1.362 + 0.316X1 - 0.0471X2 + 0.361X3 - 0.084X4 + e$

Where Y=project increased quality performance,

X1= Cost Estimating;

X2 = Cost Budgeting;

X3 = Cost Control;

X4 = Resource Planning and

e = the residual amount.

The regression equation above shows as by considering all factors constant at zero, the project was completed on time of Suzo industries expansion project will have a value of 1.362. In addition, the findings or the above regression equation show us, by taking all other independent variables at zero, a unit increase in resource planning and cost budgeting would lead to a 0.316 and 0.361 increase in the project increased quality performance Suzo industries expansion respectively. Also a unit increase in cost estimation and cost control in Suzo industries project taking all other independent variables at zero, would lead to a 0.0471 and 0.084 decrease in the project was completed on time.

Thus, the proposed hypothesis which states that project increased quality performance is not affected by the independent variables resource planning, cost estimation, cost budgeting and cost control are rejected by the p-value less than 0.05. Hence hypothesis one is rejected.

Table 4.14: Model Summary for Dependent Variable project increased quality performance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.714[a]	.659	.572	1.22940	1.403

a. Predictors: (Constant), Cost Control, Cost Estimation, Cost Budgeting, Resource Planning

b. Dependent Variable: The project increased quality performance

Source: Researchers own compilation of survey data and SPSS output (2019)

From table 4.14; R value which is 71.54 (.714*100) indicates the correlation between independent variables (resource planning, cost estimating, cost budgeting and cost control) and the dependent variable (project increased quality performance).

R-Square, which is the coefficient of determination, is a commonly used statistic to evaluate model fitness. The adjusted R2, also called the coefficient of multiple determination, is the

percentage of the variation in the dependent variable explained uniquely or jointly by the independent variables.

R square which indicates 65.9% (resource planning, cost estimating, cost budgeting and cost control) of the variance in the dependent variable (project increased quality performance) is being explained by the independent variables the remaining 34.1% of the variance in the dependent variable is explained by other variables not explained in this research. Interpretation

Table 4.15: ANOVA Result project increased quality performance

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.016	4	1.504	14.995	.003[b]
	Residual	95.219	63	1.511		
	Total	101.235	67			

a. Dependent Variable: The project increased quality performance

b. Predictors: (Constant), Cost Control, Cost Estimation, Cost Budgeting, Resource Planning

Source: Researchers own compilation of survey data and SPSS output (2019)

Table 4.15above; show the P-value of 0.003 indicates that the regression relationship is significant in predicting how those four independent variables (cost estimate, budget estimate, Resource planning and cost control) influence project increased quality performance. The F critical at 5% level of significance is 3.95. Since F calculated is 14.995 is greater than the F critical (value = 3.95) thus showing that the model is significant.

4.5 Discussion of Results

In the above data presentation and analysis, project cost management of Suzo industries is assessed in terms project cost management practice and its effect project success. Based on the analysis, major findings are obtained in the study and discussed as follow.

The reliability values for all constructs are all greater than 0.70, which considered acceptable. The project cost management of Suzo industries expansion project includes all of those components of project cost management i.e. resource planning (M=3.85, SD=0.688), Cost Estimating (M=3.84, SD=0.848), Cost Budgeting (M=3.67; SD=0.731), and Cost control (M=2.90, SD=0.995). Moreover, respondents in this project work agreed with the company project cost management since all of those project cost management components had mean scores in the range 3.50-4.50 except for cost control which ranges 2.5-3.5 which means the respondents stayed neutral. This shows the company has a relatively good cost management practice.

The result of respondents indicates that 7.4% respondents are project managers, 33.8% respondents are in the field of Engineers, 26.5% respondents are in the field Finance and 32.4% respondents are in the field of Purchasing. The results of respondent's demographic state are 66.2% are male and 33.8% are female and the age of respondents that range from 18-25 are 17.6%, from 26-35 are 41.2%, from 36-45 are 26.5% and 14.7% are above 46 years old. This indicates that most of the respondents are between the age of 26 to 45 and most respondents are male. Similarly, the education level of respondents' result indicates that most respondents have masters which rank 60.3%. Furthermore, the respondents work experience results indicates that most of the respondents have experience of 5-10 years and less than 5 years is 36.8% and the rest are with experience of more than 10 years.

From the descriptive statistics the project cost management of Suzo industries expansion project resource planning with mean of 3.8537, Cost Estimating with mean of 3.8477, Cost Budgeting with mean of 3.67, and Cost control with mean of 2.9032 agreed with the company project cost management since they all range 3.5-4.5 except for cost control which is neutral with mean score is 2.90.

R square which indicates 54.8% (resource planning, cost estimating, cost budgeting and cost control) of the variance in the dependent variable (project was completed on budget) is being explained by the independent variables the remaining 45.2% of the variance in the dependent variable is explained by other variables not explained in this research.

R square which indicates 75.7% (resource planning, cost estimating, cost budgeting and cost control) of the variance in the dependent variable (project was completed on time) is being

explained by the independent variables the remaining 24.3% of the variance in the dependent variable is explained by other variables not explained in this research.

R square which indicates 65.9% (resource planning, cost estimating, cost budgeting and cost control) of the variance in the dependent variable (project increased quality performance) is being explained by the independent variables the remaining 34.1% of the variance in the dependent variable is explained by other variables not explained in this research.

As per Roger (1999), in his previous study "Project management: cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria" identified that "Cost, time and quality (The Iron Triangle), over the last 50 years have become inextricably linked with measuring the success of project management. This theory supports this study since it is focused on one if the constraints which is cost.

Based on the regression analysis Thus, the proposed hypothesis which states that project was completed on budget is not affected by the independent variables resource planning, cost estimation, cost budgeting and cost control are rejected by the p-value less than 0.05. hence hypothesis one is rejected.

Grounded by the regression analysis as a result, the proposed hypothesis which states that project was completed on time is not affected by the independent variables resource planning, cost estimation, cost budgeting and cost control are rejected by the p-value less than 0.05. Hence hypothesis one is rejected.

Built on the regression analysis Hence, the proposed hypothesis which states that project increased quality performance is not affected by the independent variables resource planning, cost estimation, cost budgeting and cost control are rejected by the p-value less than 0.05. Hence hypothesis one is rejected.

Mario and Amanda (2016) explained the fact that lack of effective cost management system affects profitability of business projects, when appropriate cost control techniques help to improve the project success. This theory chains the research since Suzo industries is profit making organization, cost management has a significant effect on profitability of the business.

CHPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 Conclusion

From the research findings, the project cost management components implemented in Suzo industries expansion project include resource-planning, cost estimating, cost budgeting and cost control. In addition, from the analysis result the researcher found that in resource planning the techniques used are historical information and resource pool description. In cost estimating, the techniques used are chart of account maintaining and cost management plan. In cost budgeting the cost estimating tools and techniques used also employed here i.e. chart of account maintaining and cost management plan and finally in cost control the company uses cost change control system, performance measurement, additional planning and computerized tools.

When the researcher sees the impact of project cost management on the overall success of project management (budget, time, quality) in the case of Suzo industries expansion project, those all components of project cost management i.e. resource planning, cost estimating, cost budget and cost control has a significant association with the overall success of the project management (budget, time, quality). Moreover, resource planning, cost estimating, cost of budgeting and cost control have a positive association with the overall success of a project management (budget, time, quality).

From the linear multiple regression analysis result, resource planning, cost estimating, resource budgeting and cost control have significantly affected success of project management in terms of completion on budget, completion on time and quality of the performance.

The researcher also rejected the hypotheses stated by using the regression result. Accordingly, project cost management practices: resource planning, cost estimating, cost budgeting and cost control have an effect on success of project in terms of budget, time, and quality performance in case of Suzo industries expansion project.

5.2 Recommendations

Based on the study results, the researcher gives the following recommendations; firstly, those project staffs and senior management teams (SMT) need to focus on project cost management components which are resource planning, cost estimating, cost budgeting and cost control.

As concluded above the researcher suggests that Suzo industries to use expert judgment which is required to assess the inputs to project. Such expertise may be provided by any group or individual with specialized knowledge or training and is available from many sources including: Other units within the performing organization, consultants, professional and technical associations.

The researcher in addition suggests using computerized tools such as project management software and spreadsheets are widely used to assist with cost estimating, cost budgeting and cost control. Such products can simplify the use of the tools described above and thereby facilitate rapid consideration of many costing alternatives.

Moreover, it is recommended that the company to project manager and his time also give due attention equally for all components of project cost management since they all have impact on the overall success of their project in terms of budget, time, and quality.

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APPENDIX

Appendix I: Research work plan schedule (time Frame)

No	Activities details	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
1.	Proposal Preparation														
2.	Review of literatures														
3.	Pilot survey of company profile														
4.	Data collection														
5.	Data analysis														
6.	Data Interpretation														
7.	Thesis (report) writing														
8.	Thesis Submission														

Appendix II: Research budget plan

No.	Item	Cost
1	Transportation	1500
2	Stationary	800
3	Miscellaneous expense	2000
	Total	4300

Appendix III: Questionnaire

ST. MARY'S UNIVERSITY

Department of Project Management

Introduction

This is a questioner prepared by Samrawit Legesse who is a Masters student in St. Mary's University under its Project Management Program. It is prepared to undertake Masters Thesis/Research on the topic ***Project Cost Management Practices and Its Effect on Project Success: The Case of SUZO INDUSTRIES-In Addis Ababa.*** The research result could be used as an input for decision makers,

professionals, academician and other interested groups to play their respective role for the achievement of project objectives. It is believed that your participation in this research will contribute in achieving the objectives of the research. Thus, the quality of your response towards the question items determines the quality of the research results. Therefore, please answer the questions as thoroughly, objectively and honestly as possible according to the instructions contained in the body of the questionnaire. Finally, I want to assure you that all information provided in this survey will be treated with strict confidentiality and allowed to serve only for the purpose of the research under consideration.

Interested participant of this study will be given feedback on the overall research results after the completion of the research work.

Thank You in Advance for your cooperation!!

Mobile: +251 911222613

Background questions				
Role in this project:	Project Manager☐	Engineering ☐	Finance ☐	Purchasing ☐
Gender:	Male☐	Female☐		
Age:	18-25☐	26 – 35☐	36-45☐	>46☐
Type of project:				
Total budget:				
Total duration:				

Project managers' education level and experience				
Education Level:	PhD degree ☐	Master's degree ☐	First degree ☐	Diploma ☐
Years of Experience:	Less than 5 years ☐	5-10 years ☐	More than 10 years ☐	

1. Do you agree that **project cost management practices** affect success of project management in case Suzo industries expansion project in Addis Ababa?

Yes ☐ **No** ☐

2. If your answer is yes for question 1, rate **project cost management practices** in terms of their effect on success of project management in case of Suzo industries expansion project.

Please, tick **"✓"** in the appropriate columns to indicate how much you agree that the following listed **project cost management practices** affecting success of project management in Suzo industries expansion project in Addis Ababa.

Groups/Factors	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**

Project Cost Management **Components**					
Resource Planning					
Cost Estimating					
Cost Budgeting					
Cost control					

Resource Planning	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
The company examines the resourcerequirement (people, equipmentand materials)for each of the project elements separately					
In evaluating the resource requirement for thecurrent project the company uses informationfrom previously completed similar projects					
The company takes immediate action in case ofdifference b/n the actual resources used andthe proposed resource requirement					

Cost Estimating	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Cost is estimated for activity parameters i.e. cost, budget, and schedule, using statistical relationship between historical data and other project variables					
Cost is calculated for every activity in the work package and sum it up to come up with the project cost estimation					
The company maintains separate chart ofaccounts for each of the resources					

Cost Budgeting	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The company prepares a budget book thatconsist of the resource requirement in quantityand in cost based on the proposed project book					
The budget book contains a detailed informationregarding the quantity & cost of the resources ineach projectelements by using their distinctaccount numbersmaintained in the chart ofaccounts					
The company conserves distinct chart of accounts for activities in different projectelements					

Cost Control	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The company prepares regular and timelyvariance analysis based on performance reportsto see whether the quantity and cost of theresources used vary from that in the budget book					
The company takes immediate action in case ofvariance (in quantity, cost or both) betweenactual resources used and the resourcerequirement in the budget book					
The company follows up whether the actual resources used in project elements are in accordance with that proposed on the project book					

Success of project management	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The project was completed on budget					

The project was completed on time					
The project increased quality performance					

Additional Comment

Thank You!