ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

ASSESSMENT OF PROJECT COST MANAGEMENT PRACTICES: THE CASE OF SELECTED REAL ESTATE COMPANIES IN ADDIS ABABA

By:

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A Thesis submitted to the School of Graduate Studies of ST. Mary's University in partial fulfillment of the requirements for the Degree of Master of Arts in Project Management

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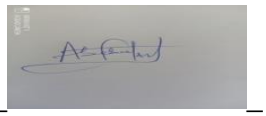
Abebaw Kassie (PhD)		June 27, 2022
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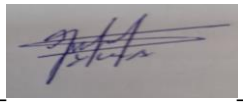
Yilkal Wassie (Asst.Pro)		26/06/2022
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DECLARATION

I, Henok Habtamu, hereby declare that the thesis work entitled **"Assessment of Project Cost Management Practices: The Case of Some Selected Real Estate Companies in Addis Ababa"** submitted by me for the award of the Master of Art Degree in Project Management at ST. Mary's University, is original work and it has not been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution.

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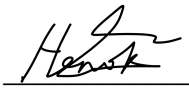
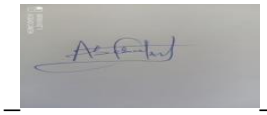
Signature: 

Signature: 

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Abbreviations and Acronyms

BAC	Bill of Quantities
EDRE	Federal Democratic Republic of Ethiopia
GDP	Gross Domestic Product
ICT	Information Communication Technology
IT	Information Technology
NBE	National Bank of Ethiopia
OH	Over Head Costs
PCM	Project Cost Management
PM	Project Management
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
US	United States
WBDS	Work Break Down Structure

Abstract

The objective of the study was to assess the project cost management practices of real estate development companies in Addis Ababa. Existing cost management practices related with resource planning, cost estimating, budgeting and cost controlling were assessed in view of identifying shortcomings and limitations associated with each function. A mixed research approach and descriptive survey design was used. A questionnaire was used to gather quantitative data while semi-structured interview was employed to collect qualitative data. The study mainly targets four real estate companies in Addis Ababa currently undertaking various real estate development projects. These are: Sunshine Real Estate, Noah Real Estate, Pluto Real Estate and Jambo Real Estate. The study covered a census of 88 project team members of the four sample projects who were working in four construction projects in Addis Ababa. The data collected was analyzed with the aid of descriptive statistical techniques such as frequencies, percentages and mean score. Based on the analysis, this study identified the major gaps in the actual cost management practice of the project. The study found that despite the fact that all sample real estate companies were undertakes the resource planning, cost estimating and cost budgeting task as part preparing the overall project management plan, there were gaps in terms of using all the required inputs during the resource planning, cost estimating and budgeting. Most of sample projects did not establish cost control plan and did not timely measuring and reporting of the cost variances from the baseline. There was also limitation in terms of using more advanced project resource planning, cost estimating, cost budgeting and cost controlling techniques and tools and the traditional method of intuitive judgment is still very much in evidence. The study also found the application of the traditional or standard estimating method for cost estimating is dominant. The results further revealed that the cost control system fails to indicate/identify activities or operations which are being carried out uneconomically together with the underlying reasons. Moreover, it is not carried out in a way which provides feedback to the estimating process. The study also concluded that that there was deviation between estimation and actual costs in this project. Finally, recommendations forwarded such as prepare cost control plan, improving and expanding the scope of company's cost controlling system, integration of the estimating formats and techniques with those used for budgeting and cost controlling purposes and embed cost management practice in daily project activities using appropriate tools and techniques

Key Words: Project cost Management, resource planning, cost estimating, budget, cost overrun, cost control, real estate development project

CHAPTER ONE
INTRODUCTION

1.1 Background of the study

The construction industry is a significant contributor of economic and social development in global, regional and national economy. It has hugely influenced the economy, the environment and the society. Though the construction industry plays significant role in socio-economic development of the nation, the industry has faced several problems and challenges. The inability to complete projects within budget continues to be a chronic problem worldwide and is worsening from time to time (Ahmed, 2002). Likewise, Azhar and Farouqui (2008) observe that the issues of cost management is common worldwide and that it is more severe in developing countries.

Due to these challenges the debate in the construction industry on how to manage cost has been discussed for some time among professionals, clients and/or end users, and the policy makers. Construction works in general and real estate development project in particular are time bound activities which involve heavy investments of capital and resources and hence project cost and its control are important management responsibilities. The significance of efficient cost management of construction projects is widely recognized by construction professionals in practice. Cost is the budgeted expenditure, which the client has agreed to commit for creating/acquiring the desired construction facility (Chitkara, 2011). Cost means expenses incurred by contractor for labor, material, services, utilities etc., plus overheads and contractor's profits (Chris, 2008). For the purpose of this thesis cost is defined as expenditure or expenses that developer has incurred for building of desired construction facility.

Project Cost Management is a management activity that deals with forecasting, planning, control, cost finding, analysis and evaluation of the contractors and it is used to control project cost (Zhen, 2008). Likewise, Young & Ibbs (2002), defined cost management as the process of controlling the expenditure on a construction project at all stages from initiation to completion, within the approved budget. It is the process by which costs (expenses) incurred on a project are formally identified, approved and paid (Chris, 2008).

According to PMI (2013), project cost management is predominantly concerned with the cost of the resources required to complete scheduled project activities during the execution stage, and this includes cost of using in tendering, construction, maintaining and supporting results of the project. The book also outlines that planning, estimating, budgeting, financing, managing and controlling costs, and interaction of each other to complete within the approved budget, are the sub processes which involved in the project cost management process. Also, Pereira and Imriyas (2010) stated that, construction cost management deals with a broad range of functions such as estimating, scheduling, cost control, resource costing and financial control.

Moreover, Abeselom (2008) stated that, construction projects cost management is a process which complements the broad functions of estimating and tendering, scheduling, cost control and financial control. Accordingly, contractors need to have a cost management system which spans from the tendering up to the completion stage which integrates estimating, tendering, budgeting and controlling. In the same token, Karim (2012), described that construction cost management is the entire process, which ensures that the contract amount is within the cost limit of client's approved budget.

In Ethiopia, construction sector is also playing an important role in national economy. Nevertheless, the construction industry in Ethiopia is also challenged by several problems which tend to confront the sector and thus making efforts at developing the construction industry is very difficult and complex. According to Asteway, (2008), the underlying problems of the construction sector in Ethiopia can be classified into two main categories. The first is related to the consequences of the fact that the sector is not viewed and planned in an integrated manner, but rather, operates with fragmented, unrelated and often conflicting components (Wubishet, 2004). The second problem is related to deficiencies and market price fluctuation of the inputs required for the construction which result in cost overrun of project (Gebre-Michael, 2002). In the same token, Fetene (2008), also advocated that cost overrun is quite prominent is Ethiopia construction industry. He explains that cost is one of the primary measures of a project's success and this is true, especially for public projects in developing countries like Ethiopia, because construction projects in these countries are executed with scarce financial resources. Considering this fact, it is important that a significant attention should be paid for cost management issues in the construction projects in Ethiopia where most of the projects are financed through loan.

In Ethiopia, following the government's policy to encourage private investments, the construction sector in general and the real estate industry in particular has shown radical growth in recent years. The Real Estate industry plays an important role in terms of its direct contribution to the economy; supplying housing for the society, undertaking construction projects for commercial and other purposes, creating employment opportunities, its crosscutting effect in enhancing the development of other sectors through its backward and forward linkages as a consumer of raw and intermediate materials and its contribution to urbanization make this industry vital for the nation's economic growth (Haddush, 2016). It is continuously evolving as major towns in the country continue experiencing rural-urban migration which is driving growth in demand for both residential and commercial property, and real estate and property developers are striving to satisfy this demand. Since most of the projects undertaken under this industry are construction projects, they are linked with cost escalation (Ehsan, 2010, cited by Haddush 2016). Therefore, cost management is crucial, not only to go with the planned cost and time frame, but also to profit out of that, to gain a competitive advantage.

According to Wilkinson and Reed (2008), being a project-oriented organization, real estate companies experience more challenges, thus need to manage them as effectively and efficiently as possible. They further point out that successful real estate development, inter alia, depends on bringing the adequate real estate product to the market at the right time at the right price and the development profit depends on achieving all that while balancing costs against value. Development is fixed both in time and space and involves relatively large amounts of capital (Zani, 2003). Likewise, in words of Brade (1998), real estate development is a very complex and cross-disciplinary task as it typically demands a dedicated team including people with different skill sets and expertise and the co-ordination of a wide range of interrelated activities. Local authorities, legal requirements, residents and neighbors are to be satisfied, design teams and contractors to be managed, time scales, costs and contingencies to be monitored and lenders and other stakeholders - especially prospective tenants and investors - to be satisfied. In addition, real estate developers are often faced with considerable changes in their environment and new challenges driven by the macro-economic, social, urban-planning, political-legal, regulatory, environmental and technological framework conditions (Shimpi, 1999). This study aims at examining the project cost management practice that are currently practiced by real estate projects in Addis Ababa.

1.2 Statement of the problem

Considering the fact that cost overrun has most significant challenge of construction industry, in today's world of project management perhaps one of the most important skills that a project manager can possess is cost management. In recent years, increasing attention has been paid to the subject of managing cost inherent in most projects (Kerzner 2006). In particular, awareness of cost management in real estate development is of vital importance yet research on the topic is very limited (Lewis, 2011). Although extensive literature exists on cost, and general cost management, research addressing cost management approaches in real estate development is relatively scarce (Meredith & Mantel, 2009).

According to Guy and Henneberry (2002), the real estate development business requires a great awareness of cost and its management. This not only stems from the risky nature of the development process and involved complexity but also from the regulatory, capital market and stakeholders' pressures which call for great awareness of cost and cost management. For real estate construction projects, the investment is lasting and high. Lots of agencies, institutions, and people take a part in real estate construction projects. Therefore, the cost control and management is more complicated and has multiple levels (Millington, 2000). Once the construction cost is out of control, it could lead to a great waste and bring about more pressures for property management in later. A nice cost control is meaningful for the whole real estate construction project. To realize better cost control and management of real estate construction is important for today's harmonious society. These areas were examined in turn within the context of Real Estate companies at Addis Ababa.

According to Wilkinson and Reed (2008), as an organization entrusted by its customers to deliver the product upon an agreed time, cost and quality standards; real estate companies are expected to control production delays, escalating construction costs and quality defects to build client confidence and satisfy their customers. Unfortunately, most of the real estate companies in Ethiopia appear to be on the far side from this expectation. The performance of the industry in terms of efficiency and effectiveness is not as such encouraging with substantial number of projects suffering from delays, cost overruns and quality problems. This was mostly attributed to a number of constraints and challenges; shortage of skilled manpower, inefficient project management, lack of technology transfer, absence of conductive environment that enhances competition and lack of efficient input supply chain were among the challenges constraining

growth of the industry (MOUDC, 2014 cited by Haddush, 2016). More so, according to MUDHCo. (2015) also reported that a significant number of companies received plots of land for Real Estate development. However, in the middle of their projects, they change project scope by redesigning houses to smaller ones for the sake of budget constraints. This observation shows there is a problem in project cost management.

In Ethiopia, although some researches have been studied in the field of project cost management, from survey of relevant literature, it was evident that very few studies have been found to empirically investigate the cost management practices in real estate development projects. Elias (2021) conducted research about the impact of project cost management on project success on selected real estate companies in Addis Ababa. Alula (2020), are conducted a study to examine practice and challenges of project cost estimate in selected Grade One Building Construction Companies in Addis Ababa. Sirgut (2018) conducted a study to identify factors affecting effective project cost management in the case of Nashcon Construction PLC. More so, Taye (2016); Zinabu and Getachew (2016) and Fetene (2008) conducted a study to identify factors that cause cost overrun in construction project. However, these and other studies in the area of project cost are mostly focus on the cause of project cost overrun, or the effect of project cost management practices on project success, not focus on the actual cost management practices. It came out strongly that there was of lack of comprehensive and detail analysis of each element of project cost management practices. Thus, the study aims to fill this gap in literature by assessing in detail the project cost management practices with in the context of real estate development companies in Addis Ababa.

1.3. Research Questions

In line with the problem statement, the study attempts to address the following basic research questions.

i. How project planning is handled by real estate development companies Addis Ababa?
ii. How project cost estimation is practiced among real estate development companies in Addis Ababa?
iii. How project cost budgeting is practiced among real estate development companies in Addis Ababa?

iv. How project cost control is practiced among real estate development companies in Addis Ababa?

1.4. General objective of the study

The general objective of the study was to assess the project cost management practices of real estate development companies in Addis Ababa.

1.4.2 Specific objectives of the study

The Specific objectives of the study include the following:

i. To examine project resource planning practices of real estate development companies in Addis Ababa.
ii. To determine project cost estimating practices of real estate development companies in Addis Ababa.
iii. To examine project cost budgeting practices of real estate development companies in Addis Ababa.
iv. To assess project cost control practices of real estate development companies in Addis Ababa.

1.5 Significance of the Study

The findings and recommendations of this study would be of a great importance to different project stakeholders, project practitioners and project managers and project teams undertaking similar projects. At completion, the study will show how matured and prepared the projects under study are in terms of project cost management. The study will also inform real estate project stakeholders how project cost management is really being practiced at their projects, about their strengths and weaknesses in practicing the cost management process. It will also give a general insight to the academic & professional society about the different aspects of cost management and how it is being practiced among the real estate industry. Last but not least, this study will serve as a starting point and as a reference for further studies.

1.6 Scope of the Study

The study was delimited on four major areas (conceptual, geographical, methodology, time).

- **Conceptual Scope**: The conceptual scope of the study aims to explore, describe and explain actual project cost management practice in real estate companies in Addis Ababa. The study assesses project cost management practices in areas of cost planning, cost estimating, cost budgeting and cost controlling.
- **Geographical Scope**: the study will focus only on the selected real estate companies in Addis Ababa. is located in Addis Ababa. Those companies outside the Addis Ababa will be omitted in this study as finances and distances are the limiting factors that inhibit collecting the data from all the employees across the country
- **Methodological Scope**: it will use mixed research design in which quantitative data will be collected from the questionnaire and qualitative will be collected from interview methods.
- **Time Scope**: to need the required study data will be collected in 2022 GC.

1.7 Organization of the study

The study is organized into five chapters. Chapter one discusses the introduction part. It contains the background to the research study, presents the statement of problem, objectives significance and scope of the study. Chapter two contains theoretical and empirical review of previous studies. Chapter three outlines the research methodology adopted in this study. Chapter four discusses about the data analysis and interpretation of the outputs. Chapter five outlines the summary of the finding, conclusions, recommendations and further research suggestions.

CHAPTER TWO

LITERATURE REVIEW

In this chapter the researcher reviews relevant literature on theoretical and empirical issues which are found to be essential to the research inquiry. Thus, the first section discussed theoretical literature related to the study variables which are consider in order to lay solid foundation for the research. Then a brief summary of some of the related previous work are discusses. In the final analysis, the chapter presents the gab in literature.

2.1 Theoretical Review

This opening section discusses the theoretical background of basic concept and theories concerning the construction project in general and real estate development project in particular. Also discuss the project cost management. The meaning of terms varies from study to study depending on their purpose and the context in which they are utilized. The precise clarifications of basic concepts and theories make clear how they are utilized in the study. The main concepts and theories that this study cover is explain in the following section.

2.1.1 Definition of Real Estate Development

The views expressed in specialist literature regarding the precise definition of the term 'real estate development' (also referred as 'property development') are varied and, in part, differ from each other. Most definitions refer to a sense of creativity and focus and coordination in order to realize real estate assets (Neary, 2009).

According to Millington (2000), real estate development project means "the carrying out of building or other operations in, on, over or under land, or the making of any material change in the use of any buildings or other land." This definition reflects the functional characteristics of real estate development and continues to be widely used.

Wilkinson and Reed (2008), adopt the definition that real estate development is "a process that involves changing or intensifying the use of land to pro-duce buildings for occupation". This description, however, does not sufficiently reflect the original character of real estate development and the creative function of real estate developers as a prerequisite for project initiation.

Miles (2000), defined real estate in simple sentence: “a triangle of space, money and time.” In this sense a particular usage is attributed to a defined space which generates an estimated cash flow over a specific period of time. Based on this understanding of real estate, the definition of development postulated by Graaskamp (1992), “the creation and management of space, time and units is termed real estate development” is applicable. This definition primarily makes reference to the economic benefit derived from the space produced by the developer. The definition of by Miles, Berens and Weiss (2000), also refers to the management and entrepreneurial aspect of real estate development: “Development is an idea that comes to fruition when consumers – tenants or owner occupants - acquire and use the bricks and mortar (space) put in place by the development team. Land, labor, capital, management, and entrepreneurship are needed to transform an idea into reality. Value is created by pro-viding usable space over time with associated services.”

Miles (2000), describe real estate development as a highly synergistic and creative process in which “physical ingredients are effectively combined with financial resources and professional skills, to create a built-environment that is economically sound, aesthetically pleasing and environmentally responsive. At its best, the development process is synergistic – that is, the ultimate combination of resources has a greater value than the sum of the individual parts.”

According to Wiegelmann, (2012), the most prominent characteristics of real estate are that it is tied to its location, it is heterogeneous, it is scarce and it has limited substitutability. These factors have far-reaching economic, legal and factual implications. The geographic location alone frequently determines the most likely use as well as the physical and structural possibilities, and the value of real estate is largely determined by external factors such as the condition and the possible uses of adjacent properties as well as the infrastructural facilities provided by the public sector” (Wiegelmann, 2012).

The definition of Neary (2009) has been widely accepted and is favored for the purposes of this thesis: “Real estate development project is required to combine the aspects of location, project concept/ idea and (use of) capital so as to achieve multiple objectives: the results need to be (micro economically) competitive on a standalone basis, should create and or secure employment, need to be socially, macro economically and environmentally acceptable and they need to generate a positive return over their life-cycle in the long term.” Neary distinguishes between real estate development in the strict sense, which comprises the period from project

initiation until the decision regarding the further procedure within the conceptual framework, and real estate development in the broader sense, which includes both the planning and construction phase and the usage phase of real estate.

This conceptual understanding makes stronger reference to the production factors of location, project idea and capital, which form the starting point of real estate development and whose effective combination results in a specific investment (Healey, 1992). This definition addresses both the macro-economic and the micro-economic effect level of real estate development. From a macro-economic perspective, it is required that the real estate, as the outcome of development process, meets public demand, while it must be competitive, profitable and sustainable from a micro-economic perspective. Further, the core focus is to be on the development of real estate assets. Although development organizations may engage in the construction of roads, drainage, water facilities, power generation and other infrastructure, these projects should be ancillary to the core activity of developing buildings for occupation.

2.1.2. The Real Estate Development Process

This section provides a thorough understanding of the nature and processes of real estate development. Besides, the section breaking down the real estate development processes into ideal typical phases. Like many other projects, property development processes often divide into phases.

Real estate development is the transformation of an idea for newly built space into a real property in order to contribute to a company's objectives, like making profit, establishing good relationships with clients, and winning awards (Miles 2000; Peiser & Frej; 2003, Nozeman, 2008). Transforming an idea into a real property may take several years. In the same taken, Healey, (1992) describe real estate development as a multifaceted, dynamic and cross-disciplinary task which would be well described in terms of its actual content by means of a process-related perspective. It typically demands a dedicated team including people with different skill sets and expertise and the co-ordination of a wide range of interrelated activities (Zani, 1993).

In the real estate literature, we find several models describing the real estate development process. Various authors take different approaches, with differing degrees of detail, in charting

the real estate development process by defining its individual phases. Byrne and Cadman (1984), for example, propose a three-tier model, distinguishing between ‘Acquisition’, ‘Production’ and ‘Disposal’. Flanagan and Norman, (1993) identified the four phase of construction project which are investment decision, design, construction and occupy/use. Similarly, Chapman & Ward (2003), differentiate between four phases, conceptualizing, planning, execution and termination. Others such as Cadman and Topping (1995); Miles (2000) or Wilkinson and Reed (2008), differentiate between eight phases, which are ‘Initiation’, ‘Evaluation’, ‘Acquisition’, ‘Design and costing’, ‘Permissions’, ‘Commitment’, ‘Implementation’, ‘manage and dispose’.

In the literature there are also additional models for real estate development process. To mentioned further examples, in literatures the development process is usually modeled as a series of sequential phases, such as ‘evaluation, preparation, implementation, and disposal’ (Cadman and Austin-Crowe, 1983: 3), ‘evaluation, acquisition, procurement, and disposal’ (Birrell and Bin, 1997), ‘inception of an idea, refinement of the idea, feasibility, contract negotiation, formal commitment, construction, completion and formal opening, and property, asset and portfolio management’ (Miles 2000), or ‘planning and initiation, feasibility, commitment, construction, and management and operation’ (Peiser & Frej, 2003: 20-21).

Furthermore, Healey (1991) reviewed models and grouped them into four types: equilibrium models, event sequence models, agency models and structural models. Healey pointed out that each makes a contribution to the objective set out, but none fully addresses the range of possible forms and dynamics that the development process may make. The development process is typically described in a linear fashion. Miles (2007) systematizes real estate development projects and presents it in an eight-step model. A similar model is presented by Røsnes & Kristoffersen (2009). They based their description of the development process on this model, with eight steps including the process from idea to facility management. The authors point out that the models are not a set answer and the sequences may in many cases be parallel or possibly omitted. Still, the models give a good superior structure of how progress of real estate projects can be.

Despite the existence of different process models with varying numbers of phases, however such models generally cover mostly the same tasks performed by a developer. Any activities take place in each phase. All activities in a phase are aimed at reaching a certain end result. For

example, in the feasibility phase a developer conducts or commissions a formal market study to estimate market absorption and capture rates, conducts or commissions a feasibility study comparing estimated value of project with cost, processes plan through government agencies to demonstrate legal, physical, and financial feasibility. In the construction phase a developer seeks to keep all costs within budget and resolves construction disputes, signs check, keeps work on schedule to deliver the building within budget and schedule (Miles, 2000).

The different activities in each development phase are not carried out in a sequential order, but they have a simultaneous character: the activities interact and in some cases are time dependent. Interaction means that 'a single activity can span several stages in the development process and several different activities will be ongoing in any particular stage. Second, the process is interactive in the sense that values of certain variables in the process are conditioned by the values of certain other variables' (Miles & Wurtzebach, 1977). Time dependency implies that one activity must be completed before another can start. For example, construction can only start when public authorities have given the building approval and financing is arranged. Moreover, various authors note that the development process is 'hardly straightforward' (Miles 2000) and that 'development is an iterative process in which the developer obtains more and more precise information in each iteration' (Peiser & Frej, 2003).

Overall, it should be noted that the complexity and dynamics of the real estate development process might be reflected in ideal-typical form by means of phase models. Nonetheless, it must be conceded that, in reality, the individual phases do not always take place in the sequence stated. In fact, real-life projects are generally characterized by overlaps, parallel operations and feedback effects, which cannot be mapped to a sufficient degree using phase models (Daley, 2010). A good example is project marketing whose tools can (or should) be used in an early phase of the real estate development process, as the conclusion of lease agreements at an early project stage will reduce risk and promote the project success or the salability of the project to investors (Wiegelmann, 2012).

Due to the differing strategic starting points, the development of a process model is necessarily an organization-specific task. For the purpose of this thesis the processes identified by Nozeman (2008) are consolidated into the following four main phases, namely;

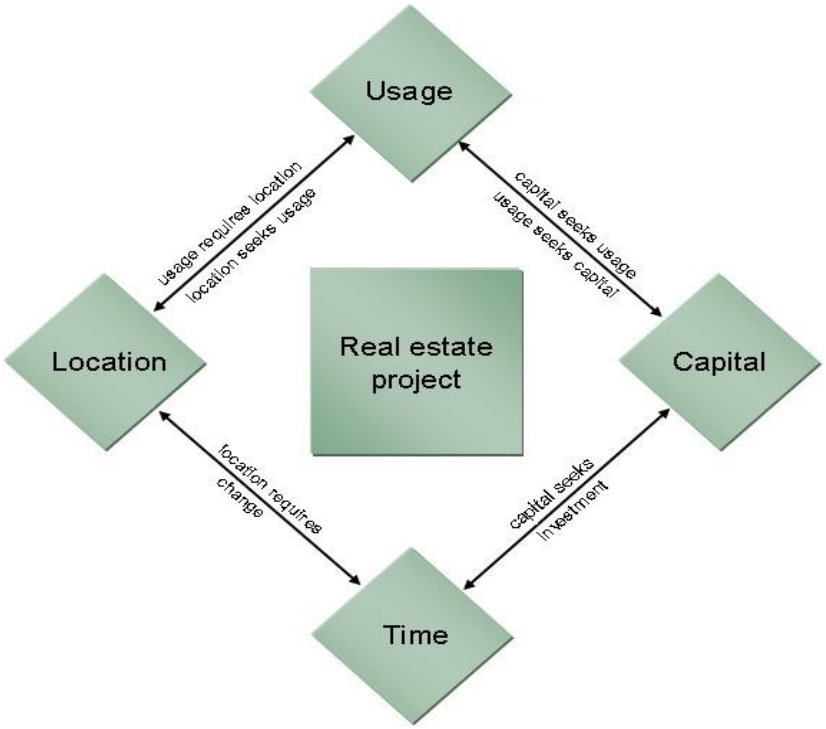
- Project initiation/conceptualizing

- Project feasibility analysis
- Project implementation
- Project marketing and disposal

2.1.2.1. Project initiation

The real estate development is a long-term process. The process begins with project conceptualizing and initiation phase. The initiation phase embarks on the construction development process. A main expertise of a development organization is to identify the future demand on space market to create and provide an adequate supply and thereby to create value (Nozeman, 2008). Conceivable starting-points for a real estate development are depicted in figure 2.1.

Figure 2-1: Conceivable starting-points for a real estate development



Source: (Schulte, 2002)

As indicated in figure 2.1, the starting situation for a development may either be: an existing plot of land, for which a use of project concept must be found and financing required or a project idea for which a suitable location must be procured. Thus, a starting point of real estate development process is either finding a property/ micro location or development of project idea/project

concept (Schulte, 2002). Accurate and pre-planned timing is a critical success factor in this context. This depends on the one hand on project-specific market conditions and the relevant market cycle and on the other hand on the availability of attractive land plots. In this respect, the developer supplies entrepreneurial services to the property market by identifying and activating market opportunities (Darcy & Keogh, 2002).

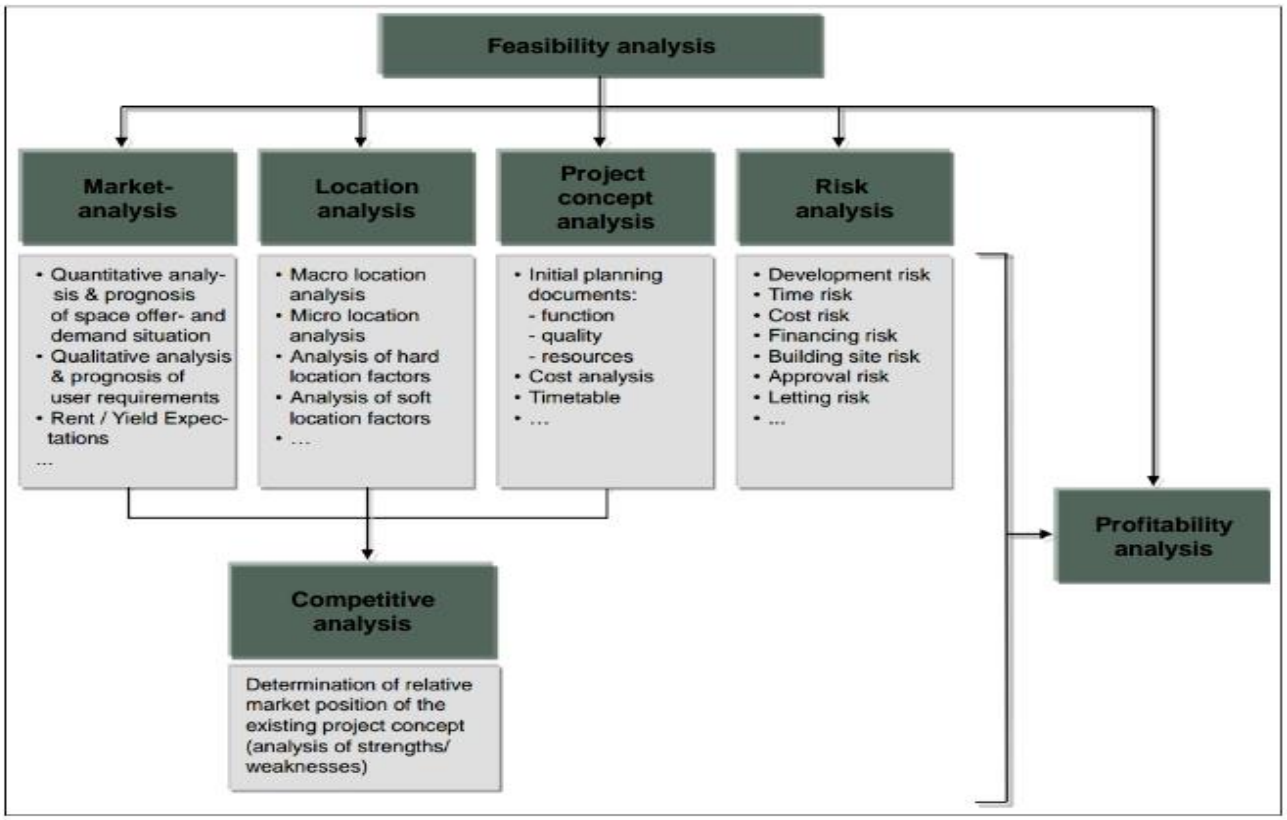
Main activities within the project initiation phase are commencing specific market research to ascertain demand from potential users as preparing basic development appraisals that will comprise the design, cost and program elements of the development. In case of unsatisfying outcome of the concept and its initial economics, the project will likely not be pursued any further. If the preliminary review is positive, the next step is to secure the required land in case the site is not already in the developer´s possession or under exclusivity. In that case, a strategy for identifying and securing a site of suitable size, budget and location is to be elaborated. Often it is preferred by developers not to purchase the land at this stage but ensure exclusivity with the owner(s), given that a full feasibility analysis has not yet been completed. Option agreements or a purchase subject to conditions precedent are possible routes to achieve this. In case the land has to be acquired with immediate effect, a developer is likely to first undertake the following phase of the development process, the project conception phase, and prior to signing a purchase agreement (Nozeman, 2008).

2.1.2.2. Project feasibility analysis

This phase can be qualified as one of the most important ones in the development process given its influence to the decision-making of the developer (Darcy & Keogh, 2002). The goal of a feasibility study is to articulate a finding about the economic sustainability of the project under review. According to Grissom (1984), a real estate project is ‘feasible’ when the real estate analyst determines that there is a reasonable likelihood of satisfying explicit objectives when a selected course of action is tested for fit of a context of specific constraints and limited resources. In terms of content, the feasibility analysis is based on detailed market and location analyses, design studies, use analyses, risk assessments, competitive analyses as well as profitability calculations. Figure 2-2 shows an outline structure of the feasibility analysis. The challenge at this early and uncertain phase of the project is finding a balance between costs (potentially sunk

costs), project uncertainty and the necessary quality and detailed specification of the usage concept (Nozeman, 2008).

Figure 2-2: Structure of feasibility analysis



Source: (Isenhöfer, 1999)

As illustrated in the figure 2.2 above, the first task in feasibility analysis is conducting detailed market analysis. The market analysis concerns itself with the supply and demand situation in the short to medium term. It identifies the specific market segment (in terms of use and location geographical and technical sub-markets) applicable to the project. The main criteria to be considered are the requirements of potential users, how readily the project will be absorbed by the market, and subject to the effects of this absorption, the rent and property values applicable to the project. The market analysis should be an objective view of the market, and allow the developer to understand the market dynamics and review, which to its own strengths can be utilized to take advantage of those dynamics (Nozeman, 2008).

The other important component of feasibility analysis is location analysis. The analysis of the location should critically verify the findings of the inception phase as documented in the preliminary acquisition review. The objective must be to obtain verifiable data that can be analyzed and presented in a manner to demonstrate to third parties the planned use of the land. These analyses are concerned with the long term-effective characteristics of micro and macro locations. The location factors are both easily quantifiable hard criteria, as well as more soft criteria, which will always retain some level of subjectivity (Nozeman, 2008).

Project conception analysis is another important element of feasibility analysis. The building concept for the use of the property must be based on the market and location analyses discussed above. It examines the architectural and technical design of the building. Important criteria are the standard of specifications and the flexibility of the use of the building and its space efficiency. The objective is to meet market demand while minimizing building and operating cost and maximizing flexibility (Nozeman, 2008).

The other main component of feasibility analysis is competition analysis. The three above aspects of market, location and usage concept typically run parallel and are combined as the basis of a competition analysis, comparing the market position of the evaluated project with properties, which are or will be in direct competition. The first stage is the identification of appropriate benchmark properties. The objectives are to meet client needs while differentiating the development as much as possible from competitors. However, the weighting of criteria will always retain an element of subjectivity, which leads to residual risk (Nozeman, 2008).

Risk analysis as one component of feasibility analysis offers real estate developer the opportunity to analyze various treats and risk at a preliminary stage and review their impact prior to commitment of capital, as well as documenting and trying to mitigate such identified risks during later implementation. Development risk is one of such risk that needs to analyze at this stage. Development risk is defined as the risk that the leasing or sale of the project will generate insufficient returns to cover cost and create the desired return due to a lack of sales or inadequately meeting the needs of the market in terms of type and location. The more unusual a particular type of project is for the developer, the higher the chance that the developer will misread the market and the higher the development risk. In addition, there various types of risk

that needs to be analyzed at this stage which includes: time risk, location risk, cost risk, financing risk, building site risk and approval risk (Isenhofer, 1999).

The last crucial element of feasibility analysis is profitability analysis. Combining the results of the five analyses above (market, location, project concept, risk and competitive analysis), the developer needs to calculate a detailed profitability analysis showing appropriate sensitivities for the risks identified. As to Wilkinson and Reed (2008), the profitability of a real estate development project with an already fixed land purchase price is mostly affected by short-term interest rates, building cost, rental values and investment yield. Rental values are largely determined by the demand for and supply of space, whereas the investment yield is driven by capital market perceptions of real estate as an investment asset in general and the evaluation of the specific project concerned. The maturity and liquidity of real estate markets is a key factor for investors to correctly prize markets and projects. According to Wilkinson and Reed (2008), the profitability analysis should use clearly defined quantitative measures of a project's robustness and return, such as net operating income to cover debt service, operating costs (i.e. break-even test), net cash flow after debt service to provide adequate risk adjusted returns on equity, net present value of returns to exceed project cost, and net present value analysis to cover construction, absorption and operations periods.

Overall, in project feasibility analysis stages based on the results gets from the six analyses above (market, location, project concept, risk competitive and profitability analysis), developer will make a decision whether to proceed with the project. In case the project feasibility analysis did not indicate that the developer's business requirements and objectives could be met, the project will likely be abandoned. In the case of project feasibility analysis will make a satisfying outcome, the phase of project implementation will be entered.

2.1.2.3. Project implementation and management phase

The purpose of project implementation phase is the overall planning, coordination, and control of the project from beginning to completion. At this point, at the very latest, the other parties to the project enter into the development process. These include the property owners, architects and engineers, building authorities and other representatives of the public interest, construction contractors, financial institutions, user groups, special service providers to the real estate industry (project managers, consultants, brokers, etc.) and - unless this is a development for own use -

investors. In this phase the developer may represents the role of the client. The design will be concretized and if necessary, the developer can delegate client tasks to an external construction project manager. Architects as Developer have a significant knowledge advantage in this phase due to their education and experience (Wilkinson & Reed, 2008).

While the decision to realize the project was only provisional until that time, it can ultimately be made only with the final issuance of the building permit and subject to the presumption that the other negotiations have reached the stage where they meet a certain level of requirements as stipulated by the developer, for instance with respect to financing commitments, leasing status and construction service contracts awarded. More so, questions of building functionality, flexibility of use, building efficiency and architectural design are discussed as part of the usage concept. Thus, a further core task in connection with this phase is the preparation of a planning, implementation and contracting concept.

Obtaining required finance for the project is additional core task in this stage. Obtaining adequate financing on competitive terms is a complex activity that requires for specialist knowledge. The availability and cost of third-party financing has a considerable effect on the success of a development and the profit margin of the developer. Depending on the intended holding period of the development project, the developer may pay off a short-term financing from the sale of the completed property in order to realize his profit from the development process. Alternatively, the developer may wish to hold the completed asset as investment property (or owner-occupied property) and as a result seek to place long term financing.

More so, in this stage it is important to undertake two main project implementation and management activities which includes:

- Project planning and engineering,
- Construction

i. Planning and design

A developer usually has an idea in about what wants to build on a given piece of property. However, it is the land use plan that is used to illustrate the idea. A developer first gathers site information such as topographic and boundary surveys, maps, aerial and ground photographs, and any soil information. From this the developer develops preliminary plans of the development. Detailed plans for land, structural and capital improvements have to be prepared

and necessary permits and licenses obtained. The developer may prepare several different strategies showing various densities, street locations, types of units, amenities, etc. (Nozeman, 2008).

Once approval has been obtained, the developer can proceed with design and engineering of the project. The objectives of the project design should be to balance the requirements of the intended user with construction costs and sustainable operating and facility management costs, the expertise of construction firms, planning requirements, engineering considerations and aesthetic preferences in order to produce a project-specific optimum design for the site. With the intended marketing and leasing in mind, the design of the structure to be built and/or capital improvements to be made to an existing structure (taking into account tenant specifications) has to be completed and documented in detailed working drawings and specifications. The feasibility analysis should be kept updated with the approved development and capital improvement plans, intelligence on competitor activities, engineering analyses, regulatory requirements, detailed land development, architectural and capital improvement plans and drawings for project, project budget, and approved building permits (Wilkinson & Reed, 2008).

ii. Construction

Of all the steps in development, construction is probably the most straightforward in terms of variations on how it can be done (Nozeman, 2008). The construction phase starts with the granting of the building permit and the aim is the completion of the project within the planned framework of schedules, costs and quality. Once all necessary permits have been obtained, the developer gives the orders to start work (Isenhofer, 1999). Normally construction is divided into the development of the land and construction of the individual housing units. The development of the land involves providing the infrastructure such as roads, drainage, water, sewer, and other utilities. Once the land has been improved it is generally divided into buildable lots or sites. These can then be sold to individuals or builders, or can be retained by the developer (Nozeman, 2008).

While many of the previous phases may be taking place simultaneously, the construction phase is rarely started until financing has been arranged. The cost of developing the land compared to its acquisition and other costs is very high. It may be possible to pull out of a project prior to construction, but once ground has been broken, the cost to pull out is high. Unless a developer

has a full construction company associated with him, it is common practice to sub contract for most, if not all of the required construction. A developer may retain a construction superintendent to oversee this part of the work. Or, it may hire a general contractor to do the entire job (Isenhofer, 1999).

2.1.2.4. Project marketing / disposal

Once a developer has built his product, then it must market and sell it. In real estate industry practice, distribution policy is often characterized by specific forms of in-house and third party sales. Specialized forms, such as the sale of shares in open-ended or closed real estate funds will not be more closely considered at this point. As the completion of the construction project approaches, activities shift increasingly in favor of project marketing, while some individual marketing tasks have already proceeded in parallel with the entire development process. The tasks associated with marketing can be assigned to third parties, i.e., brokerage organizations. Since the long-term success of the property is very strongly dependent on an effective leasing strategy in general and on finding an appropriate mix of tenants in particular, many developers retain marketing in house (Nozeman, 2008).

The focus is therefore on developing and safeguarding a unique selling proposition, which endows the project with advantages or benefits in the eyes of later users or investors compared to competing projects or properties, and in this way introduces important determinants of competition in addition to price. As part of this task, it is necessary to plan and budget a detailed marketing, advertising, and promotion program. Cooperative agreements with brokers need to be developed and managed, and leasing staff and internal procedures have to be in compliance with government regulations. After initially providing promotional materials to prospective tenants, it is necessary to collect their data and conduct follow-up contacts (Nozeman, 2008).

The development process ends with the completion, handover for use and/or disposal of the project. In the event that the project is not intended for sale, it is transferred into the developer's own holdings. From the perspective of the property life cycle, this initiates the property and asset management phase, which extends until the redevelopment of the property (Nozeman, 2008).

2.1.3. Overview of the Real Estate Industry in Ethiopia

Ethiopia, having registered high economic growth since 2005 at an average of 10.8% per annum, stands out as one of the fastest growing economies in the world (MOF, 2020). Growth could be as much as 6.1% in 2020/21 and 2021/22, according to the African Development Bank. Currently, Ethiopia is going through the transformation into an open economy and hence stressing the importance of industrialization in a country. The real estate sector has been one of the fastest growing segments of the national economy. Real estate in Ethiopia is one of the most profitable, high in demand sectors (Fortune, 2020). The sector majorly resides in Addis Ababa, one of the tops fastest growing cities in Africa, which makes the city the right destination for real estate companies in Ethiopia to invest in to build luxury homes (MOUDC, 2019).

The sector has gone through several phases from its emergence in 1990's to where it has gotten now. The rapidly changing real estate industry in Addis Ababa is one of the more visible aspects of the extended period of growth recently experienced in Ethiopia. In the years 1975- 1991, the Socialist government of Ethiopia (Derg) had been directly involved in the supply of real estates and set cooperatives housing delivery system. The government used to provide land, building materials, and housing finance on a subsidized manner. And, it issued real estate proclamation number 47/1974, by which the government nationalized all urban lands and extra houses, hence the role of the private sector in real estate development was limited. After the overthrown of the socialist regime in 1991, the current government has introduced a more of market-oriented approach that rehabilitates the private sector's role in real estate development. This liberalization of the real estate sector, in addition to a growing economy, favorable demographics and increasing political stability, clearly contributed to the establishment and expansion of several real estate developers in the country (Zerayehu & Kagnew 2015).

In Ethiopia, the urban population has grown at an average 3.8% per annum since 2005 and is expected to triple from 15.2 million in 2012 to 42.3 million by 2037 (African economic outlook 2016). This could pose a significant development challenge if not addressed. Since 2004/05, the government has focused more on developing housing, upgrading slums and providing infrastructure for this growing population. However, without the help from private organizations, the government cannot address all this growing population in providing houses. Though unaffordable for low-income society, residential real estate provides housing for middle- and

higher-income families. Currently, there is a need for real estate developers to involve actively in contributing their share in addressing the high demands for residential houses and commercial buildings (MOUDC, 2019).

Currently, there are around 630 real estate investments across the country with a total investment capital of 7.5 billion birr (Fortune, 2020). According to data from Ethiopian Investment Commission, since 2015, close to 117 companies took an investment license to invest on 56 different real estate projects. From 117, 99 percent of them are owned by Ethiopians or in joint venture with foreign investors. Some were still fully owned by foreigners. The primary destination of the real estate industry in Ethiopia, of course, is Addis Ababa. Out of the existing 56 real estate projects to date, 43 are located in Addis Ababa. The fuel for real estate in Addis Ababa has been and will always be the enormous housing demand which seems to be ever growing (Fortune, 2020).

Residential homes and neighborhoods built by real estate developers are now becoming increasingly common ever since the first large-scale development was initiated by the pioneer in this sector, namely Ayat Real Estate. At present, the dominant real estate developers for residential villa homes include: Ayat Real Estate, Sunshine Real Estate, Habitat New Flower Homes, Ropack International, Ambassador Real Estate, Tracon Real Estate, Gift Real Estate, Enyi Real Estate, Country Club Developers, Akakas Real Estate, Boran Real Estate, Flintstones Homes, and Zenebe Frew Real Estate. Many more are also operational, though with more limited activities. For apartment developments, some of the most active developers include Ayat, Sunshine, Tsehay, Jomboro, Cimex, Access Real Estate, and Flintstones Homes. The developments of these private developers range from very luxurious, high-end communities that sell multi-million Birr homes (e.g., Country Club Developers and Akakas Real Estate) to sellers of more moderately priced homes (capital, 2020).

2.1.4. Project Cost Management

Construction works in general and real estate development project in particular are time bound activities which involve heavy investments of capital and resources and hence project cost and its control are important management responsibilities. The significance of efficient cost

management of construction projects are widely recognized by construction professionals in practice.

Cost is the budgeted expenditure, which the client has agreed to commit for creating/acquiring the desired construction facility (Chitkara, 2011). Cost means expenses incurred by contractor for labor, material, services, utilities etc., plus overheads and contractor's profits (Chris, 2008). For the purpose of this thesis cost is defined as expenditure or expenses that developer has incurred for building of desired construction facility.

Project Cost Management is a management activity that deals with forecasting, planning, control, cost finding, analysis and evaluation of the contractors and it is used to control project cost (Zhen, 2008). Likewise, Young & Ibbs (2002), defined cost management as the process of controlling the expenditure on a construction project at all stages from initiation to completion, within the approved budget. It is the process by which costs (expenses) incurred on a project are formally identified, approved and paid (Chris, 2008).

According to PMI (2013), project cost management is predominantly concerned with the cost of the resources required to complete scheduled project activities during the execution stage, and this includes cost of using in tendering, construction, maintaining and supporting results of the project. The book also outlines that planning, estimating, budgeting, financing, managing and controlling costs, and interaction of each other to complete within the approved budget, are the sub processes which involved in the project cost management process. Also, Pereira and Imriyas (2010) stated that, construction cost management deals with a broad range of functions such as estimating, scheduling, cost control, resource costing and financial control.

Moreover, Abeselom (2008) stated that, construction projects cost management is a process which complements the broad functions of estimating and tendering, scheduling, cost control and financial control. Accordingly, contractors need to have a cost management system which spans from the tendering up to the completion stage which integrates estimating, tendering, budgeting and controlling. In the same token, Karim (2012), described that construction cost management is the entire process, which ensures that the contract amount is within the cost limit of client's approved budget.

Over all, it can be seen from the above definition that construction project cost management incorporates a set of project objectives which may be accomplished by implementing a series of operations subject to resource restraints. It is a challenging task in practice and there may have potential conflicts between the specified objectives with regard to time, cost, scope and quality, and the constraints imposed on all of the physical resources demanded (Chris, 2008). It involves identification quantification and valuation of the various direct and indirect cost components which will be discussed in the following section,

2.1.4.1. Component of Cost Management

Project cost management includes the processes required to ensure that the project is completed within the approved budget. Owens, (2009) identified four fundamental elements in cost management. The cost management includes the processes involved in cost estimating, cost budgeting and cost controlling so that the project can be completed within the approved budget. It also includes resource planning as fourth element, which includes determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities (Owens, 2009).

From the standard perspective PMI (2013) cost management consists of four components that are hierarchically associated with each other that include resource planning, cost estimating, cost budgeting and cost control (PMI, 2013). Each of these cases consists of three parts: input, processing and output and the output of each section is the input of next section. Resource planning determine resources, including manpower, materials, equipment, and their number in order to complete each of the project's activities. Cost estimates, estimates from the costs of the resources needed to complete project activities which are associated with uncertainty. Cost budgeting is the process of allocating costs to a certain chunk of the project, such as individual tasks or modules, for a specific time period. Cost control is the process of measuring cost variances from the baseline and taking appropriate action, such as increasing the budget allocated or reducing the scope of work, to correct that gap. (PMI, 2013)

In general, though the cost management is viewed as a continuous process, most scholars (Owens, 2009; Odeck, 2004; Frimpong, 2003) and PMBOK split it into four components or steps:

- Resource planning,
- Cost estimation,
- Cost budgeting and
- Cost control.

The above steps are mostly sequential, but it's possible that some resource changes happen midway through the project, forcing the budgets to be adjusted. Or, the variances observed during the control process can call for estimate revisions. Let us look at each of these four steps in detail.

i. Project Resource Planning

Resource planning is the process of identifying the resources required to execute a project and take it to completion (Odeck, 2004). According to Zhen (2008), the common factors that have been discussed on project cost management is project resources. This is because all the project resources involve the cost in project management. That is why project resources need to be pointed in order to complete each project. Resources are most important things to be considered in project management as a part of the planning process where the project manager must determine what resources are needed. Resources are people (such as employees and contractors) and equipment (such as infrastructure, large construction vehicles and other specialized equipment in limited supply) (Frimpong, 2003).

According to Owens, (2009), resource planning is done at the beginning of a project, before any actual work begins. To get started, project managers first need to have the work-breakdown structure (WBS) ready. They need to look at each subtask in the WBS and ask how many people, with what kind of skills are needed to finish this task, and what sort of equipment or material is required to finish this task (Owens, 2009).

The use of resource planning is to identify all of the required resources in the project. It is very important in project management because it will help the project manager to examining the project work and determining what are the resources, people, and equipment are needed to complete the project (Zhen, 2008). Besides that, resource planning also is used to identify the expected quantity of the needed resources so the predicted cost can be calculated (Odeck, 2004).

According to Richard (2014), the resource planning inputs is consist of six elements that are enterprise environmental factors, organizational process assets, activity attributes, resource availability, and project management plan. He further identified various tools and technique that are used for resource planning which includes; expert judgment, alternative analysis, published estimate data, project management software, and bottom-up estimate. Finally, he identified the output to resource planning which includes: resource requirements, activity attributes update, resource breakdown structure (WBS), resource calendar update, and requested changes.

Based on Project Management Professional (PMP), the input to resource planning consists of six components which are: work breakdown structure (WBS), historical information, scope statement, resource pool description, organizational policies, and activity duration estimates. The tool and techniques that are used is based on expert judgment, alternative identification, and project management software. And resource requirement is the output of this resource planning (Project Management Professional).

ii. Cost Estimation

The second component in cost management is to estimate the costs of human resources and physical resources for each activity in the project. Cost estimating is the process of quantifying the costs associated with all the resources required to execute the project. It can be defined as a process of calculating all the resources costs that involved in the project work. The main outputs of the cost estimating process are activity cost estimates, basis of estimates, and project document updates (Schwalbe, 2011). This step often occurs in the planning phase and it is important for project managers to understand the estimated cost of each activity.

According to Young & Ibbs (2002), cost estimation is arguably the most difficult of the steps involved in cost management as accuracy is the key here. Also, it required to consider factors such as fixed and variable costs, overheads, inflation and the time value of money. The greater the deviation between estimation and actual costs, the less likely it is for a project to succeed. However, there are many estimation models to choose from (Young & Ibbs 2002).

Based on PMBOK (2013), the tool and techniques that are used is based on analogous estimating, parametric modeling, bottom-up estimating and computerized tools. Young & Ibbs

(2002), identified top-down approach as additional tool which is typically work when past costing data are available. The input to cost estimation consists of five components which are: work breakdown structure, resource requirements, resource rates, activity duration estimates and historical information. Cost estimates, supporting detail and cost management plan are the output of this resource planning (PMI. 2013). Schwalbe, (2011) identified activity cost estimates, basis of estimates, and project document updates as the three main outputs of the cost estimating process.

iii. Cost Budgeting

The next step in project cost management is to create a realistic project budget. Cost budgeting can be viewed as part of estimation or as its own separate process. Budgeting is the process of allocating costs to a certain chunk of the project, such as individual tasks or modules, for a specific time period (Schwalbe, 2011). According to Richard (2014), cost budgeting involves allocating the overall cost estimates to individual work items in order to establish a cost baseline for measuring project performance.

Based on PMI (2013), the input to cost budgeting consists of three components which are: cost estimates, work breakdown structure and project schedule. The tools and techniques for developing project cost estimates are used to develop budgets for work items as well. Cost baseline is the output of this resource planning (PMI. 2013). However, according to Richard (2014), in the project budgeting process, the main outputs are cost performance baseline, project funding requirement and project document updates.

iv. Cost Control

The last process in project cost management is controlling the costs. Cost control is the process of measuring cost variances from the baseline and taking appropriate action, such as increasing the budget allocated or reducing the scope of work, to correct that gap. It is continuing process done throughout the project lifecycle. The emphasis here is as much on timely and clear reporting as measuring (Richard, 2014).

Cost control is conducted to ensure that the project costs are monitored and kept with in the company's requirements and project objectives (Wilson, 1983). Bent and Humphreys (1996)

claim that the outcomes of an effective project control procedure are accurate cost and schedule forecast. Wilson (1983) points out that information and action are the heart of cost control.

There are several tools that can help a project manager manage project costs. The first is the job cost system which is an effective management information system for gathering information to help the project manager (Halpin, 1985). Halpin (1985) states that collecting the data used as a basis for estimating future projects is another function of the job cost control. The second tool is the cost accounting system which provides two critical functions: first to monitor and control costs against target costs and values, and second to collect data for estimating future projects (Halpin, 1985).

A well-organized cost and control system should be arranged, developed, and implemented so that the management can receive immediate feedback (Kerzner, 1995). Practically, all projects must be managed to control project costs and budgets, to provide adequate personnel, to schedule, to control and supervise, and to coordinate all parties to ensure a profitable outcome (Leibing, 2001). Halpin (1985) states that the first step in establishing a cost control system for a construction project is to define project-level cost centers. The first step in the cost control cycle is the preparation of the cost plan (Halpin, 1985). Killingsworth (1988) claims that an effective cost control system must begin with project planning. He also states that construction scheduling and cost estimates should be performed together.

Cost Planning and Control Procedures consist of the following elements (Brandon & Ferry, 1984):

- Preliminary estimate based on the cost of total construction. This is an approximate estimate which may lack some information.
- Preliminary cost plan: Preparing the cost plan after the first design drawings provides an advantage for the project since the client can see whether the initial specifications are within project cost limits.
- Cost plan: This plan can be established from cost elements which will illustrate the unit prices of the construction and can be compared to project design alternatives.

Neil (1982) claims that work breakdown structure is a tool for managing project cost control. He points out that "the theory behind project control through work packaging is simple – to manage a whole operation, you manage and control its parts, these parts being work packages in the case of construction." He also states that by setting up a control system during construction which focuses on work packages, the contractor can directly compare actual expenditures of resources and money to that budgeted.

According to Schwalbe (2011), controlling costs is a process to control the changes of the project budget. At this stage it is important to regularly monitor and measure the performance of the budget and revise forecasts as required for effective cost controls. According to Richard (2014), along with the cost baseline, the cost management plan is an essential input for cost control. Based on PMI (2013), the input to cost control consists of four components which are: cost baseline, performance reports change requests and cost management plan. According to Richard (2014), The main output at the end of the cost control process are work performance measurements, budget forecasts, organizational process asset updates, change requests, project management plan updates, and project document updates.

According to Mohammad (2014), despite the wide application of the above discussed cost management and control techniques, cost escalation problems are still quite common in construction projects. As Odeck (2004), stated too many complexities in construction projects do not allow managing of the probable costs of projects. Cost escalation or cost overrun is a major issue in project performance which will discuss in next section.

2.3. Empirical Review

In this section, different reviewed literature relevant to the study will be discussed. Many researchers have exercised cost management practices in their country through questionnaire survey or through inter-viewed and other relevant methods.

Study conducted by Nabil and Adnan (2004) investigate the project cost management practices adopted by public owners and contractors in the Gaza Strip. The paper also studies the level of using project cost management tools and techniques. This study has been conducted by means of a survey questionnaire. Seventy-three questionnaires were distributed to contractors and twenty-

five questionnaires for public owners. Sixty questionnaires from contractors and twenty-three questionnaires from public owners were received and analyzed. The results indicate that project cost management tools and techniques are not widely used by contractors and public owners. Cost estimating and cost control applications are still not satisfactorily used. The results of this study conclude that there is an urgent need to establish a professional body such as the Chartered Institute of Buildings to review the local cost management practices and advise on required training programs. The current training effort should be tailored to improve the abilities of owners to use the detailed estimating, cost variance and earned value concepts while the contractors training should be focused on using parametric estimate, analogous estimate, cost variances and earned valve.

In Botswana context, research entitled: "An evaluation of construction project cost management for public works: A case for Botswana" was conducted by Harrison (2004). The study was an evaluation of how constructions cost on projects were managed. This entails establishing how project costs were planned, how projects costs were controlled and reported and finally how project costs at completion were analyzed. This was done through questionnaires. The major findings were that of inadequate planning for project costs. This could be attributed to the fact that, although the major cost planning factors such as specifications and statement of work (Scope) were incorporated in the cost plan, they were not complete at the time the cost plan was determined. Consequently, they were the major causes of cost variances at post contract stage. Furthermore, cost control was not adequately conducted on projects. Therefore, it is recommended that the government should provide a detailed brief and specifications to confirm the project requirements and also have standardized cost control measures on projects.

Research conducted by Azis (2012), focused on the objective of assessing the level of effectiveness of various cost management techniques implemented in large construction projects in South Malaysia. The results of the study showed that the most effective technique of cost management was cash flow forecasting; tender budgeting/estimating, and an elemental cost plan. Caruthers, (2008), however described a cost estimate as an approximation. Therefore, cost estimations require the utmost accuracy in order for clients to ensure that they have sufficient funds to execute the projects without delays due to underestimations (Kaliba, 2010). More so, Caruthers et al. (2008) stated that the management of costs begins with the financial feasibility

study, progresses through all the costs that are required to purchase all the resources needed by the project, through to using cost control to ensure that all work that is done is properly completed. The cost implications of scope creep need to be rigorously controlled by way of formal variation orders (Caruthers, 2008).

In their study Akewushola (2012), identified that there is a significant relationship between Project cost and acceptability by clients. Therefore, it was recommended among others that total project cost on the side of clients should be minimized. By using innovative enough and creative project manager in the apportion of project cost without reducing the quality of the project. In this study also project cost management and project success have a direct relationship.

Adedotun, (2021) conducted study to assess the cost management practices of civil engineering organizations in Nigeria, with an overall aim of developing a generic cost management process map. Data for the work was collected via semi-structured interviews, review of literature and official documents of the civil engineering organizations visited. It was found out that the generic civil engineering process map is not as detailed and effective as the building process map in providing best value for money, accurate early cost estimates, accurate cost certainty and post-contract cost control.

Zainab, (2019), conducted a study to assess the cost management practices on Nigerian road constructions to curtailing cost overruns. Data was collected through a questionnaire survey of 134 road construction professionals consisting of clients' representatives, contractors, and consultants involved in road constructions in Nigeria. Analysis and presentation of the data were done using descriptive statistics. Findings indicate that an inaccurate cost estimate was the main challenge of controlling road constructions costs. The outcome also showed that insufficient time was a major bidding process problem and cost control is barely carried out on road constructions. The results present to decision makers descriptive statistical cost-effective information relative to these characteristics, which could be key contributing causes of cost overruns.

Moreover, a recent study in Ethiopia by Solomon (2017) revealed that project cost management explained that resource planning, cost estimating, cost budget and cost control has a significant association with the overall success of the project management. Research work presents several More so, Eden (2021) conducted a study related to project cost management practices of

Sunshine Bole Beshal Real Estate Project at Addis Ababa and identifies the major causes of cost overrun in this project. The study used descriptive case study research design and qualitative research approach where semi-structure interview was used as primary source of data and documentation analysis as secondary source of data. Based on the analysis, this study identified the major gaps in the actual cost management practice of the project and identified major factors causing cost overrun. The research found that there were gabs in terms of using all the required inputs during the resource planning, cost estimating and budgeting. The study also identified five major factors causing cost overrun, which are lack of an efficient cost management system, an extension of time with cost claim, inflation of price of materials, wrong/unfeasible cost estimate and shortages of currency to import construction inputs.

2.4. Gaps in Literatures

While all the above studies, to various extents, helped with the better understanding of the problems associated with cost management in construction projects, there are some limitations. All the studies focused on identifying factors that have the biggest influence on project costs overrun. They did not discuss the actual cost management practices in terms each of the four cost management components: resource planning cost estimating cost budgeting and cost controlling. There seems to be an implicit assumption that the improving each element of cost management practices are most important for overall improvement in project cost. This needs to be explicitly validated. Finally, there are little studies that focused on detail cost management practices with in the context of real estate development project. These observations underlie the rationale for this study.

In summary, all the above studies show the need for a coordinated and an integrated cost management framework. Even in organizations which are cost focused, there is still a gap that needs to be filled between the theory of project cost management which should be applied and the actual practice that is performed. This study aims at assessing the cost management practices of real estate companies in Addis Ababa in the hopes that the findings and recommendations could close such gap and contribute to the very limited literature in the area.

2.5. Conceptual Framework

The study assessed project cost management practice. Hence, the study considered key elements of project cost management processes. Cost management process described by Project Management Institute (2013), has been chosen for the purpose of this thesis see Figure 2.3.

Figure 2.3: Conceptual Framework of the Study V

Source: (PMI, 2013)

As illustrated in the figure 2.3, from the standard perspective PMI (2013) cost management consists of four components that are hierarchically associated with each other that include resource planning, cost estimating, cost budgeting and cost control (Project Management Institute, 2013). Each of these cases consists of three parts: input, processing and output and the output of each section is the input of next section. Resource planning determine resources, including manpower, materials, equipment, and their number in order to complete each of the project's activities. Cost estimates, estimates from the costs of the resources needed to complete project activities which are associated with uncertainty. Cost budgeting is the process of allocating costs to a certain chunk of the project, such as individual tasks or modules, for a specific time period. Cost control is the process of measuring cost variances from the baseline and taking appropriate action, such as increasing the budget allocated or reducing the scope of work, to correct that gap. (PMI, 2013).

CHAPTER THREE

METHODOLOGY

Introduction

This chapter presents the research methodology that was utilized in the study. The chapter present details of the methods that will be employed in the study; it has different sub sections that describes and justifies the method and process that that will be used in order to answer the research questions. Accordingly, the chapter describes the methodologies that are used in this study which includes; the choice of particular research approach, data collection instrument, study population, sampling techniques and data analysis techniques along with an appropriate justification associated with each approach.

3.1. Research approach and design

Generally, literatures have identified three types of research approach which include: qualitative, quantitative and mixed research approach. For the purpose of this study mixed research approach was adopted. In this approach the researcher mixes or combine quantitative and qualitative research methods. Accordingly, the quantitative data was collected from the survey questionnaire which was complemented by qualitative data collected from semi-structure interview of purposively selected respondents. This approach was selected for the reasons that it allows to combine the advantage of both quantitative and qualitative methods. By using this approach, the researcher is able to triangulate the result obtained from quantitative and qualitative methods which in turn makes the finding of the study more robust.

Regarding the research design, the literatures have identified mostly three types of research design which include: descriptive, explanatory and exploratory research design. This study was used the descriptive research design. The descriptive research design is more appropriate for this study for the reason that it helps to show the existing reality project cost management practices and its challenges in sample real estate firms in Addis Ababa. In doing so, both quantitative and qualitative data were used to assess cost management practice and its challenges and to search for a solution.

3.2. Population and Sampling procedure

The study population can be defined as the entire collection of cases or units about which the researcher wishes to draw conclusions (Castilo, 2009). The study population, which is also known as accessible population, is the population that is derived from the target population for the smooth condition of the research in specific term. The study mainly targets four real estate companies in Addis Ababa currently undertaking various real estate development projects. These are: Sunshine Real Estate, Noah Real Estate, Pluto Real Estate and Jambo Real Estate. Those real estates are selected deliberately by the researcher using non-probability purposive sampling for they are convenient for the researcher in both geographic location and availability of data. Purposive or judgmental sampling enables the researcher to use his/her judgment to select cases that will best answer the research questions (Saunders, 2009). The number of project team members including the project manager is 26 at Noah real estate Ayat site; 22 at Sunshine Real estate Bole Beshale Site; 16 at Jambo Real Estate Keraniyo sites and 24 Pluto Real Estate Gurdshola Site which makes the population a total of 88. A census survey was employed as the target population size is limited.

The study was used a qualitative method – semi-structured interviews. The aim is to explore the topical issues revealed after analysis of the questionnaire survey and experiences of practitioners in greater depth. For qualitative strand, the study was plan to interview two respondents from each company, which gives a total of eight respondents for interview. These interviewees were purposively selected based on their knowledge and responsibilities of cost management practices. One project manager and one cost project cost representatives were interviewed.

3.3 Data Sources and Types

For this study both primary and secondary sources of data was used. Kothari (2004) describes primary data as those which are collected a fresh and for the first time and thus happen to be original in character. Dawson (2009) states that secondary research data involves the data collected using information from studies that other researchers have made of a subject. Both sets of data are used in this study.

The study was utilized questionnaire as major instrument for collecting primary data. Schwab (2005) defined questionnaire as measuring instruments that ask individuals to answer a set of

questions or respond to a set of statement. A questionnaire is research instrument that is used in data collection when dealing with a large sample (Kombo, et a1.2002). A questionnaire is preferred because of its convenience and ease of administration. Kothari (2004) stated that questionnaires have various advantages, like; it is free from the bias of the interviewer; it is low cost even when the universe is large and is widely spread geographically; respondents have adequate time to give well thought out answers; respondents who are not easily approachable can also be reached conveniently; large samples can be made use of and thus the results can be made more dependable and reliable. In view of the advantages and the need to gather more information, questionnaires were administered to CEO or concerning cost managers to solicit their views concerning their practice of project cost management.

The study was used closed-ended questionnaire for primary data collection. This is due to the fact that closed-ended questions are often good for surveys, because one can get higher response rates. Besides, answers to closed-ended questions can easily be coded and analyzed makes them particularly useful when trying to prove the statistical significance of a survey's results. Close-ended questions are also advantageous in that response choices can clarify the context of the question for the respondent as well as improve consistency of responses. The questionnaire was carefully designed and each item is cautiously created so as to collect the target information, address research objectives and tied into the overall research problem.

The study was also used a qualitative method – semi-structured interviews. The aim is to explore the topical issues revealed after analysis of the questionnaire survey and experiences of practitioners in greater depth. The same population used for the quantitative stage of the research was used. The offices of the companies that the questionnaires sent to during the quantitative study was also contacted, explaining the objective of the research and requesting for a relevant contact (CEO, project cost representatives, senior project managers etc) that could be interviewed. Study was made a total of 8 respondents present relevant practitioners for interviews.

3.4. Instrument Validity and Reliability

There is always more than one way to measure any variable, a researcher has to attempt to construct the best measure or measures for each variable. Considering this, data should first analyze to ensure instrument quality. Reliability and validity were used as the major criteria used to evaluate measurement. Reliability was used to ensure consistence of data whereas validity was used to test the accuracy of the measurement process.

3.4.1 Instrument Reliability

In addition, reliability test was carried out in order to ensure the consistency of the instruments used in main administration. The reliability is consistency of the measurement; that is, to what extent a measuring device was produced the same results when applied multiple times to the same person under similar conditions (Gakure & Ngumi, 2010). The most straightforward method of testing reliability is to replicate; either by asking the same questions to the same respondents at different times and evaluating the degree of correlation, or by asking the same question in different ways at different points in the questionnaire (Johnson & Turner, 2003).

The study was employed Cronbachs' alpha to assess reliability of the questionnaire. Cronbachs' co-efficient alpha is the most common way of measuring internal consistency. Cronbachs' coefficient (alpha) may range between 0 to 1, with 0 indicating an instrument full of errors and 1 indicating total absence of error. The closer Cronbach's alpha coefficient is to 1, the higher the internal consistency reliability (Oyerinde, 2011). A reliability coefficient (alpha) of 0.70 is considered acceptable, reliable and recommended for new questionnaire. The reliability of the questionnaire was tested using the Cronbach's alpha correlation coefficient with the aid of Statistical Package for Social Sciences (SPSS) software and all the items were with recommended ranges of Alpha value.

3.4.2 Instrument Validity

Validity refers to the extent to which the scores from a measure represent the variable they are intended (Gakure, 2010). It is the extent to which the scores from a measure signify the variable they are intended to. Weber (1990) indicated that in order to draw valid inference from a test, it is important that the classification procedure be reliable and consistent. As errors are likely to

occur, whether intentionally or not, therefore every measurement result should include measurement error to ensure the validity of such measurement.

In recognition of this fact, therefore, a validity test of the questionnaires were done on its content. Content validity measures the extent to which a test acts to measure a concept analysis of the items so as to confirm adequate coverage of the scope of the study by the measuring instrument (Oyerinde, 2011). In order to ascertain the relevance of each question to variables being measured and to ensure that the content of the instrument provide answers to the objectives of the study, content validity of the questionnaire was tested. The response of the pilot administration of the questionnaire was used to improve the content values of the questions used in the main administration.

3.5 Data Analysis

For the purpose of this study, the researcher was adopted parallel mixed methods data analysis (Graff, 2013) that involved QUAN analysis of data using statistical techniques appropriate for the variables, and QUAL analysis of data using qualitative analysis approaches appropriate for the data and the research question. The two analyses were concurrently conducted independent of each other and provide information about the phenomenon through connecting, combining, or integrating the findings from the QUAN analysis and from the QUAL analysis. Moreover, the results of each analysis type (qualitative/quantitative) complement each other to enhance, expand, illustrate, or clarify findings derived from the other strand.

In this study, the primary data was collected from distributed questionnaire. Once the questionnaires are gathered, the next step is to edit, clean, encode and look for errors in the data. This is the question of data processing. Data processing is a series of actions or steps performed on data to verify, organize, transform, integrate, and extract data in an appropriate output form for subsequent use. In recognition of this fact, therefore, the data processing of collected questionnaire was rigorously done. This helped in compressing and arranging the data into small sets for easy examination and analysis. Next, the collected and processed primary data from the questionnaire was analyzed by descriptive statistics. Descriptive statistics such as mean scores, percentages, frequency distribution and grand mean were computed to describe the characteristics of the variables of interest in the study. A range of mean was constructed by using

itemized Likert rating scale (1: Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree and 5: Strongly Agree). The researcher was used (Shrestha, 2015) guide to interpret the result in which mean interval of 1.00 – 1.80 is very low; mean interval of 1.81 – 2.60 is low; mean interval of 2.61 – 3.40 is medium; mean interval of 3.41 – 4.20 is high and mean interval of 4.21 – 5.00 is very high.

Whereas there are rules how to analyze quantitative data, there are no such explicit rules for qualitative ones (Bryman A. & Bell, 2011). Data analysis in qualitative research is an ongoing process that is undertaken concurrently with data collection, interpretation and report writing (Creswell, 2009). Considering this fact, in this study, the qualitative data that was obtained primarily through semi structure interview is subjected to in-depth scrutiny using thematic analysis. In this approach the data that was collected through semi structured interview was analyzed by identifying patterns and relationships through scanning the interview information and then combining and summarizing the results accordingly.

3.6. Ethical Consideration

The researcher did his best to address ethical consideration of confidentiality, privacy, and informed consent. All the study participants were informed about the purpose of the study and verbal consent of all study subjects were obtained before data collection. Participants were also informed that they have full right to discontinue or refuse to participate in the study. To ensure confidentiality, the name of interviewee was not be written on the questionnaire.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATIONS

Introduction

This chapter deals with the presentation, analysis and interpretation of the data which was collected through questionnaire and semi-structural interview with the project manager and team members. To analyze the collected data in line with the overall objective of the study, both quantitative and qualitative analysis was applied by combining and summarizing the results.

4.1 Response Rate

The researcher distributed eighty-eight questionnaires (88). Out of these eighty-one questionnaires (81) were completed and returned. This represents a response rate of 92.04% and none response rate of 7.96%. According to Mugenda (2003), a response rate of 50% is considered good and response rate greater than 70% is considered to be very good. The 92.04% response rate is thus considered a very good representative of respondents to provide enough information for analysis and to derive conclusions.

Table 4.1: Response Rate

Response rate	**Sample size**	**Percentage (%)**
Returned questionnaires	81	92.04
Un-returned questionnaires	7	7.96
Total	**88**	**100**

Source: (Survey Data, 2022)

4.2 General information of respondents

This section assesses general information of respondents. Respondents were asked about their gender, age, level of education attained, position and tenure in present organization. This information is not necessarily important for addressing research objectives but they provided important information that helps the researcher to determine the ability of the respondent to contribute meaningfully to the investigation. The result is presented in Table 4.2.

Table 4.2 General Information of the respondent

Main factor	Factor level	Frequency	Percentage
Gender	Male	55	67.9
	Female	26	32.1
	Total	81	100
Age	18 – 25 years	2	2.5
	26 - 40 years	36	44.4
	41-55 years	38	46.9
	Over 50 years	5	6.2
	Total	81	100
Educational qualification	Secondary	1	1.2
	Diploma	3	3.7
	Degree	32	39.5
	Master	45	55.5
	Total	81	100.0
For how long have you been employed in this company?	Under 5 years	10	12.3
	2 - 5 years	41	50.6
	6 - 10 years	18	22.2
	above 10 years	12	14.3
	Total	81	100.0

Source: (Survey Data, 2022)

Table 4.2 above shows the gender distribution of the respondents who participated in the study. From table 4.2 show that 67.9% were males while 32.1% were females. The findings showed that male respondents were more than with female a representation and this finding indicated that males were dominated in the real estate industry. The age distribution was 38 respondents (46.9%) age between 26 - 40 years, 36 respondents (44.4%) were age between 41 - 50 years, 5 respondents (6.2%) were above 50 years age and the remaining 2 respondents (2.5%) were between 18-25 years. The different age groups were therefore well represented in the study though majority of respondents were aged between 26 -50 years.

Regarding the educational qualification, 55.5% of the respondents were having Second Degree and 39.5% respondents were having first Degree, the remaining 3.7% of the respondents were having Diploma and one respondent having secondary education. This therefore means that the respondents who participated in this study were well informed and educated to fill the

questionnaire. Respondents were also asked their length of service year in current company, accordingly, 50.6% of the respondents were stayed in the current company from a range of 2 -5 years, 22.2% were stayed for 6 -10 years, 14.3% were stayed more than 10 years and 12.3% were stayed less than two years. This may have implied that respondents were plenty of experience in their company so that they are able to know the cost management practices of their company.

4.3. Current Project Cost Management Practices

This section presents information on the current project cost management practice of selected Real Estate companies. The data contains key elements in each project cost management components which are drawn different literatures. The data were collected from questionnaires, semi-structure interview and through reviewing secondary data.

The analysis of data collected via questionnaire was done using descriptive statistics or through using central tendency, from these the researcher used the mean scores of each variable. The main reason for using this measurement was to demonstrate the average responses of respondents for each question that was included under each dimension of the predictor variable and to reach the grand mean of each dimension. Finally, the interpretation is made by using the grand mean of each independent dimension for the aim of achieving partial research objectives of the study.

A range of mean was constructed by using itemized Likert rating scale. The researcher was used (Shrestha, 2015) guide to interpret the result which is presented in the Table 4.3. The mean of each individual item ranging from 1- 5 falls within the following interval:

Table 4.3: Descriptive statistics result interpretation guide

Interval of Means	**Interpretation**
1.00 – 1.80	Very Low
1.81 – 2.60	Low
2.61 – 3.40	Medium
3.41 – 4.20	High
4.21 – 5.00	Very High

Source: (Shrestha, 2015)

In general, though the cost management is viewed as a continuous process, most scholars (Owens, 2009; Odeck, 2004; Frimpong, 2003) and PMI split it into four components or steps; resource planning, cost estimation, cost budgeting and cost control. These steps are mostly sequential, but it's possible that some resource changes happen midway through the project. In the following section the cost management practices of the selected Real Estate companies at each of these four steps are discussed in detail hereafter.

4.3.1. Project Resource Planning Practices

The first specific objective of the study was to assess project resource planning practices of real estate development companies in Addis Ababa. Resource planning is an initial stage in project cost management and is closely interrelated with the process of project planning as such. It is the process of identifying the resources required to execute a project and take it to completion (Odeck, 2004). Resources are most important things to be considered in project management as a part of the planning process where the project manager must determine what resources are needed. According to Owens (2009), resource planning is done at the beginning of a project, before any actual work begins. As one element of project cost management, the study asses the project resource planning practice of the project and the result is presented Table 4.4.

Table 4.4 showed that respondents report on project cost management practices in the context of resource planning, which is the first step in project cost management process. The grand mean response for project cost management practice in the context of resource planning is 3.22, which according to Shrestha (2015), is moderate. This indicate the company project cost management practice in the context of resource planning are somehow modest though there are some areas that needs improvement. Specifically, the finding indicated there are significant gaps in terms of using all the required specifics resource planning inputs as indicated by the mean value (2.73) and gaps in terms of appropriately established all the required outputs of resource planning which has mean value (2.53).

Table 4.4: Resource planning Practices

	Items for measuring resource planning practices	Mean	SD
1.	All the required tasks/activities that are needed to execute and complete a project are identified.	3.49	.989
2.	All the required quantity of resources (materials and equipment) that are needed to finish these tasks are identified.	3.23	.926
3.	All the required number of personnel that are needed to finish these tasks are identified.	3.23	1.028
4.	The work-breakdown structure is prepared and used as input for resource planning.	3.77	.855
5.	All the required specifics resource planning inputs are used in the project during Resource planning.	2.73	1.151
6.	Specific tools and techniques are used in the project during Resource planning.	3.23	.965
7.	All the required outputs of resource planning are appropriately established.	2.53	1.295
8.	The project incorporates resource planning in its project management plan	3.54	1.049
Grand Mean Score		**3.22**	**1.03**

Source: (Survey Data, 2022)

The above findings are largely in line with the result from the qualitative investigation from the interview. The result from key informant interview indicated that the project undertook resource planning task as one important component of project cost planning process. In this regard, the interviewee 1 stated:

> *"We established resource planning at the start of every project, before any actual work begins. The resource planning task begins in the scope and execution plan development processes during which the work breakdown structure, work package and execution plan are established. During development of work*

breakdown structure (WBS), the categories of basic activities and resource required are identified".

The quantitative finding revealed that the mean value for whether the projects were identified all the required quantity of resources (materials and equipment) that are needed to finish these tasks is 3.23 indicating a moderate level of agreement. When interviewees were asked if all tasks/activities needed to execute the project were identified in the resource planning stages of project cost management, they all responded that while all the detail activities and tasks needed to execute and complete the project were not completely identified, the major tasks of the project were identified during the resource planning. In this regards, interviewee 04 stated that:

"As part of the resource planning process, we identify the major resources, such as equipment, materials, and human resources, as well as their quantities, that are required to complete the project. The major tasks of the project were identified during the preparation of the project schedule plan and work breakdown structure. However, we may not be able to fully identify each and every element of required resources".

All the interviewees also reported that the project established work breakdown structure (WBS) as input for the resource planning. However, it was also revealed that there were gabs in terms of using all the required inputs during the resource planning. The quantitative finding also revealed that there are significant gaps in terms of using all the required specifics resource planning inputs. The project mainly used the overall project management plan and work breakdown structure (WBS) as an input for the resource planning. As interview response indicated there was less tendency and practice of using other important inputs like enterprise environmental factors, organizational process assets, activity attributes, and resource availability during resource planning. It was observed from assessment that there is significant area of concern in terms of using all the required inputs during the resource planning.

Regarding the use of resource planning tools and techniques, the interview response suggested that expert intuitive judgment and historical information are the most important tools and approaches used by the project during project resource planning. There was however, gap in

terms of using more advanced techniques and tools of project resource planning like project management software, alternative analysis, or published estimate data. These finding is also significant as it suggests that reliance on the traditional method of intuitive judgment is still very much in evidence.

In general, as per the interviewees reply and documentation review, it was observed that, the sample real estate companies undertake the resource planning task as part preparing the overall project management plan. Most of the projects did prepare resource planning as part of project management plan. The projects identified major task of the project and the resources (equipment, material and human resource) and their quantity required to execute and complete the project are identified. However, there are significant areas that need improvement for better practices of resource planning. All the detail activities and sub-tasks that are needed to execute and complete the project were not completely identified as only major tasks were identified during the development process of work breakdown structure (WBS). There were gabs in terms of using all the required inputs during the resource planning. There was also limitation in terms of using more advanced techniques and tools of project resource planning as the traditional method of intuitive judgment is still very much in evidence. This suggested that for project resource planning, most of companies primarily relied on their own experience and judgment as a source of information. Companies may prefer to use their intuitive judgment as input for resource planning tasks because they lack the competence or skill to employ more advanced methodologies, or because they see intuitive judgment as having more cost and time advantages. This however, may result in the missing of critical information and resources required for project implementation. Thus, it is important to considered other alternative tools as input for resource planning.

4.3.2. Cost estimating Practices

The second specific objective of the study was to assess project cost estimating practices of real estate development companies in Addis Ababa. The second component in cost management is to estimate the costs of human resources and physical resources for each activity in the project. Cost estimating is the process of quantifying the costs associated with all the resources required to execute the project. It is a predictive process used to quantify, cost, and price the resources required by the scope of project. Estimation is arguably the most difficult of the steps involved in

cost management as accuracy is the key here. Also, project managers have to consider factors such as fixed and variable costs, overheads, inflation and the time value of money. As one element of project cost management, the study also asses the project cost estimating practice of the sample real estate companies in Addis Ababa. Table 4.5 illustrated summary of respondents' view on project cost estimating practices.

Table 4.5: Cost estimating Practices

	Items for measuring cost estimating practice	Mean	SD
1.	The costs of all the required tasks/activities that are needed to execute and complete a project are preliminarily estimated.	3.49	1.026
2.	The costs of all the required resources (materials and equipment) that are needed to finish these tasks are preliminarily estimated.	3.43	1.083
3.	The costs of all the required personnel that are needed to finish these tasks are preliminarily estimated.	3.53	1.062
4.	All appropriate cost estimating factors such as fixed and variable costs, overheads, inflation and the time value of money are considered during cost estimating.	2.52	.853
5.	There is no/very little deviation (<5%) deviation between estimation and actual costs in this project.	2.60	1.114
6.	All the required specifics cost estimating inputs are used in the project during project cost estimating.	2.79	1.137
7.	Specific cost estimating tools and techniques are used in the project during project cost estimating.	3.23	.978
8.	Identified activity cost estimates, basis of estimates, and project document updates are appropriately established as output to cost estimating.	2.60	1.092
9.	The project incorporates cost estimating in its project management plan.	3.86	.754
Grand Mean Score		**3.11**	**1.01**

Source: (Survey Data, 2022)

Table 4.5 showed that respondents report on project cost management practices in the context of project cost estimating practice, which is the second step in project cost management process. The grand mean response for project cost management practice in the context of project cost estimating is 3.11, which according to Shrestha (2015), is moderate. This suggests that the company's project cost management practices in terms of project cost estimating are moderate, while there are certain areas that might be improved. Specifically, the finding indicated there are significant gaps in terms of four key elements of cost estimating practices, as revealed by their mean value. Firstly, as revealed by the mean value (2.52), there are shortcomings in term of establishing all appropriate cost estimating factors such as fixed and variable costs, overheads, inflation and the time value of money during cost estimating. Secondly, the quantitative results demonstrated that respondents were less likely to agree with the statement that there is little deviation (<5%) between estimation and actual costs in the projects as revealed by mean value (2.6). On the other hand, this revealed that there is a significant gap between the estimated and actual expenses in the projects. Thirdly, the findings revealed that there is some limitation in terms of employing all of the required specific cost estimating inputs in the project during project cost estimating, as revealed by the mean value (2.79). Finally, as revealed by the mean value (2.79) the study revealed that there are gaps in terms of appropriately establishing identified activity cost estimates, basis of estimates, and project document updates as output to cost estimating.

The results of the qualitative investigation from the interview are largely consistent with the above findings from quantitative. As per the interviewees' reply, the sample companies undertook cost estimating as one important component of project cost planning process. The findings of interviews with project managers revealed that all respondents reported that project cost estimation took place during the project initiation or planning stage of the development process, with the overall cost of the project estimated as part of the project management plan. More so, the interviewee 05 also stated that,

> *"We make project cost estimation during the project initiation or planning stage of the development process, with the overall cost of the project estimated as part of the project management plan. Cost estimates begin in the scope and execution plan development phase, where the work breakdown structure, work package, and execution plan are established as part of the project management plan."*

When interviewees asked whether the cost of all tasks/activities that are needed to execute the project were estimated, they replied that preliminary rough cost estimation of major tasks of the project were made as part of developing the project management plan. As the interviewees reply indicated, because of reason that all the detail activities and tasks that are needed to execute and complete the project were not completely identified during resource planning, only rough cost estimation based on the historical data of major tasks of the project were made. The result of interview also points out that the costs of all identified resources (materials, equipment and Human resource) that are needed to execute the project are roughly estimated based on the historical information. In this regards interviewee 2 stated that:

> *"During preparing estimates, we allocate high importance to recorded data on actual production costs and productivity standards from previously undertaken projects which can provide fairly accurate and reliable cost related information for the estimation of costs for new project bids. We used historical data from previously undertaken projects were also as source information for project cost estimate. We identified information on material costs, equipment costs and labor rates as the most important information items for developing estimates. Along with the resource costs, we also identified information on resource consumption and productivity standards which are required for developing cost estimates."*

The interviewees also revealed that, there were practice of allocating the overall project costs estimates to individual work items. However, the interviewees also said "there were no detail and too much break down of the work into detail items or task. Since cost and schedule data collection, analysis and reporting are connected to the work breakdown structure, a very detailed work breakdown structure could require a significant amount of unnecessary effort to manage. Most of the time the house project work breakdown structure expanded maximum of three levels."

When interviewees were asked whether all the required appropriate cost estimating factors such as fixed and variable costs, overheads, inflation and the time value of money are considered during cost estimating, all the respondents stated that the estimation is mainly made based up on

the recorded data on actual production costs and productivity standards from previously undertaken projects. In this regards, interviewee 04 stated that:

> *"We make the estimation mainly made based up on the recorded data on actual production costs and productivity standards from previously undertaken projects. We mostly a tendency of using the top-down approach for estimating cost, in which the project manager or senior project officers who have experience of executing similar project used past costing data to estimate the cost."*

Based on the interview and document review, it was also clear that there was deviation between estimation and actual costs in most of projects. Interviewees were also asked about the reasons for inaccuracy of cost estimate. Estimation of direct project costs constitutes the bulk of the estimation process, entails pricing of material, labor, equipment and subcontractor costs. The development of estimates for material, labor and equipment costs requires information regarding resources' costs and productivity standards. Unfortunately, as per interview reply lack of accurate data on resources prices is the responsible factor for inaccuracy of cost estimates. Along with the resource costs, information on resource consumption and productivity standards is required for developing cost estimates. However, the interviewees also reported that lack of accurate data regarding materials consumption standards, labor and equipment productivity standards is identified by the interviewees, as the primary cause of inaccurate cost estimates.

When interviewees were asked whether all required inputs of project cost estimate were used, all the interviewees were reported that all the required inputs of the project cost estimate were not used. One of the interviewees stated that only historical information and work breakdown structure were used as input for project cost estimate. In addition to these two inputs, one interviewee adds resource requirements as additional input of project cost estimate. Nevertheless, it was observed here that there were gaps in terms of using all required inputs of project cost estimate.

In terms of the tools and techniques used by the projects during project cost estimating, the interview response suggested that the standard or detailed estimating technique was used to prepare cost estimates. The standard estimating approach is a method for determining

construction costs (material, labor, equipment, and subcontractor expenses) and then adding overhead costs, other indirect costs, risks, and profit. Akintoye and Fitzgerald (2000) have stressed the effect of the estimating method on the accuracy of an estimate. According to them, the standard estimating method is deterministic (single point number) in its nature and fails to cope with the realities of today's world, which involves uncertainty due to the risk of overestimating or underestimating.

There was limitation in terms of using more advanced techniques and tools of project cost estimate like range estimate, analogous estimating, parametric modeling, or computerized tools. The application of different estimating methods can improve the quality and accuracy of an estimate. Curran (1990), suggested the use of range estimating by contractors as part of their estimating process, (cited by Akintoye and Fitzgerald, 2000). The range estimating approach can be described as a decision supporting technique, which is an adjunct to the standard or detailed estimating. Range estimating can provide information on the probability of cost over run, on how large the overrun can be and on what to do to eliminate or reduce cost overrun risk, including how much contingency to add to the estimate in order to reduce any residual risk to an acceptable level, (Akintoye and Fitzgerald, 2000). The parametric estimating method is also among the probabilistic/statistical estimating methods. Since it is useful to establish an order of magnitude project value and helpful when time is at premium, the method could assist contractors to verify the accuracy of their detailed cost estimate produced by the conventional methods and to determine the approximate value of the project, in order to make a decision on whether or not to tender for the project.

In general, as per the interviewees reply, it was observed that, the project undertakes the cost estimating task as part preparing the overall project management plan. There are practices of application of the standard or the detailed estimating technique, for preparing cost estimates. However, there are significant gaps in terms of cost estimating practices that need improvement. As the interview result revealed all the required appropriate cost estimating factors were not appropriately considered. There was also limitation in terms of using more advanced techniques and tools of project cost estimating. The study also found that that there was deviation between estimation and actual costs in this project.

Change orders, rising prices/inflation, import materials, lack of advanced cost estimating techniques, market price dynamics, inaccurate estimates, poor management, delayed cash flows by owners, project complexity, ineffective project planning, and change functional program are just a few of the reasons for such deviations. Cost overruns, time overruns, claims and litigation, total abandonment, and conflict are all possible outcomes of such deviations in estimated and real costs. As a result, companies should address these flaws in order to enhance cost estimating practices and narrow the gap between expected and real costs.

4.3.3. Cost Budgeting Practices

The third specific objective of the study was to assess project cost budgeting practices of real estate development companies in Addis Ababa, which is the third step or component in project cost management. Cost budgeting is the process of allocating costs to a certain chunk of the project, such as individual tasks or modules, for a specific time period. It mainly involves allocation of the overall cost estimates to individual work items in order to establish a cost baseline for measuring project performance. As one element of project cost management, the study also asses the project cost budgeting practice of the sample real estate companies in Addis Ababa. Table 4.6 illustrated summary of respondents' view on project cost estimating practices.

Table 4.6 showed that respondents report on project cost management practices in the context of cost budgeting practice, which is the third step in project cost management process. The grand mean response for project cost management practice in the context of project cost budgeting is 3.23, which according to Shrestha (2015), is moderate. This suggests that the company's project cost management practices in terms of project cost budgeting are moderate, while there are certain areas that might be improved. Specifically, revealed by the mean value (2.63), the finding indicated there are significant gaps in terms of appropriately establishing cost baseline, project funding requirement and project document updates as output to cost budgeting. In general, it was observed that the project relatively did perform well towards cost budgeting practices. Hence, out of the seven elements in the item lists to assess the effectiveness of the project's cost budgeting practice, most of them have relatively higher mean value.

Table 4.6: Cost Budgeting Practices

	Items for measuring cost budgeting practice	Mean	SD
1.	The overall cost estimates of the project are allocating to individual work items	3.38	1.135
2.	The cost baseline is established for measuring project performance.	3.35	.964
3.	In planning cost baseline, the costs of all of the planned activities of the project are spread over time.	3.49	1.050
4.	All the required specifics cost budgeting inputs such as cost estimates, work breakdown structure and project schedule are used in the project during project cost budgeting.	3.23	1.197
5.	Specific cost budgeting tools and techniques are used in the project during project cost budgeting.	3.19	1.119
6.	Cost baseline, project funding requirement and project document updates are appropriately established as output to cost budgeting.	2.63	1.042
7.	The project incorporates cost budgeting in its project management plan.	3.30	.858
Grand Mean Score		**3.23**	**1.05**

Source: (Survey Data, 2022)

The results of the qualitative investigation from the interview are largely consistent with the above findings from quantitative results. As per the interviewees' reply, the sample companies undertook cost budgeting as one important component of project cost planning process. In relation to the company cost budgeting practice, the interviewee 05 stated that:

> *"We create the project budget during the kickoff phase of the project and continue monitoring it till the project reaches the finish line. However, instead of viewing preparing project budget as own separate process, the task of preparing project cost budgeting done as part of preparing project management plan. The task of preparing resource planning, cost estimating and cost budgeting process were done as part preparing the project management plan. Other relevant cost related document like project scope statement, project charter, work breakdown*

structure, schedule and execution plan were also established as part of the project management plan."

Interviewees were asked whether there were practice of establishing the cost baseline for measuring project performance as part of project cost budgeting. As per their answers, the cost baseline was established for measuring project performance which was also prepared during the kickoff phase of the project. The interviewees further stated that in planning cost baseline, the costs of all of the planned activities of the project are spread over time. Project cost budgeting were spread over the yearly, quarterly and monthly base. Based on the interview and document review, it was also observed that there were deviation between project cost budgeting and actual costs in most of the projects.

Regarding the inputs of project cost budgeting, the results of interview also indicated that all the required inputs of the project cost estimate were not used. As per their answers, as both cost estimating and budgeting task were prepared as part of preparing project management plan during the kickoff phase of the project, the input used for preparing project cost estimate are also used for cost budgeting. This means that only historical information and work breakdown structure were used as input for project cost budgeting. Even so, it was also observed here that there were still gaps in terms of using all required inputs of project cost budgeting. In this regard, although it is recommended to include activity duration estimates as input, most of projects did not include it as input for project cost estimate.

Concerning the tools and techniques, the project uses during project cost budgeting, the interview response indicated that the same tools used for cost budgeting, which are expert intuitive judgment and top-down estimating method were used for cost budgeting. There was limitation in terms of using more advanced techniques and tools of project cost budgeting like computerized tools.

In general, as per the interviewees reply and documentation review, it was observed that, the project undertakes the cost budgeting task as part preparing the overall project management plan during the kickoff phase of the project planning. More so, the project established cost baseline for measuring project performance as part of project cost budgeting. However, as the interview result revealed there was also limitation in terms of using more advanced techniques and tools of

project cost budgeting as the traditional method of intuitive judgment is still very much in evidence. Because of this it was found that that there was deviation between budgeting and actual costs in most of sample projects. There are three primary causes of budget variance in projects: errors, changing business conditions, and unmet expectations. Firstly, errors by the creators of the budget could be occurred when the budget was being compiled. There are a number of reasons for this, including faulty math, using the wrong assumptions, or relying on stale or bad data. More so, changing business conditions, including changes in the overall economy or global trade, could also cause budget variances. There could be an increase in the cost of raw materials or a new competitor may have entered the market to create pricing pressure. Political and regulatory changes that were not accurately forecast are also included in this category. Furthermore, budget variances could also occur when the management team exceeds or underperforms expectations. Expectations are always based on estimates and projects, which also rely on the values of inputs and assumptions built into the budget. As a result, variances are more common than company managers would like them to be.

The budget variance was mostly occurred was unfavorable variance. That mean unfavorable variance occurs when revenue falls short of the budgeted amount or expenses are higher than predicted. As a result of the variance, net income may be below what management originally expected. occurs when revenue falls short of the budgeted amount or expenses are higher than predicted. As a result of the variance, net income may be below what management originally expected. This is an indication that the companies must enhance their cost budgeting practices so as to reduce such kind of budget variance.

4.3.4. Cost Control Practices

The last process in project cost management is controlling the costs. Cost control is the practice of identifying, monitoring and evaluating project cost with an aim to reduce expenses and maximize revenues of a business. It is carried out by contrasting the actual financial performance of the project with expectations stated in the budget. It is continuing process done throughout the project lifecycle. The emphasis here is as much on timely and clear reporting as measuring. As one element of project cost management, the study also asses the project cost control practice of the sample real estate companies in Addis Ababa. Table 4.7 illustrated summary of respondents' view on project cost controlling practices.

Table 4.7: Cost Control Practices

	Items for measuring cost control practice	Mean	SD
1.	The cost variances from the baseline are timely measure and reported.	2.33	.822
2.	The cost variances from the baseline are continuously measured and it is done throughout the project lifecycle.	2.53	.882
3.	If the cost variances from the baseline are occurred, appropriate actions are taking accordingly.	2.62	.888
4.	As one element of cost control procedures, cost management plan is preliminary established.	3.32	1.023
5.	Accurate cost and schedule forecast is made as the outcomes of an effective project cost control procedure.	2.85	.976
6.	The project may revise forecasts as required for effective cost controls.	2.69	.931
7.	All the required specifics cost control inputs are appropriately used in the project during project cost control.	2.41	1.022
8.	Work performance measurements, budget forecasts, organizational process asset updates and change requests are appropriately done as output to cost control.	2.28	.825
9.	Project management plan and project document updates are made as result of cost control.	2.98	.866
Grand Mean Score		**2.66**	**1.05**

Source: (Survey Data, 2022)

Table 4.7 showed that respondents report on project cost management practices in the context of cost control practice, which is the last step in project cost management process. The grand mean response for project cost management practice in the context of project cost control is 2.66, which according to Shrestha (2015), is low. This suggests that the company's project cost management practices in terms of project cost control are low. It is clear that there remains significant work to be done to evolve the cost control practice of the project to the next level.

As indicated in the table 4.4 out of the nine elements in the item lists to assesses the effectiveness of the project's cost controlling practice, eight have less than average mean value. Specifically, the finding indicated there are significant gaps in terms of five key elements of cost controlling practices, as revealed by their mean value. Firstly, as revealed by the mean value (2.33), there are shortcomings in term of timely measure and reported the cost variances from the baseline. Secondly, the quantitative results demonstrated that respondents were less likely to agree with the statement that work performance measurements, budget forecasts, organizational process asset updates and change requests are appropriately done as output to cost control as revealed by mean value (2.28). On the other hand, this revealed that there are shortcomings in terms appropriately establishing of work performance measurements, budget forecasts, organizational process asset updates and change requests as output to cost control.

Thirdly, the findings revealed that there is limitation in terms of employing all of the required specific cost controlling inputs in the, as revealed by the mean value (2.41). Fourthly, as revealed by the mean value (2.53) the study revealed that there are gaps in terms of continuously measured the cost variances from the baseline throughout the project lifecycle. Finally, as revealed by the mean value (2.62), the quantitative results demonstrated that there is limitation in terms of taking appropriate actions when the cost variances from the baseline are occurred. There is also shortcoming in terms revising project may forecasts as required for effective cost controls.

The results of the qualitative investigation from the interview are largely consistent with the above findings from quantitative results. As per the interviewees' reply, there was limitation in terms of timely measuring and reporting of the cost variances from the baseline. In relation to the cost controlling practice, the interviewee 03 stated that:

> *"Although we established cost base for all our projects as one element of project management plan, we rarely used it for project cost control. Although the cost baseline is serves as a benchmark for measuring cost performance which is used to show discrepancies from the cost baseline and actual performance, we did not make timely measuring and reporting of the cost variances from the baseline."*

Based on the reply from the interviewees, there was no practice of continuous measuring of cost variances from the baseline. The interviewees said there were limitations in terms of using the

project cost base for cost controlling purpose. Although the project set the cost baseline in the planning stages of the project after a lot of time and effort has been spent on developing accurate cost estimates, the cost base was neither used either for the basis for project cost control nor served as a benchmark for measuring cost performance.

As per the discussion during the interview, it was also observed that as one element of cost control procedures, most of the companies did not set the preliminary cost management plan. Out of the four projects, only project set the preliminary cost management plan. A cost management plan is the outline of the project's estimation, allocation and control of costs for the required resources to complete all project activities. The cost management plan in general terms analyzes how the project costs will be planned, funded and controlled. Although the project's cost plan configuration is one of the most essential parts of a project's planning phase, and effectively serves as a safety net that guarantees that project cost is kept within the limits of the budget, most of the projects did not set the project cost control plan.

A cost management plan usually involves several decisive procedures ensuring that the project will be executed within the approved budget and quality standards Rules of performance measurement. Cost management plan is one of the very crucial cost control document that include procedures for level precision, units of measurement, control thresholds and reporting formats. Unfortunately, the three of four sample projects were lack such crucial plan which has may negative impact on the project cost control practice. The answers of the interviewees further revealed that there was no practice of making accurate cost and schedule forecast. Although accurate cost and schedule forecast is the outcomes of an effective project cost control procedure, such kind of effective cost control practice was not implementing in the most of sample companies. The interviewees even reported that because lack of effective cost control practice, there were inaccurate cost and schedule forecast which result in discrepancy between cost estimate and actual cost.

As per the interview, it was also observed that, there was no practice revising the forecast. As one component of effective cost control practice, it is important that the project may require to revised forecasts. However, the interview response and the documentation review showed that the estimate and the forecast set during the project planning phase were still in operation. When

the interviewees were asked whether there was a time that the project revises forecasts for effective cost controls, two out of eight interviewees were reported that there was time that the project revises its forecast and the remaining six were reported that there was no time that the project revises its forecast.

Regarding the inputs of project cost control, the results of interview indicated that there were gaps in terms of using all the required inputs of the project cost control. As per their answers, three out of four projects indicated that only performance reports were used as input for project cost control. It was observed here that there were limitations in terms of using all required inputs of project cost control. In this regard, although cost control inputs like cost baseline, change requests and cost management plan are very crucial for effective cost control practices, the most of projects did not include these inputs for project cost control. As per the interview, it was also observed that, work performance measurements, budget forecasts, organizational process asset updates and change requests were not appropriately established as output to cost control. Two out of four sample projects indicated that work performance measurements and budget forecasts were established as output to cost control. The interviewees result further revealed that there was no practice of making updating project management plan and project document as result of cost control.

In general, as per both the quantitative and qualitative result, it was observed that there were significant gaps and limitation in terms of the companies appropriately undertakes the cost control task as part overall project cost management. Most of the projects did not timely measuring and reporting of the cost variances from the baseline. Besides, though the cost variances from the baseline are frequently occurred, appropriate actions are not taking accordingly. Most of the projects did not set the preliminary cost management plan. The findings further revealed that there was there are shortcomings in terms of making accurate cost and schedule forecast and using all the required inputs of the project cost control. The finding indicated that only performance reports were used as input for project cost control. More so, there was no practice of making updating project management plan and project document as result of cost control.

The result documentation review also revealed that the cost controlling practice of the project is mainly focused on and limited to generating information regarding profitability only. However, the scope of a cost controlling system should be broader than this and encompass other related functions/purposes. As mentioned in the literature review section, an efficient cost controlling system should provide early warning of uneconomical operations, give information that can improve productivity of resources and update resource planning and costing norms. Moreover, it should be able to provide feedback to the estimation process on actual productivity standards and production costs and also enable understanding of time and cost behavior. According to the results from the interview and documentation review, the cost controlling practice of the project, do not take these functions into consideration, rather it is mainly focused on checking profit.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

In this chapter, the summary of findings, conclusions and recommendations of the study were discussed. First, the chapter presents the conclusion about the cost management practice that is drawn from data analysis. Then, the chapter present recommendations that comprise further actions, which the study proposes for improving the cost management practice of the project.

5.1. Summary of Major Findings

As it is to be recalled, the major objectives of the research were to investigate the existing project cost management practice of real estate development companies in Addis Ababa. The need for undertaking a detailed investigation on the existing practice was mainly due to the fact that there is cost variation problem in the case project, reporting the incompetence of the practice in general, and the need to point out particular areas which need interventions. In this research detailed assessments were made on each of the four components of project cost management processes: resource planning cost estimating cost budgeting and cost controlling practices and, consequently, particular issues which demand improvement interventions were clearly pointed out. Based on the data analyzed in chapter four, the study comes up with the following major findings in line with each of research objectives.

5.1.1. Project resource planning practices

The first specific objective of the study was to assess project resource planning practices of real estate development companies in Addis Ababa. Regarding the resource planning practice, the grand mean response for project cost management practice in the context of resource planning is 3.22, which according to Shrestha (2015), is moderate. This indicates the company project cost management practices in the context of resource planning are somehow modest though there are some areas that need improvement. It was found that the project undertakes the resource planning task as part preparing the overall project management plan. The project identified major task of the project and the resources (equipment, material and human resource) and their quantity required to execute and complete the project are identified.

However, there are significant areas that need improvement for better practices of resource planning. All the detail activities and sub-tasks that are needed to execute and complete the project were not completely identified as only major tasks were identified during the development process of work breakdown structure (WBS). There were gabs in terms of using all the required inputs during the resource planning. There was also limitation in terms of using more advanced techniques and tools of project resource planning as the traditional method of intuitive judgment is still very much in evidence.

5.1.2. Project cost estimating practices

The second specific objective of the study was to assess project cost estimating practices of real estate development companies in Addis Ababa. The grand mean response for project cost estimating is 3.11, which according to Shrestha (2015), is moderate. This suggests that the company's project cost management practices in terms of project cost estimating are moderate, while there are certain areas that might be improved. It was found that most of the companies undertake the cost estimating task as part of preparing the overall project management plan. The study revealed the application of the traditional or standard estimating method for cost estimating is dominant. As the outputs of this system are deterministic (single value number), it often fails to consider and incorporate the effects of risks and uncertainties, which can affect the accuracy of the estimate negatively. The preparation of such detailed estimate requires collecting, retrieving and manipulating massive amount of data on resources' cost, consumption and productivity standards and other qualitative items.

The study indicated that the information items and sources used for preparing estimates focus mainly on information related to the direct cost components and give inadequate consideration to the indirect cost components and qualitative information items which can seriously affect the accuracy of the estimates or which can improve accuracy, if considered carefully and properly. There is limitation in using other advanced estimating methods. However, the application of statistical and/or probabilistic estimating techniques, such as the range estimating technique, can improve the quality and accuracy of the estimates prepared by the standard method. The study also found that that there was deviation between estimation and actual costs in this project.

5.1.3. Cost budgeting practices

The third specific objective of the study was to assess project cost budgeting practices of real estate development companies in Addis Ababa. In general, it was observed that the project relatively did perform well towards cost budgeting practices. Hence, out of the seven elements in the item lists to assess the effectiveness of the project's cost budgeting practice, most of them have relatively higher mean value. The grand mean response for project cost management practice in the context of project cost budgeting is 3.23, which indicated that the company's project cost management practices in terms of project cost budgeting are moderate, while there are certain areas that might be improved. Specifically, the finding indicated there are significant gaps in terms of appropriately establishing cost baseline, project funding requirement and project document updates as output to cost budgeting.

The study found that the project undertakes the cost budgeting task as part of preparing the overall project management plan. The finding further found that although the project allocated the overall project costs estimates to individual work items and the project established cost baseline for measuring project performance as part of project cost budgeting, there was also limitation in terms of using more advanced techniques and tools of project cost budgeting as the traditional method of intuitive judgment is still very much in evidence. Because of this it was found that there was deviation between budgeting and actual costs in this project. The cost controlling system, based on the baseline, should be capable of tracking and identifying activities which indicate substantial deviation from budgeted amounts.

5.1.4. Cost controlling practices

The third specific objective of the study was to assess project cost control practices of real estate development companies in Addis Ababa. The grand mean response for project cost management practice in the context of project cost control is 2.66 which is low indicating that there were significant gaps and limitation in terms of the project undertakes the cost control task as part overall project cost management. Most of the companies did not timely measuring and reporting of the cost variances from the baseline. Besides, though the cost variances from the baseline are frequently occurred, appropriate actions are not taking accordingly. Most of the sample projects did not set the preliminary cost management plan. The finding further revealed that there was no practice of making accurate cost and schedule forecast. There was also limitation in terms of

using all the required inputs of the project cost control. The finding further indicated that only performance reports were used as input for project cost control. More so, there was no practice of making updating project management plan and project document as result of cost control.

The result also revealed that the cost controlling practice of sample companies was mainly focused on and limited to generating information regarding profitability only. However, the scope of a cost controlling system should be broader than this and encompass other related functions/purposes. An efficient cost controlling system should provide early warning of uneconomical operations, give information that can improve productivity of resources and update resource planning and costing norms. Moreover, it should be able to provide feedback to the estimation process on actual productivity standards and production costs and also enable understanding of time and cost behavior. However, the cost controlling practice of the projects did not take these functions into consideration; rather it is mainly focused on checking profit.

5.2. Conclusion

The study has come a long way in discussing project cost management practice of real estate development companies in Addis Ababa. Real estate companies, being project-based organizations, need to develop and realize better cost control and management capacity in order to accomplish firm and project objectives successful. Existing cost management practices related with resource planning, cost estimating, budgeting and cost controlling were assessed in view of identifying shortcomings and limitations associated with each function. Based on the finding, the study makes conclusion.

The study concluded that despite the fact that all sample real estate companies were undertakes the resource planning task as part preparing the overall project management plan, there were gaps in terms of using all the required inputs during the resource planning, cost estimating and budgeting. Most of sample projects did not establish cost control plan and project did not timely measuring and reporting of the cost variances from the baseline. There was also limitation in terms of using more advanced project resource planning, cost estimating, cost budgeting and cost controlling techniques and tools and the traditional method of intuitive judgment is still very much in evidence. The study revealed the application of the traditional or standard estimating method for cost estimating is dominant.

The study also concluded that the cost control system fails to indicate/identify activities or operations which are being carried out uneconomically together with the underlying reasons. The project cost controlling process was not integrated with the budget prepared for the projects. Moreover, it is not carried out in a way which provides feedback to the estimating process. The study also concluded that that there was deviation between estimation and actual costs in this project.

Over all, lack of an efficient cost control system or inefficiency of the prevailing practice has an implication in completing project within time, cost, scope and quality. If costs are not estimated accurately during the planning stage, no matter how efficient the cost control is projects will not result in satisfactory performance. Furthermore, regardless of how precise the projections are, the financial outcome might be disastrous if costs are not appropriately budgeted and controlled/monitored during the construction stage. These in turn have an implications in completing project within time, cost, scope and quality. Adequate and balanced consideration must be allocated to all cost functions. Thus, an efficient cost management system for real estate development projects must comprise and integrate the functions of resource planning, estimating budgeting and cost controlling.

5.3. Recommendation

The study recommendations which can improve the existing cost management practice are presented below.

⇒ The study recommends the real estate companies to employ decision-supporting estimating techniques. It is highly recommended that real estate companies use other estimating techniques in addition to the standard estimating technique. Standard estimating method is deterministic in its nature and hardly considers uncertainties due to the risk of overestimating or under estimating. The company can use the range estimating technique as part of their estimating process. The range estimating can be used as a decision support technique, as it could provide information on the probability of cost over run, on how large the overrun can be and on what to do to eliminate or reduce cost overrun, including how much contingency to add to the estimate. Parametric estimating, on the other hand, can be used to establish an order of magnitude project value and can be

useful when time is at premium. Moreover, it can assist the company to verify the accuracy of their detailed cost estimates, which are produced by the standard method and to determine the approximate value of a project.

⇒ The estimating formats and techniques should be integrated with those used for budgeting and cost controlling purposes. The formats, apart from unit costs, should also indicate the overall cost and quantity of resources to be employed which are necessary for preparing the project budget. The real estate companies, to the extent possible, need to use standard or off the shelf estimating software, as they give advantage in speed, accuracy and reliability of the estimate and man hour saving. Besides, it is highly recommended that companies keep records of the details of the estimates prepared during the planning stage, as they can serve as baselines for the cost controlling process.

⇒ The scope of cost controlling system should go beyond checking profitability of project and cover check on efficiency of resources, which is carried out against the standards of the output rates that were used during the estimation. The check or test of profitability can be used as an aid for the decision on whether to carry out a detailed investigation of costs or not. The system should be able to identify activities which are being carried out uneconomically and indicate the causes, whether they are due to in efficiency or deviation from estimated productivity or due to underpricing or due to wastage. Besides, the cost controlling system should be able to provide feedback to the cost estimating process. Moreover, the cost controlling by company should give more attention to the labor and equipment components of the project cost. This is because they constituent the greatest risk for large cost overruns, which occur as a result of inefficiency or deviations from assumed productivity standards. These costs need to check at a maximum of weekly intervals, so that early interventions can be taken when deviations arise.

⇒ It is also recommended to be familiarized and habituated to the preparation of a budget which retains information on material quantities, labor and equipment inputs with the associated cost amounts, for each type of activity or group of activities (work package). The budget should form the baseline for the cost controlling process, against which actual expenses are compared. With this information, actual material usage, labor and equipment employed can be compared to the expected requirements. This helps to identify cost variation or savings on particular activity or work package and reveal

whether they are due to changes in unit prices, labor or equipment productivity or in the amount of material consumed. For the cost controlling and monitoring purpose the original detailed cost estimate should be converted to a project budget. During the course of a project expenses or costs incurred will be recorded in specific job cost accounts associated with each activity or work package and be compared with the original cost estimates in each category. In addition to cost amounts, information on material quantities and labor inputs within each job account should also be retained in the project budget. With this information, actual materials usage and labor employed can be compared to the expected requirements. Company need to prepare budget, not only for the direct cost components, but also for overhead costs and for the project's working capital.

⇒ It is highly recommended that companies need to improve their use of project works breakdown or classification system for facilitating the cost controlling process and the cost management process, in general. Real Estate Development projects are best managed by work packages which in turn are best planned and monitored by activities. The breakdown levels should be applied to a project depending on the nature and complexity of the project, the project work plan and the expected degree of control. Also, each level or category of work or activity defined for a project should be recognized by a pre-defined code specific to it. The work breakdown and coding give advantages in estimate preparation and cost controlling.

5.3. Recommendations for Further Works

This research has identified major shortcomings of project cost management practices of the sample real estate development companies in Addis Ababa with regard to resource planning, cost estimating, budgeting and cost controlling. The research moreover, has forwarded theoretical interventions and recommendations that can improve the practice and result in improved out comes from projects. However, the issues covered by the study are so vast that it became difficult to present all relevant interventions in a comprehensive and exhaustive manner. Therefore, the following points are recommended to be assessed in detail, as they can be focal points for further research, to improve the cost management practice of the company.

⇒ The application of various estimating techniques or introducing probabilistic/statistical estimating methods to the construction industry of Ethiopia.

⇒ Developing and introducing contextual project works breakdown or classification system for facilitating project cost controlling and management system.

⇒ Developing a system or estimating manual which integrate resources costs, codes and resources productivity standards, for facilitating project cost management system.

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APPENDIX I: QUESTIONNAIRE

The purpose of this questionnaire is to collect data for post graduate study for Master of Project Management Program for the study entitled "Assessment of Project Cost Management Practices: the case of some selected Real Estate Companies in Addis Ababa". This questionnaire is required to assist in determining the objectives of the study. Your privacy will be kept anonymously and, therefore, no one knows who provided the information. Any information provided will be used for academic purpose only and will be treated in strict confidence. Therefore, you are kindly requested to provide your responses to different questions below. Thank you in advance for agreeing to participate in this study.

General Instruction: - Circle your response or indicate "√" in the box beneath for closed-ended questions among the provided alternatives. You don't need to write your name.

Section I: Demographic Profile of Respondent

Instruction: Circle your response against any response that applies to you.

	Sex:	Male ☐ Female ☐
	Age:	18-25 years ☐ 41-55 years ☐ 26-40 years ☐ over 55 years ☐
	Education level	Secondary school ☐ First Degree ☐ Diploma ☐ Master & above ☐
	For how long have you been employed in this company?	2 – 5 years ☐ – 10 years ☐ 11– 15 years ☐ > 15 years ☐
	Position in the Organization?	

Section II: The item for measuring cost management practices

To what extent do you agree with the following statement? Use the following rating scale, and put **"√"** mark for each rating. **1: *Strongly Disagree, 2: Disagree, 3: Neutral, 4: Agree* and 5: *Strongly Agree***

SN.		Rating scale				
		SA(5)	A(4)	N(3)	D(2)	SD(1)
	i. Resource planning					
1.	All the required tasks/activities that are needed to execute and complete a project are identified.					
2.	All the required quantity of resources (materials and equipment) that are needed to finish these tasks are identified.					
3.	All the required number of personnel and kind of skills that are needed to finish these tasks are identified.					
4.	The work-breakdown structure is prepared and used as input for resource planning.					
5.	All the required specifics resource planning inputs are used in the project during Resource planning.					
6.	Specific tools and techniques are used in the project during Resource planning.					
7.	All the required outputs of resource planning are appropriately established.					
8.	The project incorporates resource planning in its project management plan					
	ii. Cost estimating					
9.	The costs of all the required tasks/activities that are needed to execute and complete a project are preliminarily estimated.					
10.	The costs of all the required resources (materials and equipment) that are needed to finish these tasks are					

	preliminarily estimated.					
11.	The costs of all the required personnel that are needed to finish these tasks are preliminarily estimated.					
12.	All appropriate cost estimating factors such as fixed and variable costs, overheads, inflation and the time value of money are considered during cost estimating.					
13.	There is no/very little deviation (<5%) deviation between estimation and actual costs in this project.					
14.	All the required specifics cost estimating inputs are used in the project during project cost estimating.					
15.	Specific cost estimating tools and techniques are used in the project during project cost estimating.					
16	Identified activity cost estimates, basis of estimates, and project document updates are appropriately established as output to cost estimating.					
17	The project incorporates cost estimating in its project management plan.					
	iii. Cost Budgeting Practice					
18.	The overall cost estimates of the project are allocating to individual work items					
19.	The cost baseline is established for measuring project performance.					
20.	In planning cost baseline, the costs of all of the planned activities of the project are spread over time.					
21.	All the required specifics cost budgeting inputs such as cost estimates, work breakdown structure and project schedule are used in the project during project cost budgeting.					
22.	Specific cost budgeting tools and techniques are used in the project during project cost budgeting.					
23.	Cost baseline, project funding requirement and project					

	document updates are appropriately established as output to cost budgeting.					
24	The project incorporates cost budgeting in its project management plan.					
	iv. Cost Control					
25	The cost variances from the baseline are timely measure and reported.					
26	The cost variances from the baseline are continuously measured and it is done throughout the project lifecycle.					
27	If the cost variances from the baseline are occurred, appropriate actions are taking accordingly.					
28	As one element of cost control procedures, cost management plan is preliminary established.					
29	Accurate cost and schedule forecast is made as the outcomes of an effective project cost control procedure.					
30	The project may revise forecasts as required for effective cost controls.					
31	All the required specifics cost control inputs are appropriately used in the project during project cost control.					
32	Work performance measurements, budget forecasts, organizational process asset updates and change requests are appropriately done as output to cost control.					
33	Project management plan and project document updates are made as result of cost control.					

Appendix II: Interview Questions

The purpose of this interview is to collect data for the study entitled "Assessment of Project Cost Management Practices: the case of some selected Real Estate Companies in Addis Ababa" for partial fulfillment of the requirements for the Master of Art (MA) in Project Management in St. Merry University. This interview is required to assist in determining the objectives of the study. Your participation in this survey is voluntary. The information you provide will be used only for the purpose of the study and will be kept strictly confidential. Therefore, you are kindly requested to provide your genuine responses to different questions followed. Thanks in advance for your cooperation for this interview.

Section I: General Questions

1. What is your position in the project?
2. What is your responsibility in the project?
3. How long you are working in this project?

Section: II: Assessment on Project cost management practice

2.1. Resource planning Practice of the Project

1. Resource planning is the first step and basic component of project cost management. Does the project clearly establish the resource planning? If yes, how was resource planning is established?
2. Are the all tasks/activities that are needed to execute the project identified in resource planning stages of project cost management?
3. Are the resources (equipments) and their quantity that are needed to execute the project identified in resource planning stages of project cost management?
4. Are the numbers of human resources and the kind of skill that are needed to execute the project identified in resource planning stages of project cost management??
5. Does the project establish work breakdown structure (WBS)? If yes, does it used as an input for the resource planning?
6. What are the majors inputs used in project resource planning? Is any of the following element are used as input for resource planning?
   - work breakdown structure (WBS),

- historical information,
- scope statement,
- resource pool description,
- organizational policies,
- activity duration estimates

7. What tools and techniques the project uses during project resource planning? Is any of the following techniques and tools are used in for resource planning?
   - expert judgment
   - alternative analysis,
   - published estimate data,
   - project management software, and
   - bottom-up estimate
8. Does the project incorporate resource planning in its project management plan? If yes, what is its content?

2.2. Cost estimating Practice of the Project

1. Cost estimate is the second step and component of project cost management. Does the project estimate the project cost? If yes, how was project cost is estimated?
2. Are the costs of all identified tasks/activities that are needed to execute the project estimated?
3. Are the costs of all identified resources (materials and equipments) that are needed to execute the project estimated?
4. Are the costs of all required personnel that are needed to execute the project estimated?
5. Are all appropriate cost estimating factors such as fixed and variable costs, overheads, inflation and the time value of money are consider during cost estimating?
6. Is there any deviation between estimation and actual costs in this project? If yes how much is the deviation? What are the main reasons for this deviation?
7. What are the majors inputs used in project cost estimate? Is any of the following element are used as input for project cost estimate?
   - work breakdown structure,
   - resource requirements,
   - resource rates,

- activity duration estimates
- historical information

8. What tools and techniques the project uses during project cost estimate? Is any of the following techniques and tools are used in for project cost estimating?
    - analogous estimating,
    - parametric modeling,
    - bottom-up estimating
    - Top-down estimating
    - computerized tools
9. Does the project incorporate project cost estimate in its project management plan? What is its content?

2.3. Cost budgeting Practice of the Project

1. Cost budgeting is the third step and component of project cost management. Does the project clearly establish the project cost budgeting? If yes, how was project cost budgeting established?
2. Are the overall project costs estimates allocated to individual work items? If yes how it was allocated?
3. Is the cost baseline established for measuring project performance as part of project cost budgeting? If yes how it was established? In planning cost baseline, are the costs of all of the planned activities of the project are spread over time?
4. Is there any deviation between project cost budgeting and actual costs in this project? If yes what are the main reasons for the deviation?
5. What are the majors inputs used in project cost budgeting? Is any of the following element are used as input for project cost budgeting?
    - work breakdown structure,
    - cost estimates,
    - project schedule
    - historical information
6. What tools and techniques the project uses during project cost budgeting? Is any of the following techniques and tools are used in for project cost budgeting?

- analogous estimating,
- parametric modeling,
- bottom-up estimating
- computerized tools

7. Does the project incorporate project cost budgeting in its project management plan? What is its content?

2.4. Cost Control Practice of the Project

1. Cost control is the fourth step and component of project cost management. Does the project appropriately and timely conduct the project cost control? If yes, how was project cost control practiced?
2. Are the costs variances from the baseline are timely and continuously measure and reported throughout the project lifecycle? If so, how often the performance of the budget measured?
3. If the cost variances from the baseline are occurred, are appropriate actions taken accordingly? What are the major actions taken? Are any of the following actions are taken in for correcting the variances?
   - Increasing the budget allocated
   - Reducing the scope of work
   - Design changes
   - Specifications Changes
   - Revise forecasts
4. As one element of cost control procedures, does the project preliminary established cost management plan? If yes, what is its content? Does it used for cost control?
5. Does the project make accurate cost and schedule forecast as the outcomes of an effective project cost control procedure? If not, what are the main reasons for it?
6. Is there time that the project revises forecasts for effective cost controls? If so, how often project forecasts revised?
7. What are the majors inputs used in project cost control? Are all the required specifics cost control inputs appropriately used during the project cost control? Is any of the following element are used as input for project cost budgeting?
   - Cost baseline,

- Performance reports,
- Change requests
- Cost management plan.

8. Is there any deviation between project cost estimating, cost budgeting and actual costs in this project? If yes how do you correct the deviation? What are the main reasons for the deviation?
9. What tools and techniques the project uses during project cost budgeting? Is there any job cost system or the cost accounting system that the project used for project cost budgeting?
10. Are the project management plans and project documents updated as result of cost control? Are work performances measurements, budget forecasts, organizational process asset updates and change requests are appropriately established as an output of cost control?