ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

AN ASSESSMENT OF THE CRITICAL SUCCESS FACTORS FOR REAL ESTATE PROJECTS: IN THE CASE OF SELECTED COMPANIES IN ADDIS ABABA

BY

JIHAN MOHAMMED

DECEMBER 2021

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APPROVED BY BOARD OF EXAMINERS

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DECLARATION

I, Jihan Mohammed, hereby declare that the thesis entitled *"*An Assessment of the critical success factors for real estate development: in the case of selected companies in Addis Ababa", submitted by me to the award of the Degree of Master of project management from St. Mary's University School of Graduates Addis Ababa, is original work and it hasn't been presented for the award of any other Degree, Diploma, Fellowship or other similar titles of any other university or institution.

_____ _____

Jihan Mohammed Signature

St. Mary's University, Addis Ababa **December 2021**

ENDORSEMENT

This thesis has been submitted to St. Mary's University College, School of Graduate Studies for examination with my approval as a university advisor.

_____ _____

Advisor signature

St. Mary's University, Addis Ababa **December 2021**

Table of Contents

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List of Acronyms

CFS- Critical Success Factor

GC- Gregorian Calendar

GDP- Gross Domestic Product

HR- Human Resource

NPV- Net Present Value

PMI – Project Management Institute

PT- Project Team Leader

ST- Standard Deviation

List of tables

List of Figures

Abstract

Rapid growth in Real Estate industry in Ethiopia is developing using resources to conduct a number of construction projects. Many Real Estate companies (Project Sponsors) only consider the financial aspects of the real estate development projects while many internal and external factors affect their success. This research aims to contribute to the effectiveness and efficiency of these companies in delivering real estate development projects. The objective of the study is to identify and assess critical success factors in real estate development projects as well as establish the relationship between critical success factors and project success. A quantitative approach was applied where conceptual model was adopted to assess eight main critical success factors: Client Objectives, Client Core Competencies, Project Environment (Physical Environment, Economic Environment, Socio-Political Environment and Industrial Relations), Project Team Leaders Performance &Project Management Actions. A total of 91 questionnaires were filled by project managers, engineers and Forman's engaged in real estate development projects by six real estate's: New Hope, Afrovil, Sirdenji, Sicamas, MSN and Kazadis. Descriptive statistics and correlation were applied using SPSS to analyze and interpret data. The major findings indicate that Client Objectives, client core competencies, Physical Environment, Economic environment Socio political environment, and project team leader performance, are the most critical factors Moreover, a strong positive relationship was observed between client objective, core competencies, industrial relation and physical environment. In conclusion, project success in Real Estate development can be achieved by focusing on delivering on time and with proper construction cost. Moreover, client's involvement in project initiation and planning phase, placement of competent and skilled project leaders and comprehensive project safety and quality management are critical to real estate development project's success.

***Key Words**: Critical success Factor, Client Objectives, client core competencies, Project Environment (physical, economic and socio-political)*

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Real estate development includes acquiring a tract of land, determining the advertising and marketing of the project, developing the building project and design, obtaining the necessary public approvals and financing, building the structure, then leasing, managing, and ultimately retailing it (Prathamesh, 2015). Real estate construction projects, much like other projects are measured primarily based on project management performance. The iron triangle of cost, time and quality constitute main part of achievement criteria in construction projects (Atkinson, 1999).

Real estate development has turn out to be one of the fastest growing sectors in Ethiopian Economy. According to the World Bank report in 2018, the construction industry has contributed 3.5 % to the overall Ethiopia's GDP growth that registered 10.9% in 2017. The real estate industry coupled with construction industry accounted for 14.9% of the GDP inside the 2008/2009 fiscal year, real estate taking more than 60% of the share. There has been a rapid growth in real estate investments in Ethiopia as evidenced by means of annual growth rate of 37% for the years of 2004-2012 (Access Capital, 2009).

With Ethiopia's economic growth charge, the speedily changing real estate landscape in Addis Ababa is one of the more visible aspects of the extended period of growth recently experienced in Ethiopia (Access Capital, 2009). The residential real estate development in Addis Ababa takes a big share in the industry. According to Addis Ababa Investment Agency, it has issued over 200 real estate project licenses with annual growth of 22 %. The observed increase in the scope and scale of real estate activities has been driven by numerous factors. The factors consist of normal economic growth, rise in urban population, a long-standing backlog of unmet housing demand, the expansion of city roads and infrastructure, tax and investment schemes, extended lease periods, and reduced income tax incentives. (Ibid).

Residential homes and neighborhoods constructed by means of real estate developer are actually becoming increasingly more common place ever because the first large scale development became initiated through the developer inside the industry From a few of the many real estate

organizations, New Hope, Afrovil, Sirdenji, Sicamas, MSN and Kazadis Real Estate are extremely good ones. From among the new real estate companies, new hope Real Estate was formed in 2012 GC In Addis Ababa. With a plot land of 10,400 square meters which is a luxurious 3B+G+18 Apartment Building of five typical blocks, the real estate includes an incredible mind relaxing green area with children's playground and off course a swimming pool, as well as the apartments blocks have supermarkets, gyms, luxurious hair salon. In addition, Affrovill real estate offers far above the standard luxury with an additional layer of personality, style, and differentiation. Affrovill was established in 2012 GC in Addis Ababa. Lastly, sirdenji, sicamas, kazadis and MSN real estates are B+G+11, B+G+11, 3B+G+21 and B+G+11 mixed use buildings as well. All were established at 2012 GC.

While some real estate companies have delivered their construction projects on budget, schedule and quality that have satisfied their customers, there are others such as Access and Ologo Real Estates who have not delivered on their real estate construction project objectives and are thus battling lawsuits from unsatisfied buyers. The registered increased economic growth, shift of demographics from rural to urban, and rise in income indicate a positive growth to be expected in the real estate construction sector. However, between the periods of 1992-2006, the total number of real estate developers licensed by Ethiopian Investment Authority, have reached 1,667 with total capital of birr 31.9 billion of which 87% is under pre-implementation indicating how far it is behind the country's expectations (Eshete and Teshome, 2015). In Ethiopia, many real estate developers are using many resources to conduct a number of real estate development projects in which some have been observed to delay or completely fail at delivering according to plan. Based on the preceding introductory background the purpose of this study is to examine the critical success factors in real estate development construction projects in Addis Ababa.

1.2. Statement of the Problem

The real estate development decisions generally consider only the financial features of the projects where feasibility calculations are primarily based at the net present value (NPV) of the investments (Prathamesh, 2015). Santankari and Jain, (2015) studied the achievement factors for real estate construction projects in India context where the researcher used 8 construction armatures to discover and rank 23 success factors grouped into four clusters i.e. financial, customer, value

added and operational. The researchers concluded that if they were to be executed to real estate construction projects, they would increase project performance.

In 2009, Kiros conducted research on eight particular real estates in Addis Ababa to investigate the aspects affecting real estate marketplace in which the researcher concluded that inadequate land supply, increased housing construction materials and high price as the most notable ones. Girma, (2007) lead a study of assessing the aspects that contributes to the success of projects management in real estate development construction projects and adopted 7 critical success factors from reviewing literature. Organizational planning, goal commitment, project scope and work definition and control systems were found to be present in the real estate development projects in Ethiopia. The researcher added that project team motivation and goal orientation, project manager's competency, safety precautions and applied techniques and managing systems had massive impact on the project management success though most project managers were found lacking those critical factors.

Various critical success factors have been mostly focused from project manager's perspective, limited to few experts, and focused on external environments of the real estate industries. This research aimed to study success factors from altered perspectives of assessing critical success factors in real estate development projects from the perspective of project teams of six real estates deemed successful. It will view project performance and success as a function of client objectives, client core competency, the project environment (physical, economic, socio-political and industrial relations), project team leadership and project management actions. As there is rapid growth in the real estate industry, the research purposes to contribute to the efficiency and effectiveness of these companies in delivering their real estate development projects.

1.3. Basic Research Questions

- What are the critical success factors of real estate development in the construction projects?
- What are the relationships among critical success factors and project success factors?
- What are the causes for delay in real estate project development?

1.4. Objective

1.4.1. General Objective

The general objective of the study is to measure the critical success factors in real estate development construction projects in Addis Ababa

1.4.2. Specific objectives

- To identify and measure the critical success factors for real estate construction projects
- To determine the relationship between critical success factors and project success
- To determine the causes of delay in real estate project development

1.5. Significance of the Study

This research study was conducted based on a quantitative assessment in which it tends to have applied significance. It will permit the chosen real property companies to become aware of and focus on specific success factors that they have themselves evaluated. The results of this study are expected to be knowledgeable to other real estate companies. More precisely, it'll assist actual real estate companies while designing real estate development plans, crew selection, and performance evaluation. The findings of this study will also be used as a source of information for people that are interested about engaging in similar studies on identifying important success factors in similar sector in Ethiopia or elsewhere. Lastly, it’s expected to enhance the researcher’s understanding in Project Management.

1.6. Scope of the Study

The scope of the study was focused on assessing the critical success factors in Real estate development construction project restricted to six real estate companies located in Addis Ababa City Administration. The arranged questionnaires were reformed from a study by. (Ramakrishna, et.al., 2012) on “Determinants of the Success of Real Estate Projects: A Study of Select Firms in Hyderabad” wherein they've identified 5 success factors; Client Objectives, Core Competency, Project Environment (Physical, Economic, Socio-Political and Industrial Relations), Project Team Leadership and Project Management Actions. The reason for the adaption of these success factors

is that it sights project success as a characteristic of the objectives and features of the client, the project environment, project team leadership characteristics and project management actions which let the researcher to explore for the huge picture. The research methodology will be a quantitative research design where data will be collected in the form of questionnaires from the six real estate companies, project teams. By using quantitative technique together, the researcher will gain a comprehensive understanding. The sample population will be to the project teams such as project managers, engineers and Forman's and so on of the respective real estates. In addition, it will be focused on six real companies' corporations from many which might make it hard to generalize to the entire real estate industry.

1.7. Limitation of the study

The research had few limitations with regard to the scope and content of the study and difficulties on finding the respondents since all project members were busy on their given scope. The study was only limited to six real estates from among many in Addis Ababa. In addition, the researcher faced a lot of limitation on this study major needed data were hard to be gathered at the time. As you know Covid 19 would change everything and still changing social, political and economic atmosphere, and it's became very challenging time for any researcher to communicate respondent, to distribute questionnaire. The researcher passes through in many problems to convince most respondents and to get valuable result. However, the following limitation was being the major challenges in the progress of the study.

- Some respondents are not willing to fill the questioner paper because of the global warning paper is one of the transmission ways of the virus.
- Not being able to find the staff members at the site both the contractor and the consultant in the data collection period made the data collection process hard

1.8. Organization of the study

The research is organized in five chapters. The first chapter includes background of the study, statement of the problem, basic research questions, objectives of the study, significance of the study, and limitation/scope of the study. The second chapter includes theoretical and empirical literature review about project management, construction, real estate and factors affecting project success. Chapter three gives a detailed description of the research design, participants, and sources

of data, data collection and analysis methods to be employed. The fourth chapter presents the data analyzed and present the interpretation in light of the literature review. The last chapter concludes, summarize and make recommendation for further research based on results found from the research.

2. CHAPTER TWO

LITERATURE REVIEW

2.1. Project Definition

Many definitions were evolved to provide an explanation for the meaning of a project. (Kezner, 2000) defined project as any series of activities and tasks that has a specific objective to be accomplished within certain specification, defined start and dates, funding limits and consumes resources. Whereas PMI, (2013) defines project a temporary endeavor undertaken to create a completely unique product, service, or result. In addition, Project is described as set of interrelated tasks to be done over a fixed time and different boundaries (Business Dictionary, 2019). In 2015, Epstein published seven features that define a project

- A simple definable purpose, end item or result defined in terms of cost, schedule and performance requirements
- Unique as it is one-time activity requiring something different and never to be repeated exactly the same way
- Temporary activities with in a time frame and goal to be achieved
- Cuts across organizational lines as it needs to draw from the skills and talents from multiple professions and departments
- Involves unfamiliarity as it differs from what's previously done with its own new elements of uncertainty and risk
- Usually has something at stake as failure might jeopardize organization/firms or its goals
- Process of working to gain a goal in which it passes through one-of-a-kind undertaking lifecycles and with that, the organizational structure and assets expenditure construct with each succeeding section; peak and then decline because the project reaches completion

Project management institute (2013) reiterates the temporary nature of projects indicates that a project has a definite beginning and end where the end is reached when the project's objectives have been achieved or when the project is terminated because its objectives will not or cannot be met, or when the need for the project no longer exists. The application of project management practices is necessary to ensure the overall success of a project (Barker, 2014).

Eric Verzuh (2005:1 cited in Modesto &Tichapondwa, 2009: P19) stated "we live in a world where change and the rate of change is constantly increasing. In order to survive and prosper, organizations need to continually modify their products and services. Projects are the means by which these innovations are affected. Greater change = more innovations = more projects." In this context, Verzuh see project as a means to cop up with changes. Accordingly, Modesto & Tichapondwa (2009) define project as initiative to bring about change in order to achieve specific objectives, within a timescale, in a given context with allocated budget.

The Project management Institute (2013) define project as a temporary endeavor undertaken to create a unique product, service, or result. In this study, the PMI's definition of project is used as an operational meaning. Larson and Grey (2011) stated, "Like most organizational effort, the major goal of a project is to satisfy a customer's need. Beyond this fundamental similarity the characteristics of a project help differentiate it from other endeavors of the organization". The definition is given based on two key characteristics of project. All projects are temporary and undertaken to create a product, service, or result that is unique. These two simple concepts create a work environment that mandates different management approach from that used by an operations manager, whose work is oriented toward continuous improvement of existing processes over longer periods of time.

In contemporary business and science, Wikipedia (2015) defined a project as a collaborative enterprise involving research or design that is carefully planned to achieve a particular aim. Project can be further defined as temporary rather than permanent social system or work systems that are constituted by teams within or across organizations to accomplish particular tasks under time constraints. An ongoing project is usually called (or evolves into) a program (Wikipedia, 2015).

2.1.1. Characteristics of a project

Regardless of specific features of particular projects, below are some common characteristics forwarded by Nicholas and Steyn (2008) for all projects:

1. A project involves a single, definable purpose and well-defined end-items, deliverables, or results, usually specified in terms of cost, schedule, and performance requirements. Larson & Grey (2011: 6) stated that this singular purpose is often missing in daily organizational life where employees carry out repetitive operations daily.

2. Every project is unique in that it requires doing something different than was done previously. A project is a one-time activity, never to be exactly repeated again. Lock (2001) discussed about the uniqueness of a project that "The principal identifying characteristic of any project is its novelty. It is a step into the unknown, fraught with risk and uncertainty. No two projects are ever exactly alike, and even a repeated project will differ from its predecessor in one or more commercial, administrative or physical aspects. "In a “routine” project such as home construction, variables such as terrain, access, zoning laws, labor market, public services, and local utilities make it unique.

3. Projects are temporary activities. Each is an ad hoc organization of personnel, material, and facilities assembled to accomplish a goal within a scheduled time frame; once the goal is achieved, the ad hoc organization is disbanded.

4. Projects cut across organizational and functional lines because they need skills and talents from multiple functions, professions, and organizations. Larson and Grey (2011) stated that instead of working in separate offices under separate managers, project participants, whether they be engineers, financial analysts, marketing professionals, or quality control specialists, work closely together under the guidance of a project manager to complete a project.

5. Given that each project is unique, it also involves unfamiliarity and risk. It may encompass new technology or processes and, for the organization undertaking it, possess significant elements of uncertainty and risk.

6. The organization usually has something at stake when doing a project. The work calls for special scrutiny or effort because failure would jeopardize the organization or its goals.

7. A project is the process of working to achieve a goal; during the process, projects pass through several distinct phases called the project life cycle. The tasks, people, organizations, and other resources involved in the project change as the project moves from one phase to the next.

2.1.2. Classification of a project

Projects can be classified in different bases such as based on type of works that project involve, based on size (duration) of projects, and so on. Lock (2001) classify projects under four main headings based on type of works that project involve as the following:

a. **Civil engineering, construction, petrochemical, mining and quarrying projects.** These projects are characterized by on site activities, remote from the contractors' head office which incur special risks, and involves massive capital investment. They deserve rigorous management of time, cost, and quality. If the projects are extra-large, they will involve several contractors working together as joint venture or in a form of other means, which makes the projects more complicated.

b. **Manufacturing projects.** Up on establishment of factories for producing goods, projects are often conducted. Different additional projects will also be executed after the establishment of a factory for different purposes such as new product development. These post-establishment projects are called manufacturing projects.

c. **Management projects.** Regardless of the size of a company, it will run at least few projects throughout its lifespan. These projects are required by a company in different situations such as: on plant/ service center relocation, on restructuring of a system and organization, in research & development, for feasibility studies, for executing special trainings, to plan and conduct celebrations, etc.

d. **Research projects.** These projects are independent research projects which consume huge amount of money and lasts for many years. They assume high level of risks so that it becomes difficult or impossible to define end results. These projects require effective time and cost management.

Real Estate projects involve the construction of houses for selling purpose. They also require huge capital investment with longer time and quality demands. Accordingly, they are under the first category of projects that are mentioned above.

2.2. Project Management

Though the frame of understanding of project management was no longer yet recognized, the practice of project management dates back to the building of the pyramids in Egypt in 2500 BC and Great Wall of China in 208 BC. Historical statistics reveals that the workforce for this huge Project was prepared into groups i.e., soldiers, common people and criminals where they had been ordered to finish the project (Westland, 2018). The rules of project management began to take

shape across corporate America around the time of World War II, and by the 1950's they had been guiding civil construction projects. In the 1960's, Project Evaluation Review and Work Break Down Structure had been developed by US Department of Defense as well as the international Project Management Association and Project management institute were founded (Smart sheet,) (Westland,2018)

Kezner (2000) said that project management can mean different things to different people as its concept is often misunderstood. Project Management is the art of creating the impression that any final results are the end result of collection of pre-decided, planned acts, and actually it turned into dumb luck. Project Management is the planning, organizing, directing and controlling of organization resources of relatively temporary objective that has been reputable to finish a particular objective and goals. Project management know-how draws on ten areas i.e. Integration, scope, time, cost, quality, procurement, human resource, communications, risk management and stakeholder management. (PMI, 2019)

2.3. Project life cycle

A project life cycle is the collection of phases that a project passes through from its initiation to its closure. The phases are commonly sequential, and their names and numbers are determined through the management and control needs of the organizations or organizations involved in the project, the nature of the project itself, and its range of application. It should no longer be confused with the Project Management Process Groups, due to the fact the techniques in a Process Group encompass activities that may be performed and recur within each phase of a project as well as for the project as a whole (PMI, 2013).

A generic life cycle structure involves

- Initiation
- Planning
- Implementation
- Monitoring and evaluation
- Closing

Initiating Process Group. The processes in this grouped are used to define a new project or a new phase for ongoing project by having authorization for starting the project/phase.

Planning Process Group. The processes in this group are used to set scope and objectives for a project as well as to list down course of actions used to achieve those objectives.

Implementation Process Group. The processes in this group are used to perform works of the project that are defined in the project management plan to achieve project requirements.

Monitoring and Evaluation Process Group. The processes in this group are used to follow, review, and facilitate the flow and performance of a project. The processes are also used to identify the need for changes and execute them.

Closing Process Group. The processes in this group are used to finalize activities of a project or phase in a formal way

Project life cycles can range from predictive or plan-driven methods at one end to adaptive or change driven methods at the other.

A Predictive Lifecycle – is when the product and deliverables are described at the start of the project and any adjustments to scope are cautiously controlled.

An Adaptive Lifecycle – is when the product is established over multiple iterations and detailed scope is defined for each iteration only as the iteration begins.

2.4. Project Management Process Groups

PMI (2013) shows that project management processes make sure the effective flow of the project throughout its life cycle. It encompasses the tools and skills involved in applying the competencies and skills. PMI's classification of the 5 project management process groups (2013)

A. Initiating Process Group- launches the process that can result in the authorization of a new project

B. Planning Process Group- establishes the scope of the project, refine the objectives, and define the course of action required to attain the objectives undertaken by the project

C. Executing Process Group- performed to complete the work defined in the project management plan to satisfy the project specifications.

D. Monitoring and Controlling Process Group- required tracking, reviewing and regulating the progress and performance of the project.

E. Closing Process Group- performed to finalize all activities across all Process Groups to formally close the project or phase.

2.5. Project Management Organization and Team Roles

A project organizations purpose is to create surroundings that foster interactions between the team members with a minimum number of disruptions, overlaps and warfare. Organizational structures range from functional to projected, with a variety of matrix structures in between (PMI, 2013).

A Functional Organization - is a hierarchy where every worker has one clean superior. Staff associates are grouped through departments, including manufacturing, advertising, engineering, and accounting at the peak level and specialties can be in addition subdivided into targeted functional devices, including mechanical and electric engineering. Each department in a functional organization will do its project independently of other departments.

A Matrix organization – is a mix of functional and projected characteristics which can be categorized into weak, balanced, or sturdy relying on the relative level of power and influence between functional and project managers. Weak matrix organizations hold among the characteristics of a functional organization and the function of the project supervisor is as of a coordinator or expediter. Strong matrix organization has the diverse traits of the projected organization, and function complete-time project managers with generous authority and complete-time task administrative staff. The balanced matrix organization recognizes the need for a project manager, wherein the project manager does not have the overall authority over the project and project funding.

A Projectized Organization - often have organizational divisions called departments, but they can either report directly to the project manager or provide support service to the various projects. Most of the organization's resources are concerned in construction works, and project managers have a remarkable deal of independence and authority. Virtual collaboration strategies are regularly used to accomplish the advantages of collocated teams.

The project team includes the project manager and the group of individuals who act together in performing the work of the project to achieve its goals. The structure and characteristics of a project team can range widely, but one constant is the project manager's

role as the leader of the team, regardless of what authority the project manager may have also have over its members (PMI, 2013). The project teams include roles such as

Project management staff - The participants of the team who perform venture management activities such as scheduling, budgeting, reporting and control, communications, risk management and administrative support.

Project staff- the members of the team who perform the work of creating the project deliverables.

Supporting experts - carry out activities required to develop or execute the project management plan. These can consist of such roles as contracting, financial management, logistics, legal, safety, engineering, test, or quality control. Depending on the size of the project and level of support required, supporting experts can be assigned to work full time or may just participate on the team when their particular skills are required.

User or Customer Representatives - members of the organization who will accept the deliverables or products of the project may be assigned to act as representatives or liaisons to ensure proper coordination, advise on requirements, or validate the acceptability of the project's results.

Sellers – also called providers, vendors, or contractors, are external organizations that deal into a contractual settlement to offer components or offerings required for the project.

Business partner members- members of business partners' organizations may be assigned as members of the project team to confirm right coordination

2.6. Knowledge areas of Project Management

Projects are divided into components, and a project manager must be knowledgeable in each area. A Knowledge Area stand for a complete set of concepts, terms, and activities that create a specialized professional field known as project management. Project teams should use these Knowledge Areas and other extension Knowledge Areas for specific project types, as appropriate. There are ten general project management knowledge areas which are: project integration management, project scope management, project time management, project cost management, project quality management, project human resource management, project communications management, project risk management, project procurement management and project stakeholder management.

(PMI 2013) defines the important aspects of each knowledge area and how it integrates with the five Process Groups. As supporting elements, the knowledge areas provide a detailed description of the process inputs and outputs along with a descriptive explanation of tools and techniques most frequently used within the project management processes to produce each outcome.

2.6.1. Project Integration Management

Project integration management includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the project management process groups. In the project management context, integration includes characteristics of unification, consolidation, communication, and integrative actions that are crucial to controlled project execution through completion, successfully managing stakeholder expectations, and meeting requirements (PMI 2013).

According to Saylor.org (2009) Flowcharts, diagrams, and responsibility matrices are tools to capture the work processes associated with executing the project plan. The first draft of the project procedures manual captures the historic and intuitional knowledge that team members bring to the project. The development and review of these procedures and work processes contribute to the development of the organizational structure of the project.

Project integration management incorporates allocation of resources, prioritizing among objectives and alternatives, managing the interactions among the rest of project management Knowledge Areas and creating an environment that encourages team members to fully engage in the project and encourages innovative approaches to developing the project plan. Project integration management processes include the following (PMI, 2013)

- Develop project charter
- Develop project management plan
- Direct and manage project work
- Monitor and control project work
- Perform integrated change control
- Close project or phase

2.6.2. Project Scope Management

According to PMI (2013) project scope management comprises the processes required to make sure that the project is armed with all the appropriate efforts to accomplish the project as need. In other word, the project scope is a document that describes the parameters that define a system and determine the behavior of the project, what work is done within the boundaries of the project, and the work that is external to the project boundaries (Saylor.org, 2009: 26). PMI (2013) listed the following specific efforts as part of project scope management:

- Plan scope management
- Collect requirements
- Define scope
- Create WBS
- Validate scope
- Control scope

2.6.3. Project Time Management

According to Saylor.org (2009) the definition of project success often includes completing the project on time. The importance of ensuring work proceeds efficiently within individual tasks, along with the interfacing of related tasks, is a key message in project time management (Hameri & Heikkila, 2002: 143, cited in Pasian, 2011). The ultimate measure being project success, based on effective control of time management processes, tools and practices. The development and management of realistic project schedule and project plan is a primary responsibility of the project manager to complete the project on time. Accordingly, project time management includes the processes required to manage the timely completion of the project such as the following (PMI, 2013)

- Plan schedule management
- Define activities
- Sequence activities
- Estimate activity resources
- Estimate activity durations
- Develop schedule

- Control schedule

2.6.4. Project Cost Management

The definition of project success often includes not only completing the project on time, but also completing the project within budget. Developing and controlling a project budget that will accomplish the project objectives is a vital project management skill. Project cost management includes the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget. Project cost management processes include the following (PMI, 2013)

- Plan cost management
- Estimate costs
- Determine budget
- Control costs

2.6.5. Project Quality Management

Hoyer and Hoyer (2001: 55-59, Cited in Oschman, et al., 2006) defined quality as "the total composite product and service characteristics of marketing, engineering, manufacturing and maintenance through which the product and service in use will meet the expectations of the customer." Project quality management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken. Project quality management uses policies and procedures to implement, within the project's context, the organization's quality management system and, as appropriate, it supports continuous process improvement activities as undertaken on behalf of the performing organization. Project quality management works to ensure that the project requirements, including product requirements, are met and validated (PMI, 2013).

Project quality focuses on the end outputs that reflect the purpose of the project. The project manager is accountable for developing a project implementation mechanism that gives a clear understanding of the expected project outputs and the quality specifications. In order to do so, (PMI,2013) listed the following project quality management processes:

- Plan quality management

- Perform quality assurance
- Control quality

2.6.6. Project Human Resource Management

Human resource management is a branch of management which deals with people at work in an organization. Armstrong (2006) defined HRM as a strategic and coherent approach to the management of an organization's most valued assets – the people working there who individually and collectively contribute to the achievement of its objectives. Storey (1989, cited in Armstrong, 2006) believes that HRM can be regarded as a 'set of interrelated policies with an ideological and philosophical underpinning'. Mathis and Jackson (2006) stated human resource management involves several activities such as HR Planning and Analysis, equal Employment Opportunity, staffing, HR Development, compensation and benefits, health, safety, and security, employee and labor/management relations. As one wing of human resource management, project human resource management includes the organizing, managing, and leading the project team. The project team consists of the people with assigned roles and responsibilities for implementation of the project. Staffing the project with the right skills, at the right place, and at the right time is an important responsibility of the project management team.

Although, roles and responsibilities are assigned for project team members, it is important to involve all of them in the process of project planning to add their experience to the process as well as to motivate them so that their commitment will be stronger. PMI (2013) stated project human resource management processes as the following:

- Plan human resource management
- Acquire project team
- Develop project team
- Manage project team

2.6.7. Project Communications Management

Completing a complex project successfully requires teamwork, and teamwork requires good communication among team members. The processes of project communications management are required to ensure timely and appropriate planning, collection, organization, storage, retrieval, and management of project information. Project managers devote most of their time to communicate

with team members and other involved bodies, whether they are insiders or outsiders of the organization. Effective communication creates a hinge between the different involved bodies having different background, different experience, and different viewpoints which have significant impact on the bottom line of a project. Project communications management processes include the following (PMI, 2013).

- Plan communications management
- Manage communications
- Control communications

2.6.8. Project Risk Management

Risk is the probability of deviation of an out come from expectation. Risk exists on all projects. The role of the project management team is to understand the types and levels of risks on the project so that they can develop and implement plans to diminish these risks. The type and amount of risk varies by industry type, complexity, and phase of the project. The project risk plan will also reflect the risk profile of the project manager and key stakeholders. People have different position on facing risks which place on a continuum from risk averse to risk taker.

The key discipline of project risk management lacks the optimality that is assumed in best practice standards. Renn (1998, cited in Kutsch, 2008) argues in this context that the set of assumptions of a mainly objective analysis of risk "is a virtue as much as it is a shortcoming".

The highest ranked factor for project failure (Whittaker, 1999, cited in Kutsch, 2008) is project risk management, the systematic process of identifying, analyzing, and responding to risks as project-related events or conditions which are not definitely known and which have the potential of adverse consequences on a project objective (PMI, 2013). So, care has to be taken on the proper management of risk management.

The objectives of project risk management are to increase the likelihood and impact of positive events, and decrease the likelihood and impact of negative events in the project. Project risk management involves processes such as the following (PMI, 2013).

- Plan risk management

- Identify risks
- Perform qualitative risk analysis
- Perform quantitative risk analysis
- Plan risk responses
- Control risks

2.6.9. Project Procurement Management

PMI (2013) stated that Project Procurement Management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team. The organization can be either the buyer or seller of the products, services, or results of a project. But, as Saylor.org (2009) explained, the procurement effort on projects varies widely and depends on the type of project. So that, Project Procurement Management includes the contract management and change control processes required to develop and administer contracts or purchase orders with variety of efforts. For a successful accomplishment of Procurement, Project

Procurement Management processes includes the following (PMI, 2013).

- Plan procurement management
- Conduct procurements
- Control procurements
- Close procurements

Nasir (2011) stated that there are six types of procurement and contract delivery systems. These are:

- Force Account
- Design-Bid-Build (DBB)
- Design-Build (DB) or Turnkey
- Finance/ Build Operate System (BOT)
- Construction/Facility Management Consultancy, &
- Alliances and Outsourcing

Selection of the type of procurement and contract management delivery system is affected by size of a project, financial capability of the client, experience, previous performance of the contractor, and other factors.

2.6.10. Project Stakeholder Management

Stakeholder management has been one of the cores soft skills areas that have been highlighted as being necessary for PM to advance (Crawford, 2005; Morris et al., 2006; Winter et al., 2006, cited in Bourne & Walker, 2007). The processes of project stakeholder management necessary to identify entities those could impact or be impacted by the project, to assess expectations of stakeholders, and to develop suitable managerial strategies to be well benefited from the involvement of stakeholders. Legris and Collerette (2006, cited in Pasian, 2011) emphasize stakeholder management as a contribution that can improve the implementation process. Sutter field et al. (2006, cited in Pasian, 2011) echo this view when they argue that effective stakeholder management (possibly through a Strategic Management Framework) can minimize changes in project planning and increase quality specifications (as opposed to quantity specifications). It is implied in both research efforts that strategic management can impact cost control during project implementation. Stakeholder management also gives attention on smooth communication with stakeholders to recognize their expectations, deal with issues resolution of conflict of interests. Stakeholder satisfaction should be considered as the heart of any project. A well-structured project management involves the following processes (PMI, 2013).

- Identify stakeholder' management
- plan stake holders' management
- Control stakeholders' engagement
- Manage stakeholders' engagement

2.7. Additional Knowledge areas of Project Management for construction

2.7.1. Project safety management

Accidents and personal injuries and deaths that result, have been, and are still a major concern in the construction industry both in terms of humanitarian losses and the direct and indirect costs to

the industry (PMI, 2003). The term safety generally applies to the protection from risk of injury and from avoidable accidents and the term health refers to the well-being from the immediate and long-term effects of exposure to unhealthy working condition (Fasil, 2011). Health and safety are not only confined to construction works on-site. Engineers, architects and surveyors are exposed to hazards during the investigatory stage of a project and while carrying out inspection tasks during the construction phase and on completed works. Designers, in particular, carry both a moral responsibility and a duty of care for the safety of construction works, maintenance staff, demolition workers and the general public.

Fasil (2011) stated that besides human tragedies, accidents could cause substantial economic cost to the industry due to the fact it could also cause damage to plant and equipment, damage to work already completed, loss of productive work time while debris is cleared and damaged work rebuilt, increased insurance premiums, and, loss of confidence and reputation.

Safety management includes the processes required to assure that the construction project is executed with appropriate care to prevent accidents that cause or have the potential to cause personal injury or property damage. Studies have shown that every dollar spent on a good safety program can result in a four-to-eight-dollar reduction in the losses from accidents (PMI, 2003). Project safety management includes the following (PMI, 2003).

- Safety planning
- Safety plan execution
- Administration and reporting

2.7.2. Project Environmental Management

Project environmental management includes the processes required to make certain that the impact of the project implementation to the environment will stay within the limits stated in legal permits. It is related with determining the environmental characteristics nearby the construction site and the possible impacts the construction may carry to the environment; planning the approach toward diminishing environmental impacts and achieving environmental conservation and improvement if possible (PMI, 2003).

The project management team must clearly understand that environmental management doesn't mean causing no environmental impact. This is due to the fact that construction projects cause environmental impact by their nature. Rather, the aim of a good environmental management plan is to make the impact within the limits stated in the legal permits.

There must have effective communication to inform to all stakeholders what are the project objectives and the environmental changes its implementation will bring. The community is a major stakeholder more than any other for construction projects, and special notice must be given to their specific demand. Another major stakeholder is the environmental authority which may be established in different levels such as local, regional, and federal government. The project Management Team should work in collaboration with the different levels of environmental authorities. PMI (2003) listed the following as major processes of project environmental management:

- Environmental planning
- Environmental assurance
- Environmental control

2.7.3. Project Financial Management

Generally, according to Paramasivian& Subramanian (2009) financial management is an integral part of overall management and it is concerned with the duties of the financial managers in the business firm. Particularly, PMI (2003) noted that financial management includes the processes to acquire and manage the financial resources for the project and is more concerned with revenue source and analyzing/updating net cash flows for the construction project than is cost management.

In traditional construction management projects, the owner typically pays for the cost of the project by means of periodic (usually monthly) progress payments. The contractor thus has only to finance initial costs to set up and the first few months of work. Many contractors are able to finance this themselves or can obtain a short-term loan to cover this initial period (PMI, 2003).

The construction industry has faced increasing requirements to finance the whole project due to the different procurement and contract delivery systems mentioned above in project procurement management section such as design bid-build (DBB), design-build (DB), finance/build operate system (BOT), some with lease-back provisions, large projects with alliances and outsourcing, privatization of public projects and projects that are non-recourse financed; that is the project provides the sole collateral for the investors. This trend requires the contractor, who often leads any consortium involved, to be conversant and somewhat knowledgeable about the subject and techniques of the project financing.

Thus, financial management is distinctly different from cost management which relates more to managing day-to-day costs of the project for labor and materials. And the major processes involved in project financial management are as follows (PMI, 2003).

- Financial planning
- Financial control
- Administration and reports

2.7.4. Project Claim Management

Hughes and Barber (1983, cited in Nasir, 2011) defined claim as a means simply a request, demand, application for payment or notification of presumed entitlement to which the contractor, rightly or wrongly at that stage, considers himself entitled and in respect of which agreement has not yet been reached. Hoare (2006, cited in Nasir, 2011) agreed with the above definition and give simple definition to claim as a demand what is due. A claim is a declaration of a right to property, money or a remedy. Claim is legally defined as an assertion to right. The nature of right may relate to time, financial, or other remedies. Claim is therefore a substantive demand, for example, by the Contractor against the Employer.

Claim management Describes the processes required to eliminate or prevent constriction claims from arising and for the expeditious handling of claims when they do occur. Claim management is, in some respects, similar to risk management and consists of the following four processes (PMI, 2003).

- Claim identification
- Claim quantification
- Claim prevention
- Claim resolution

2.8. Project Success

As Kerzner (2009) stated, project success is defined as the completion of an activity within the constraints of time, cost, and performance. This was the definition used for the past twenty years or so. He forwarded the today's definition of project success in such a manner that has been modified to include completion:

- within the allocated time period
- within the budgeted cost
- with acceptance by the customer

In building construction, for the third element of Project success mentioned above, Fasil (2011) listed and described the following Design and Performance requirements: Strength and Stability, Dimensional Stability,

Comfort and Convenience, Resistance to moisture penetration, Fire Protection, Heat insulation, day light and ventilation, Sound insulation, Durability, Security, and Economy. In addition to this aesthetics emerges as basic requirement in modern building construction. Furthermore, Kerzner (2009) explains the last three elements as the following:

Very few projects are completed within the original scope of the project. Scope changes are inevitable and have the potential to destroy not only the morale on a project, but the entire project. Scope changes must be held to a minimum and those that are required must be approved by both the project manager and the customer/user.

Project managers must be willing to manage (and make concessions/trade-offs, if necessary) such that the company's main work flow is not altered. Most project managers view themselves as self-employed entrepreneurs after project go-ahead, and would like to divorce their project from the operations of the parent organization. This is not always possible. The project manager must be willing to manage within the guidelines, policies, procedures, rules, and directives of the parent organization.

All corporations have corporate cultures, and even though each project may be inherently different, the project manager should not expect his assigned personnel to deviate from cultural norms. If the company has a cultural standard of openness and honesty when dealing with customers, then this cultural value should remain in place for all projects, regardless of which the customer/user is or how strong the project manager's desire for success is.

2.9. Project Management in Construction

Construction project management requires the skills and expertise of a traditional project manager but applied to the construction industry (Smart sheet, 2019). According to Project Management Institute, project management is the art of directing and coordinating human and material resources throughout the life of a project by using modern management techniques to achieve predetermined objectives of scope, cost, time, quality and participating objectives. By extending the definition, Construction Project Management often referred to as CM, is a professional service that uses specific project management techniques to oversee the planning, design, coordination and execution of construction project (Smart Sheet, 2019) (15 Sinnaps,2019). Similar to Project management, construction project management goes through the five phases of initiation, planning, executing, monitoring and controlling and closure.

The Construction Extension to the Project Management Body of Knowledge (2000) adds four knowledge areas i.e., project safety management, project environment management, project financial management and project claim management to the project management knowledge areas.

Project Safety Management – includes the process requisite to assure that the construction projects are executed with suitable care to prevent accidents that cause or have the potential to cause personal injury or property damage. Major process includes

- **Safety planning**- development of the method to manage the various hazards to safety inherent in the project.
- **Safety Plan Execution**- carrying out the safety plan by carrying out the activities included
- **Administration and Reporting** – maintenance of safety records and reporting safety activities

Project Environmental Management – consists of the processes required to ensure that the impact of the task execution to the encompassing environment will continue to be in the limits stated in the legal permits. Major processes include

- **Environmental planning**- figuring out what are the traits of the environment surrounding the construction site and which environmental standards are relevant to the project, and determining what impact the project will convey to the environment and a way to fulfill the identified environmental requirements.
- **Environmental Assurance**- evaluating the outcomes of environmental management on an ordinary basis to provide confidence that the project will satisfy the relevant environmental standards.
- **Environmental control** – monitoring specific project results to determine if they agree to relevant environmental requirements and identifying approaches to eliminate causes of unsatisfactory overall performance.

Project Financial Management – consists of the strategies to gather and manage the financial assets for the task and is more involved with the sales source and analyzing or updating net cash flows for the construction project than is cost control. The major processes are

- **Financial planning**- identifying key financial problems to be addressed and assigning project roles, responsibilities, and reporting relationships.
- **Financial control** – monitoring key influences and taking corrective measures if negative trends are recognized

- **Administration and Records** – designing and maintaining a financial information storage /retrieval database to permit financial control to continue in smooth way.

Project Claim Management – is an important process in construction where it describes the process required to eliminate or prevent construction claims from arising and for the expeditions handling of claims when they do occur. Major processes are

- **Claim identification** – starts with sufficient knowledge of the scope and contract terms to be aware when some activity appears to be a change in scope or terms requiring a contract adjustment.
- **Claim quantification-** is the quantification of a claim once a decision has been made once an activity has been reviewed and decision is made that it's worth pursuing a claim.
- **Claim prevention-** is by executing a perfect, well scoped and risk allocated contract that is well executed will very likely not produce any claims. Since perfection cannot be obtained, most owners and contractors do their best towards that goal.
- **Claim resolution-** justifiable disagreements may arise whether claim in question is a change to the contract or not, or whether the claimed amount of compensation or time requested is correct. The process begins with negotiation, perhaps at more than one level, before it moves to mediation, arbitration, and litigation, depending on the remedies afforded by the contract.

Construction projects can be large or small depending on many factors. (Chen, et.al, 2014) conducted quantitative research on Optimal Project Organizational Structure for Construction Management where the researchers concluded that due to the numerous working interfaces, complicated networks and diversified team members of a large construction project, coordination efficiency among members of the construction team is vital to the project's success. For a simple network or small organization, the organizational structure could be decided based on experience or simple analysis and the impact of poor organization on the execution of such a small project is limited. The researchers recommended that incorporation of the Trend Model that clarifies the evaluation process and uses clear measures and variables to determine the optimal organizational structure instead of intuition.

In addition, (Rowilson, 1996) conducted a study on organizational structures for construction industry in which impact of environment and technological sophistication considered factors that shape project organizations. The researcher concluded that complex environments lead to greater decentralization of authority, mainly by delegation. In the dimension of technology, complexity led to a wider use of liaison devices on projects with a greater number of technical functional specialists being used by projects. A construction project manager combines the responsibilities of a traditional project manager with the expertise of the construction industry (Wright, 2016).

There are number of common project management challenges that a project manager is expected to work out in order to keep construction on track. They are undefined goals, scope changes (creep), inadequate skilled personnel, lack of accountability, improper risk management, ambiguous contingency plans, poor communications, impossible deadlines, resource deprivation and lack of stakeholder engagement (Wright,2016). Auti and Skitmore, (2008) studied project management in India where 150 participants

Comprising of architects, engineers, and project personnel and building surveyor. The results suggested that though the expertise of project management exists, barriers for its application were determined. A major difference was also observed between the public and private sectors, with many of the respondents claiming that project management is possible on a large scale in the private sector but not in the public sector. The reason for the difference is government policies such as excessive bureaucracy, poor execution of projects, compromises on quality and standards, personal interests, low transparency and corruption.

Ogunde et al., (2017) conducted descriptive research to examine the challenges confronting construction project management system in Nigeria involving fifty-nine (59) construction professionals. The result identified that passive participation from project manager, lack of client involvement in making decisions, provision of substandard materials, design error, lack of effective communication and poor treatment of workforce are challenges hampering the use of construction project management. The study recommended that the institutionalization of construction project management practice, compulsion of adequate training and skill modification programs for construction professionals to aid the sustainability of construction project management systems in Nigeria. Tagesse, (2017) assessed the construction performance challenges in selected university building constructions in which owners, contractors and

consultants took part in the descriptive research. The results indicated that the challenges were escalation of material prices, unavailability of resources, number of disputes between owners and project parties, review of failures and solving them and quality of equipment or machineries and raw materials.

2.10. Success in Project and Project Management

Project management cannot succeed unless the project manager is willing to employ the system's approach to project management by analyzing those variables that lead to success or failure. There has been much discussion on the nature and definition of project success but no consensus has emerged. (Bannerman, 2008). Since projects are temporary in nature, the success of the project should be measured in terms of completing the project within the constraints of scope, time, cost, quality, resources, and risk as approved between the project managers and senior management (PMI, 2013). Kezner (2000) argued that one of the most difficult tasks is predicting whether the project will be successful. While looking at time, cost and performance might identify immediate contribution to profits but will not identify whether the or not the project itself was managed successfully. Project Success is often measured by the actions of three groups: the project manager and the team, the parent organizations and consumer organizations as they can stimulate project success.

With extensive review of literature, Bannerman identifies three main streams that have aimed to identify the factors of success. The first stream aims to identify the prescriptive lists of critical success factors, failure factors or risk factors that project managers and governance bodies should take into account to ensure a positive project outcome and yet provides no explicit definition of project success. The second stream focuses on identifying other contingency variables that might impact project outcomes or require specific management intervention to mitigate any potential negative effects. They include project size, project type, life cycle stage, project management complexity and strategic versus operational mindset. The third stream, often considered with the two streams, has the main interest in defining the criteria by which a project is judged to be success or failure.

Bannerman's Multilevel Project Success Framework that can be taken into consideration as an alternative method to the problem of defining project success (2008).

Level 1- Process success – determination of success at this level considers the appropriateness of processes used, their alignment with the project progress and their integration and effectiveness in contributing to the project outcomes.

Level 2- Project Management Success- traditional criterion of project success determined on closeout against key project design parameters (schedule, budget and performance expectations) referring to project scope.

Level 3- Product success – includes measures relating to the deliverables itself (such as its match to specifications, requirements and quality expectations) and to the client satisfaction (such as product acceptance, use and effectiveness)

Level 4- Business Success- accounted as accrual of positive net benefits to the organizations from the project. Success derives from whether project met the goals and objectives in the business plan, effectiveness and contribution of corporate governance to the project as well as net unintended benefits or negative impacts that arose from the investment

Level 5- Strategic success – Organizational benefits are assessed by external stakeholders such as investors, competitors, industry analysts or regulators. Success at this level will derive from net improvements in industry position, business growth and development, competitive advantage and /or strategic gain.

2.11. Critical Success Factors in Projects

Critical Success Factors (CSFs) all known as key success factors, are defined as limited number (normally 3-8) of traits, conditions or variables which have an instantaneous and serious impact Effect at the effectiveness, efficiency and viability of an organization or project. Activities related to CSF should be done at the satisfactory feasible stage of excellences to collect the meant average objectives (Business Dictionary, 2019). Critical success factor is a variable which could have significant effect that delivers measurable improvements to the project success (Alias et.al, 2014).

Davies, (2000) argued that in order to get a comprehensive answer of which factors are critical to project success depends on answering three separate questions: ‘‘What factors lead to project management success?’’, ‘‘What factors lead to a successful project?’’ and ‘‘What factors cause constantly a success project? ’In order to reply those questions, the researcher drew on new

empirical research from more than 70 large multi-national or national businesses to reply each of those questions and to identify of 12 factors that are critical to project success.

The factors that are critical to project management success are those that correlate to on time and on cost performance

F1- Adequacy of company-wide education on the concepts of risk management.

F2- Maturity of an organization's processes for assigning ownership of risks

F3- Adequacy with which visible risk registers is maintained

F4- Adequacy of an up-to-date risk management plan

F5- Adequacy of documentation of organizational responsibilities on the project

F6- Keep project (or project stage duration) as far below 3 years as possible (1 year is better).

The factors that correlate to on-cost performance re:

F7- Allow changes to scope only through a mature scope change control process.

F8- Maintain the integrity of the performance measurement baseline

The factor that leads to project success

F9- The existence of an effective benefits delivery and management process that involves the mutual co-operation of project management and line management functions.

The factor that leads to consistent corporate success are:

F10 – Portfolio and program management practices that allow the enterprise to resource fully a suite of projects that are thoughtfully and dynamically matched to the corporate strategy and business objectives.

F11- A suite of project, program and portfolio metrics that provides direct ''line of sight'' feedback on current project performance, and anticipated future success, so that project, portfolio and corporate decisions can be aligned.

F12- An effective means of ''learning from experience'' on projects, that combines explicit knowledge with tacit knowledge in a way that encourages people to learn and to embed that learning into continuous improvement of project management processes and practices

Spalek, (2005) conducted a study on critical success factors in project management in which 82 experts rated factors that have substantial influence on project success. The researcher concluded that the most important factors are i.e., formal establishing the project manager, project manager

competencies, high authority of the project manager, clear and measurable goal, formally establishing project team and top management support. The critical success factors were rated to be the establishment of competent project manager with high authority, clear project goal, experienced and competent team and top management. Ofori, (2013) sought to assess and project management practices and critical success factors for projects in Ghana by conducting exploratory research. Results indicated that the CSFs that contribute to the success of a project include top management support, effective communication, clarity of project purpose and goals, and stakeholder involvement. Documentation and dissemination of critical success factors and best practices in project management will improve the quality of project management in Ghana.

Critical Success factors vary by project types, life cycle phases, industries, nationalities, individuals and organizations (Muller and Judgev, 2012). The literature review research conducted by (Gheni et.al, 2017) identified factors related to the success of IT projects as committed and motivated team, internal communications, goals and objectives, use of tools and infrastructure, risk analysis, good estimation, skilled teams and lastly project monitoring in descending order. Esmaeili, Pellicer and Molenaar, (2016) conducted research from reviewing existing literature in which they identified upper management support, commitment, constructability reviews, teamwork, communication, and building trusts as shared key elements of success in most construction activities.

The researchers added that previous studies 'major limitation lays in the emphasis on experts' subjective prioritization of CSFs and the limited number of empirical studies where it provides a vast opportunity to investigating CSFs and casual relationship between CSFs and project success. In addition, (Alias et al, 2014) conducted a survey to create a conceptual framework for CSFs in construction projects where Project Management actions, project procedures, Human Related factors, project related factors and External environment were identified as variables of project performance that in which directly influences project success.

Inayat (2001) conducted research on finding critical success factors in different construction projects by having international construction and project experts' rate 53 factors in which 20,12 and 20 were for schedule, budget and quality performance respectively. The factors of capability of contractor key personnel, capability of consultant key personnel, level of skill labor required, and site access limitation were seen to be commonly significant for all the three objectives. Capability of client key personnel, recruitment and training procedures, and latent site

conditions were commonly significant for schedule and budget performance. Economics risks, adequacy of plans and specifications, pioneering status, project size, realistic obligations, and level of modularization, construction control meetings, and schedule updates were commonly significant for schedule and quality performance. The factor of functional plan was commonly significant for budget and quality performance.

Pakseresht and Asgari, (2012) studied Critical Success Factors in construction projects of Pars Garma Company, one of the biggest construction companies in Iran with 500 million development budgets thus far. The research findings indicate that the CSFs in construction projects have different priorities and weights but considering their importance, they are respectively: Technical and economic assessment of the project required resources, experience and executive records of project manager, project strategic planning, executive experiences of contractor team about the project subject and project control system.

2.12. Critical Success factors in Real Estate Development Projects

Investopedia, (2019) defines Real Estate as belongings made up of land and the building on it as well as the natural resource of the land, consisting of uncultivated vegetation and wildlife, farmed vegetation and cattle, water and minerals. Real estate is assessed into three categories

- **Residential Real Estate**- includes undeveloped land, houses, condominiums and town houses. The structures might be single-family or multi-family dwellings and maybe owner occupied or rental properties
- **Commercial Real Estates** includes nonresidential structures such as office building, warehouses, and retail buildings.
- **Industrial Real Estate** includes factories, commercial enterprise parks, mines and farms. These assets are typically larger in size. It may consist of access to transportation hubs which includes rails and harbors.

The act of manipulating, building on and/or designing and constructing new uses for actual estate is known as developing. Developers purchase lands and either create or renovate the property, risking their resources and capital with expectation of investment praise. (Investopedia, 2018)

Real Estate development model normally consists of sections; Deal summary and Cash Flow summary. The Deal summary consists of all critical assumptions such as schedule, property

records, development charges, financing assumptions, all listed to calculate the economics and profitability of the projects. The cash flow model consists of with sales build up, monthly fees, financing and lastly levered free cash flows, net present value (NPV) and internal rate of return (IRR) of the project. (Corporate Finance institute, 2019)

The development and marketing of real estate, dates back to Europe in Middle Ages, when European colonists came to the United States (Encyclopedia, 2019). When developers invest into Real Estate Development, they consider many factors which includes undeveloped assets fees, accessibility of developable land, special investment condition, developed assets prices, tax and local bills, access to infrastructure, access to network, transport and communication junctions, social environments, state of social structure, availability of services, technical infrastructure state, essential characteristics of financial interest and competition on the assets sale and rent marketplace.

Real Estate Project management is a developing Real Estate development initiative having their very own CSFs. Satankari and Jain, (2015) recognized 23 achievement factors in real estate construction that he grouped into 4 clusters i.e., Financial, Customer, Value Adding and operational. After being rated by 7 International Project Management Experts, the researcher concluded that there are interdependencies among the critical factors in which they were hired into real estate project, they'll increase project performance. Volker (2011) evaluated 21 main Dutch real estate renovation projects by the way of interviewing purchaser, consultant and, architect and contractors to analyze achievement and fail factors in sustainable real estate renovation projects. The results indicated that the ambition to achieve sustainability was not pre-defined but the determination developed throughout the project, mainly because of the potential stainable character or the parties involved in the project. The composition, management and collaboration of the construction team were discovered to be very important at some point of the process.

(Ramakrishna et al, 2012) started investigating essential achievement factors in real estate tasks in Indian context though extensive review of prior studies. In consultancy with industry experts, they identified and widely categorized the success factors as client objectives, client core competency, project environment, and project leader’s overall performance and project management actions. Inclusive of client, consultant and contractors of five major real estate development initiatives they explored their contribution to project achievement restrained to

chosen firms in Hyberdad. From among the factors, construction quality under client objectives was emphasized as significant factor attached to project success as found from high rankings and more potent association between consultant and contractor. Economic Environment showed strong relationship due to the down turn of the construction industry and low investors' confidence. Technical skills, motivational skills and commitment in the direction of projects below challenge group leadership and tracking and updating plans, implementation of powerful safety plan and standardization of operating procedures under project management actions showed adequate relationship with project performance and achievement. (Gholipour et. al,2019) carried out a study on foreign investments in Australian Residential properties in which the findings showed that foreign investments in existing houses do not increase fees but however a 10 % increase in foreign investment for real estate development decreases house fees by 1.95 %. In addition, the researcher concluded that real estate investments have a progressive impact on housing construction activities in the long run.

Ansah et. al, (2019) performed a quantitative study on constraints on housing supply in urban Ghana from the viewpoint of real estate developers wherein end result confirmed that developers consider supply problems be driven by institutional factors together with land tenure arrangements, lengthy strategies in securing building permits and long techniques of land acquisition and registration in Ghana.

2.13. Real Estate Development in Ethiopia

"Real estate development is among the government's priorities and aims at meeting nations' housing demands as well as giving a change for the society modern way of life," accounted President Dr. Mulatu Teshome. Real estate and Construction are two of the 18 sectors in Ethiopia's national income statistics in which they accounted 14.9 % of GDP in 2008/2009 with real estate and construction comprising 9.1 and 5.8 % respectively. During the Derg Regime, large scale private housing construction by real estate developers was illegal. The outline of private real estate development started in the 1990's with large scale developments such as Ayat Real Estate and Sunshine Construction. (Yusuf, 2009).

The history of real estate development in Ethiopia is related to urbanization and urban land ownership (Berhane, 2004). Based on the basis of land ownership, Ethiopia could be categorized into three periods private land ownership Period (pre-1975), Public Ownership (1975-93) and

public ownership with lease rights (post 1993). Private land ownership pre 1975 included landlords who wanted sell parcels of land for individuals who wanted to build houses. Most developers were landlords where they lacked planning or the authority. Public land ownership forms the duration of the Derg regime showed that fundamental developers were Government, parastatal institutions and public associations. Public ownership of land post 1993 were characterized by changes to laws of property development in which it recommended the private sector to have an energetic role in the economic system (Berhanu, 2004)

The residential real estate market in Addis Ababa is evolving right into a various blend of huge government-constructed condominiums (apparently for low-income groups), mid-market developments by means of housing cooperatives, and largely high-end homes built by real estate developers and/or homeowner themselves (Mulugeta,2017). At present, residential houses and neighborhoods built by actual estate developers are actually becoming more common (Tadesse, 2013). Dominant Real Estate builders are Sunshine Real Estate, Ayat Real Estate, Habitat for flower Real Estate, Ropack International, Ambassador Real Estate, Trancon Real Estate,Gift Real Estate, Enyi Real Estate, Country Club developers, Akasas Real Estate and Flintstone homes are to name a few(Access Capital,2010).

Mulugeta, (2017) said that housing is a giant problem in determining a country's development both in developing and developed states as well as within the city and rural areas. Among the motivating factors for foreign real estate investors in Ethiopia are availability of cheap and younger labor, excess demand of house due to rapid urbanization, increasing of in keeping per capita income because of fast economic growth and availability of raw materials in particular lands, suitable business place in comparison to other African countries Among the challenges were legal challenges such as no legally designed regulations in Ethiopia, institutional challenges related to the institutional arrangement and support for investors, financial related challenges i.e. access to finance and poor housing financial institution in the state and labor related problems such as large number of unskilled labors that makes it hard to get skilled professionals as well as precedence is not given. To sum up, precedence of the real estate investment is not highly encouraged by the government of Ethiopia. (Mulugeta 2017).

Gift Real Estate Plc. Founder and Manager Gebreyes Igeta 'the real estate sector has yet not developed as expected'. The main reason, according to him, is associated with the fact that real

estate development is a recent phenomenon in Ethiopia. Besides, lack of experience, knowledge and skill gaps, shortage of input and advanced technologies are also major challenges of the sector. However, currently the sector is progressing better now than before (Gebrezgabiher, year).' A detailed review of policy amid at expanding the sector has been forwarded for the Council of Ministers. Once it is approved by Parliament and executed, it would solve the bottlenecks in the sector.' Ayalnesh Workneh, Deputy Head of the Ministry of Urban Development and Housing Public Relations Office.

2.14. Synthesis and knowledge gap

Extensive review was conducted on theoretical, hypothetical and empirical literature that indicated probable success factors in construction and real estate development projects specifically. The researcher has decided on important fulfillment elements from the posted study i.e., 'Determinants of the Success of Real Estate Projects: A Study of Select Firms in Hyderabad' by using (Ramakrishna., Aswin Kumar, Vivek Kumar. and Arun Kumar, 2012). Five major basics have been recognized i.e., client objectives, client core competency, project environment, project team leader's performance and project management actions. Client objectives often have impact on the project performance and the factors low construction cost, high construction quality and quick construction time.

Client objectives often have impact on the project performance and the factors low construction cost, high construction quality and quick construction time. Client's competency gives an idea of the knowledge of the project, in pre-contract design and documentation process, where the client should be fully conversant with the requirements of the finished building, consequently reducing the level of errors and omissions leading to variations and disputes.

Project environment external influences on the construction process. Broadly they may be grouped as physical, economic, socio-political and industrial relations. The project team is a combination of diverse groups that fulfill the necessary design, detailing and construction function whose performance depends on the skills and experience of project team leaders i.e., project manager, design team leader and construction team leader. The project management actions are primarily a system concerned with decision making for planning and controlling organizational objectives inclusive of choosing an overall strategy, setting specific objectives, designing structures and processes, selecting people, delegating responsibility, evaluating results and initiating changes.

The ‘iron triangle’ of project that is time, cost and quality are the adopted success criteria to measure the success level of real estate construction projects and are used as dependent variables. In addition, the construction project being real estate development, the perception of the end users, i.e., buyers of the developed residential properties were included as success measures in the form of buyer satisfaction, current occupancy by the buyer and future purchase from the same real estate.

2.15. Empirical Review

As it is waved throughout the theoretical review part, effective project management is essential for accomplishing projects with achieving the requirements. Unfortunately, different problems are seen by scholars and researchers that projects encountered. As a result, different studies were conducted in this area. Among the many researches some studies with critical issues in the area of Project Management are reviewed in this section.

2.15.1. Building construction project management success as a critical issue in Real Estate development and investment

The study named "Building construction project management success as a critical issue in Real Estate development and investment" was conducted by Nwachukwu and Emoh (2011). The study assessed Nigerian Project management practice on the area of building construction, particularly in Real Estate development and investment. The study tried to address project success factors that contribute to the achievement of project goals. In the paper project success and success test criteria are discussed as the following. According to Cleland et al (1975, Cited in Nwachukwu & Emoh, 2011), a project is termed successful if it passes four success test criteria i.e. the time criterion – completed on time; the cost or money criterion – completed within budget; the effectiveness criterion – completed in accordance with the original set performance and quality standards; and client’s satisfaction criterion – accepted by the intended users or clients whether the client is internal or from outside the organization. "The above success criteria call for successful project implementation by the utilization of proven management techniques of planning, organizing, directing and control. The issues on life cycle management, time management, conflict resolution and management, networking, contracts management, project choice and project quality are the key factors that contribute to project success" (Nwachukwu & Emoh, 2011). At the end of the study, Nwachukwu & Emoh (2011) conclude the following:

Project management indexes have been described as the secret weapon of developed nations in attracting investors to investing in building development. Its methodologies, approach and principles have helped such world powers as United States of America guide their development processes; and in the United Kingdom where the office of government commerce devised the Prince II Methodologies to grow their economy. Therefore, in driving our developmental targets, it has become imperative to institutionalize this world acclaimed solutions vehicle into our economy for the achievement of our nation's development goals. One of the major problems of project management in Nigeria is corruption. The question is how do we intend to tackle that? If project management is a policy thrust, it will create rules for everybody to play by.

As earlier stated, all the issues that relate to construction sector are very relevant and indispensable in the economy.

Construction sector is seen as the pivot on which every other activity in the economy rotates on. The significant importance of this sector is evidenced in the fact that every business or services of diverse kinds must have a shelter and a location in the environment. Therefore, any effort towards reducing or eliminating the noticeable and silent constraints that directly or indirectly affect project management success in this sector is a right step in the right direction. The stake holders in any complex building construction project are numerous and varied with parochial objectives different from the main objectives of realizing the cost, time, quality and materials targets of the proposed construction projects. Proper project management policy we believe, is the only solution in making sure that building construction and developments do not fail, collapse, or are abandoned at alarming rate in Nigeria as such threatens the foundation of economic growth and slim down the chances of realizing vision 20:2020 project of the federal government.

Finally, according to the recommendations forwarded by (Nwachukwu&Emoh, 2011) the following should be under taken:

It should be a national policy to be enshrined in the Constitution of the Federal Republic of Nigeria as we advocate for constitution amendment. Every organization in all the major and minor sectors of the nation's economy is encouraged to establish the department of project management, every building development must have a resident project manager and not one project manager handling the management of more than one project at a time for an organization, for this will create loopholes in realizing the development goal. For public building development projects,

government should set up a Project Management Office (PMO) under the office of the President/Vice President or Governor/Deputy Governor to provide substantive professional project management support for national and state project planning, execution, monitoring/control and close out. If proper project management is institutionalized, it would bring about authenticity of data or information, timely release of funds, effective management of project risks and realization of project benefits in both public and private sector of the economy. Intervention of academic researchers and major stakeholders from building construction industry for a scientific study on other factors constraining project management success in public and private sectors of the building development industry. Comparative study be undertaken to determine the level of building development project management performance between foreign and indigenous development firms. To this end, we are very optimistic that an empirical study in these areas may provide a level ground for all the stakeholders, clients, designers, contractors, users, financiers and sponsors to rub minds on how to drastically reduce if not eliminating these disastrous elements as constraining factors to building development project management success in Nigeria

2.15.2. Critical Factors Necessary for a Successful Construction Project

The study on "Critical Factors Necessary for a Successful Construction Project " was conducted by Jari and Pankaj (2013). The purpose of this study is to investigate the causes of project failure and how these can be prevented, managed, or controlled. As the same time, the study aimed to investigate the critical factors leading to construction company success.

The Project success criteria are given Time, Cost, Quality, Project, Control, Project scope, Project change, Stakeholders' satisfaction, Project team, and Top management support. As Jari &Pankaj (2013: P333) stated in terms of the stages in project life cycle, critical success factors are the following:

- Project mission-The initial clarity of goals and the general direction
- Top management support-Willingness of top management to provide the necessary resources and authority/power for project success.
- Project Schedule/Plan- A detailed specification of the individual action steps required for project implementation.
- Client consultation-Communication, consultation, and action on behalf of all impacted Parties.

- Personnel- Recruitment, selection, and training of the necessary personnel for the project team.
- Technical tasks-Availability of the required technology and expertise to accomplish the specific technical steps.
- Client acceptance-The act of "selling" the final project to its ultimate intended users.
- Monitoring and Feedback-Timely provision of comprehensive control information at each stage in the implementation process.
- Communication-The provision of an appropriate network and necessary data to all key actors in the project implementation.
- Trouble-Shooting-Ability to handle unexpected crises and deviations from plan

Particularly, (Jari&Pankaj, 2013: PP333-334) stated about Success Factors in a Construction Projects that, "Increasing uncertainties in technology, budgets and development processes create a dynamic construction industry. Building projects are now much more complex and difficult and the building project team faces unprecedented changes. The study of project success/failure and critical success factors (CSFs) is a means of understanding and thereby improving the effectiveness of construction projects." Accordingly, Several success factors for the construction process are Clarity/Definition of project objective, Scope of project, Project manager, Project Team Commitment, Capability and cooperation, Planning, Control, Appropriate size of work package and environment, Communication and information management, and Top management support and Health and safety.

2.15.3. Critical Success Factors of Project Management for Construction Projects: Improving Project Performance

A research was conducted in Brunei Darussalam by a researcher called Rohaniyati Salleh in 2009 to identify success and delay factors which can help project parties reach their intended goals with greater efficiency. Data were collected and evaluated by statistical methods to identify the most significant causes of delay and to measure the strength and direction of the relationship between critical success factors and delay factors in order to examine project parties' evaluation of projects' critical success and delay factors, and to evaluate the influence of critical success factors on critical delay factors.

According to the research the following are seven most important causes of delay which contributed to the failure of building construction projects:

- Lack of communication between parties
- Slow decision making
- Change orders
- Inadequate contractor planning
- Finance and payment of completed work
- Subcontractor performance
- Inadequate contractor experience

2.15.4. The role of project management in achieving project success

A study made in Dundy by A K Munns and B F Bjeirmi focused on the role of project management in achieving project success. This paper has highlighted the overlap that exits between projects and project management and the confusion that can arise from the common use of these terms. It has also attempted to highlight how the objectives of a project and project management are different and how the emphasis of project management is towards achieving specific and short-term targets compared to the wider aims of a project.

The conclusion is that to make the project management team totally responsible for success would appear to be inappropriate and that the client should take an increased interest in the development and use of the project. There also needs to be an improved distinction between success and failure for the project and project management interests. Project success could be assessed using three assessment criteria based not only on project management techniques but on other external criteria which are important for the successful implementation of projects, from conception through development and use, to the final closedown.

Thus, for a project to be successful there must, first, be an improved appreciation of the role of project management within projects, and this role must be placed within the context of a wider project alongside other outside criteria and long-term expectations. Second, the project manager must allow the client to contribute actively in the planning and production phases and at the same time the project team involvement has to be extended into the utilization phase. This would be

accommodated properly in a project evaluation technique that examines not only the implementation processes but also the economic and financial performance.

Finally, one must always bear in mind that successful project management techniques will contribute to the achievement of projects, but project management will not stop a project from failing to succeed. The right project will succeed almost without the success of project management, but successful project management could enhance its success. Selecting the right project at the outset and screening out potentially unsuccessful projects, will be more important to ensuring total project success.

Conceptual Framework

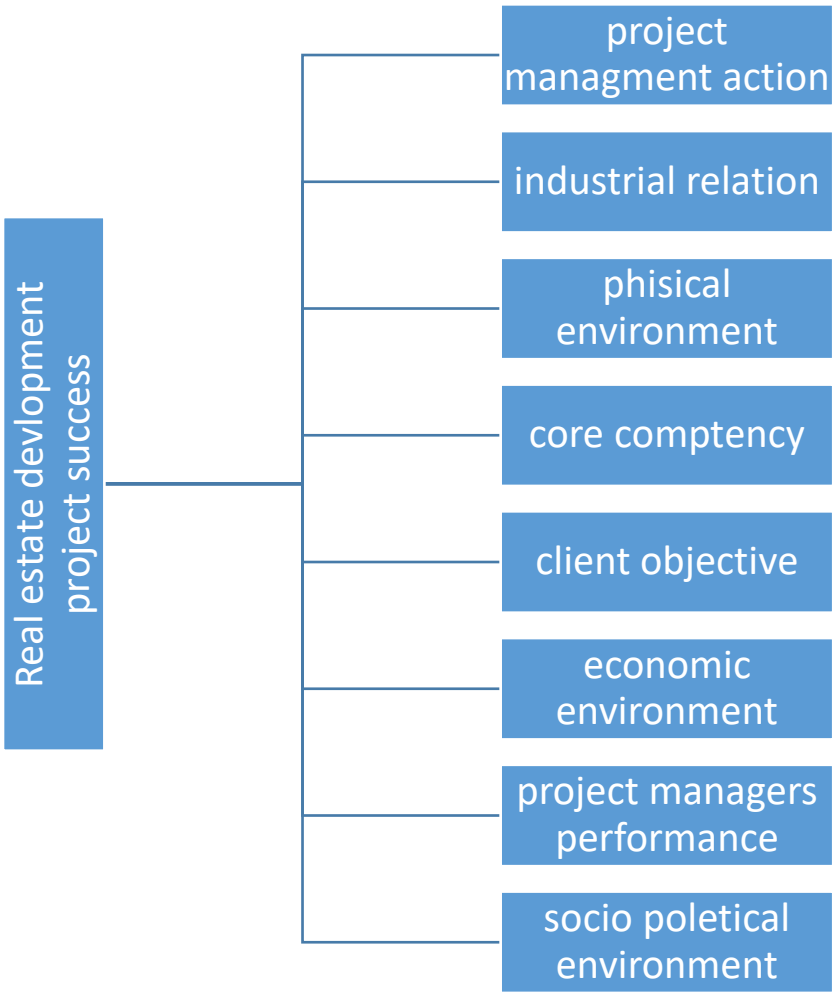


Figure 3-1 conceptual frame work of critical success factors

Conceptual framework Conceptual framework of Critical Success Factors and Real Estate Development Project implemented from: Ramakrishna N., Aswin Kumar, M., Vivek Kumar, D. and G. Arun Kumar (2012) Determinants of the Success of Real Estate Projects: A Study of Select Firms in Hyderabad

3. CHAPTER THREE-

RESEARCH METHODOLOGY

3.1. Introduction

This chapter presents the research paradigm, technique, design and methods that were used for the purpose of the assessment of critical success factors in real estate development projects. The target population includes project team of six real estate in Addis Ababa City Administration. Six real estates, i.e., New hope, Sirdenji, Sicamas, Kazanchis, MSN and Aforvill real estate are selected for the case of the study where as their real estate development teams took part in the qualitative assessment. The project team includes project managers, engineers, office engineers and foreman.

3.2. Research Paradigm, Approach and Design

3.2.1. Research Paradigm

According to (Crotty, 2003), an epistemological assumption is a way of understanding and explaining how we know what we distinguish (In this respect, this study employs the interpretive paradigm which, according to (Cohen, Manion and Keith, 2007), seeks to understand the subjective world of human experience. The study begins with individuals and sets out to understand their clarifications of the world around them. As such members of project teams in respective real estate projects are the ones who make sense of their reality, the researcher most effective holds the mission of analyzing the perspectives of individuals. Furthermore, the study additionally positions itself in the constructivist ontological assumption that's a philosophical point of view that holds the acceptance that what's to be studied is a social construction instead of an objective reality.

3.2.2. Research Design and Approach

The research was conducted to assess the critical success elements in real estate development creation projects in Addis Ababa. The research approach was a quantitative approach. The researcher identified and adapted success factors from the published study in by (Ramakrishna, et.al, 2012) on “Determinants of the Success of Real Estate Projects: A Study of Select Firms in Hyderabad” that will be incorporated to the questionnaire. The study was performed on six real

estate development projects which are Newhope, Sirdenji, Sicamas, Kazanchis, MSN and Aforvill real estates.

3.2.3. Population and Sampling

The real estate development companies were selected based on convenient sampling. The target population consisted real estate development project teams of the chosen real estate's development projects which have been completed or on remaining real phase stratified based totally on their respective projects i.e., Newhope, Sirdenji, Sicamas, Kazanchis, MSN and Aforvill Real estate. The project teams of the respective projects were inclusive of project managers, engineers and foremen. Convenience sampling was used to select the sample factors. The scale of target population Newhope, Sirdenji, Sicamas, Kazanchis, MSN and Aforvill real estates was 25,20,16,18,14 and 15 respectively. By the use of Yamane(1967) components, the sample size for every New hope, Sirdenji, Sicamas, Kazanchis, MSN and Aforvill real estate's which is 25,20,16,18,14 and 15 respectively.

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

Where n = the sample size

N= the size of the population

e= the error of 5 percentage point

Where n= the sample size N1=25 N2=20 N3 =16 N4=18 N5=14 and N6=15

Source -Yamane (1967:886)

Table 3-1: Sample size population

Type of primary data collection	**Target population**	**Sampling Method**	**Sample size**
Structured	148	Convenience Sampling	108 New hope = 25 Sirdenji = 20 Sicamas = 16 Kazanchis = 18 MSN = 14 Aforvill = 15

3.3. Sample Design

Stratified sampling was applied to select the six real estate in addition to classify the target population into six based on the real estate company they are employed namely new hope, Sirdenji, Sicamas, Kazanchis, MSN and Aforvill real estate's target population encompassed project team members New hope, Sirdenji, Sicamas, Kazadis, MSN and Aforvill real estate's respectively. The sampling design is of non-probability as a result convenience sampling technique was used for the selection of respondents. The project team included project managers, engineers, and foremen. The target population for Newhope, Sirdenji, Sicamas, Kazadis, MSN and Aforvill real estate's is 25,20,16,18,14 and 15 respectively

3.4. Data Collection

Data was collected within the form of established questionnaires. The structured questionnaires were adapted from the study posted in 2012 by using (Ramakrishna et. al,2012) on "Determinants of the Success of Real Estate Projects: A Study of Select Firms in Hyderabad" in which they identified five fulfillment factors; Client Objectives, Client Core Competency, The Project Environment, The Project Team leadership and The Managerial Actions. Due to the various and huge nature of project environment, the project environment was further categorized into independent variables i.e., Physical environment, economic environment, Socio-political and Industrial relations. These have ended in usual 8 independent variables. The questionnaire was prepared and distributed in English. The questionnaires were distributed to all the Project Managers, Engineers and Forman's of the respective real estates based on the scheduled time frame.

3.5. Data Analysis and Interpretation

Data obtained from the closed question questionnaires was described in (Bryman, 2012) as pre-coded questions because such questions remove the need for the application of a coding frame to the question after it will be answered. This is because the range of answers is going to be predetermined and a numerical code will be pre-assigned to each possible answer. This is particularly appropriate in multiple-indicator (or multiple-item) measures of concepts, like Likert scales which produce strictly speaking ordinal variables. Subsequently, Pearson's test of correlation was utilized for the analysis of pairs of ordinal variables on top of tables of frequency. To this end, IBM SPSS was used as a data analysis software.

3.6. Scale Reliability and Validity

The internal validity of the data was measured using Cronbach's alpha test. Cronbach's alpha (Cronbach 1951) assesses the reliability of a summative rating (Likert 1932) scale composed of the variables (called items) specified. The set of items is frequently called a test at or battery. A scale is the sum of the individual object ratings, reversing the scoring for statements which have negative correlations with the element being measured. Scales may be shaped through using the raw item ratings or standardized item ratings. The reliability is defined as the square of the correlation between the measured scale and the underlying factor. Though the scale appears

reasonable, we include the item option to determine if all the items fit the scale. Internal consistency is typically measured using Cronbach's Alpha (a). Cronbach's Alpha levels from 0 to 1, with higher values indicating more internal consistency (and ultimately reliability). Common procedures for evaluating Cronbach's Alpha are:

0.00 to 0.69 = Poor

0.70 to 0.79 = Fair

0.80 to 0.89 = Good

0.90 to 0.99 = Excellent

Table 3-2: independent variable's reliability test result

Independent variables	**Cronbach Alpha**
Client objectives	0.704
Client core competency	0.702
Physical environment	0.707
Economic environment	0.705
Socio political environment	0.714
Industrial relation	0.697
Project leaders' performance	0.713
Project management actions	0.708

Source- own survey 2021

3.7. Ethical Consideration

Before starting the survey questionnaire, all the potential respondents of the study was informed about the purpose of study, the type of information required, the way the data will be handled and used, and their rights during and after data collection as a participant. After providing the information, they were asked about their willingness to participate in the assessment, or not. An informed verbal consent was wanted from all participants prior to the interview; such that each study participant understands that participation is voluntary and that, they were free to withdraw participation at any time, even after verbal consent was granted. In general, all the necessary precautionary measures were taken to fulfil with the ethical standards.

4. CHAPTER FOUR

4.1. DATA PRESENTATION ANALYSIS AND INTERPRETATION

This chapter includes the data analysis and interpretation of the results proceeding from the data collected using structured questionnaires from the project team members belonging to New hope real estate, Kazaids, Sicamas, MSN, Afrovill and Sirdenji real estate. A total of 108 questionnaires were given out to all the project team members starting from November 16, 2021 from which a total of 91 questionnaires were returned by December 17, 2021 which makes the response rate 83%.

4.2. CHARACHTERSTICS OF THE RESPONDENTS

The respondents that took part in this research were total of 18 project managers, 59 engineers and 14 foremen that are engaged in the respective construction projects that are New hope real estate, Kazaids, Sicamas, MSN, Afrovill and Sirdenji real estate. From the respondents that were involved in this research 74.7 % were male and 25.3 % were females. The age distribution is dominated by the age range of 18-25 which id 9.9%, 26-33 which is 39.6 % followed by the age range 34-41 which is 29.7 %, 42-49 which is 15.4% and 50-60 which is 5.5% of the total population which indicated that most of the respondents are young. The remaining respondents were from the age range 18-25 which is 9.9 %, 42-49 which is 15.4% and 50-60 which is 5.5% respectively. The educational level distribution of the respondents are 14 diploma which is 15.4 %, 50 Bachelor degree (BA) which is 54.9% and 27 Master degree (MA) which is 29.7 % were engaged in the real estate development projects respectively.

Table 4-1: Characteristics of respondents

General characteristics		Frequency	In %
Gender	Male	68	74.7
	Female	23	25.3
Age	18-25	9	9.9
	26-33	36	39.6
	34-41	27	29.7
	42-49	14	15.4
Education level	Diploma	14	15.4
	Bachelor degree	50	54.9
	Master degree	27	29.7
Job position	Project manager	18	19.8
	Engineer	59	64.8
	Forman	14	15.4

Source Own Survey (2021)

4.3. DESCRIPTIVE ANALYSIS OF CRITICAL SUCCESS FACTOR

A series of questions were presented for the respondents to rate critical success factors they considered to be important for the successful completion of real estate construction projects. Those factors were client objectives, client core competencies, physical environment, economic environment, socio-political environment, industrial relation, project team leader's performance and project management actions. The respondents use Likert scale to rate critical success factors importance

Table 4-2: Likert scale value

	Critical success factors	Project success
1	Very low	Strongly disagree
2	Low	disagree
3	Average	average
4	High	agree
5	Very High	Strongly agree

Source Own Survey (2021)

A ratio from the difference of 1-5 was used to discuss the degree of central tendency. Adopted from (Chilesh, N and G.J Kikwasi, 2014)

1-1.80 (Very low), 1.80 – 2.60 (Low), 2.60 – 3.40 (Average), 3.40 – 4.20 (High) and 4.20 – 5 (Very High).

4.3.1. CLIENT OBJECTIVES

All the critical factors presented for the respondents were picked as important for the success of construction projects in the real estate companies in this study from between the client objective construction time is the most critical success factor 33 % ranking very high on likert scale with a high content mean of 4.05. On the other hand, construction cost was selected as the second most important critical success factor 25.3 % ranking very high with mean content of 4.02 and construction quality was given average emphasis by respondents as an important success factor for a given project success with 3.3% ranking low, 27.5 % ranking average, 45.1 % ranking high and 24.2 % ranking very high with mean value of 3.90. The overall mean of the client objectives implies 3.99 average with 0.789.

The standard deviation 0.789 shows that the values in the data set are not farther away from the mean value. Which implies that the response of the respondents on this research has a consistency.

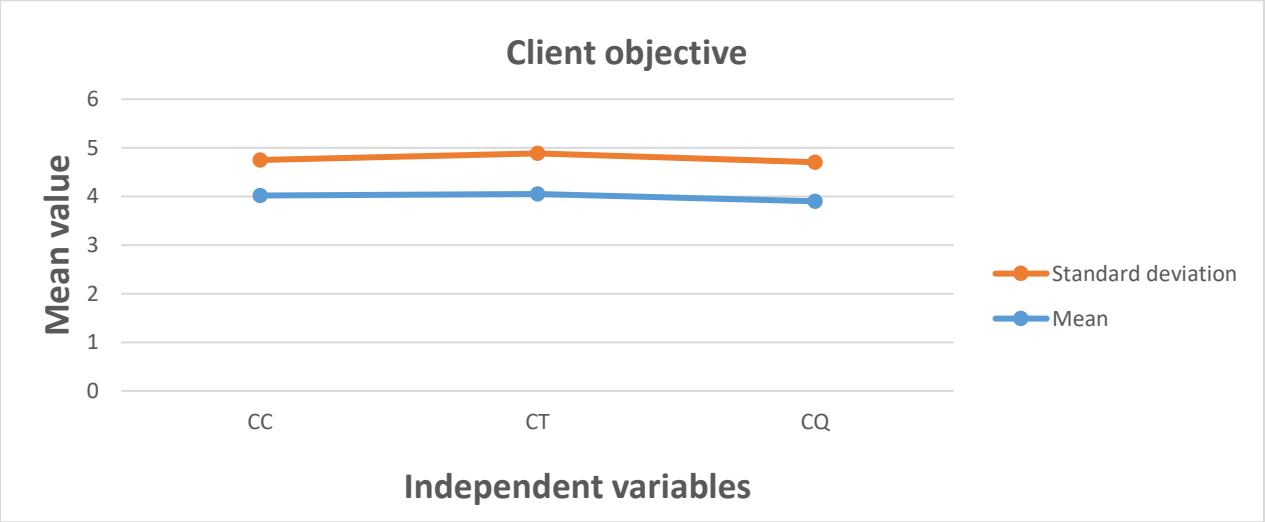
Table 4-3: Client objective descriptive statistics

	Descriptive statistics	
Independent variables	**Mean**	**Standard deviation**
Construction cost	4.02	0.730
Construction time usage	4.05	0.835
Construction quality	3.9	0.804
Aggregate	3.99	0.7896

Source Own Survey (2021)

The severity of the mean value and standard deviation of the client objective that are contributed by the respondents are illustrated below by figure 4-2 below starting from the lowest to the highest value of rates.

Figure 4-1: Client objective mean and standard deviation



Where:

CC: Construction Cost

CT: Construction Time Usage

CQ: Construction Quality

The purpose of project management is to develop and implement plans to achieve a specific scope driven by the project objectives that is subjected to client organizational strategies. According to the respondents, quick construction time is the most critical success factor for project success followed construction cost and low construction quality respectively. Which indicates that real estate development is time sensitive which indicates that the clients (buyers) tend to make purchase decision based on project delivery time and construction cost.

4.3.2. CLIENT CORE COMPETENCIES

All critical success factors defining client core competencies were rated average to high importance to the project success by more than 90 % of the respondents. From among these factors the ability to brief design 24.2 % ranking average, 48.4% ranking high, 27.5% ranking very high with a mean content 4.033. Ability to quickly make authoritative decision 2.2 % ranking average, 48.4% ranking high, 47.3% ranking very high with a mean content 4.406. ability to effectively define role of participants 2.2% ranking low, 44% ranking average, 38.5% ranking high and 15.4% ranking very high with a mean content of 3.67. Ability to contribute ideas to design process 2.2% ranking low, 33% ranking average, 46.2% ranking high, 18.7% ranking very high with mean content of 3.81. The overall mean of the client core competencies implies mean of 3.98 average with 0.722 standard deviation.

The standard deviation 0.722 shows that the values in the data set are not farther away from the mean value. Which implies that the response of the respondents on this research has a consistency.

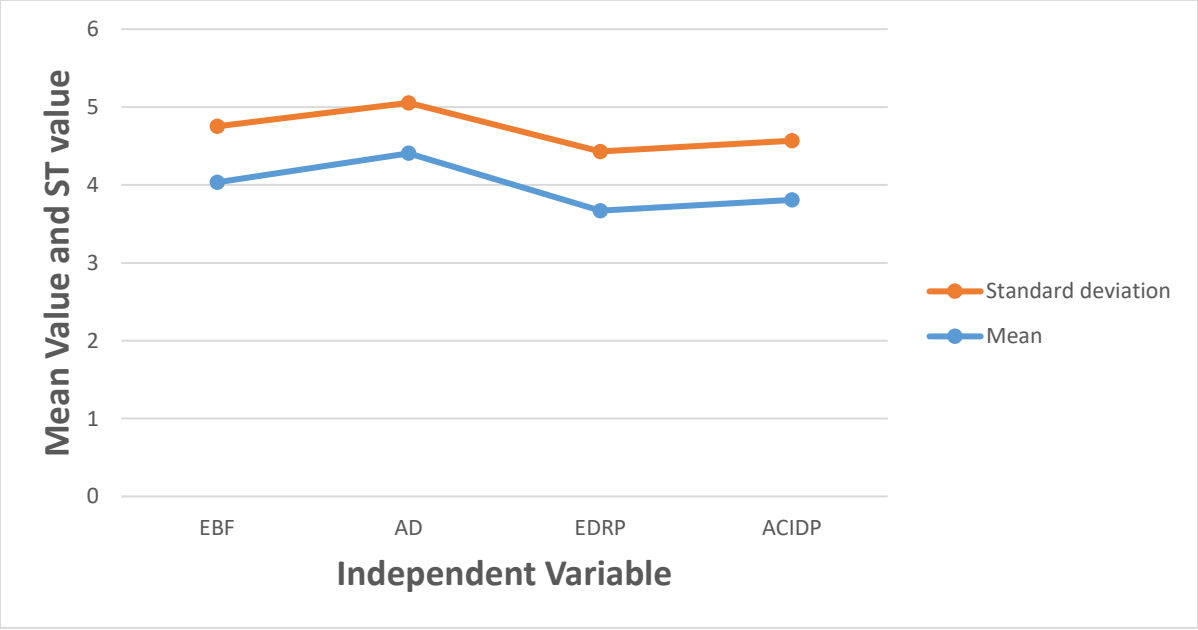
Table 4-4: client core competencies descriptive statistics

	Descriptive statistics	
Independent variables	**Mean**	**Standard deviation**
Effective brief design	4.033	0.721
Authoritative decision	4.406	0.649
Effective deign or role participants	3.67	0.760
Ability to contribute ideas to design process	3.81	0.758
Client core competencies overall	3.97	0.722

Source Own Survey (2021)

The severity of the mean value and standard deviation of the core competencies that are contributed by the respondents are illustrated below by figure 4-3 below starting from the lowest to the highest value of rates.

Figure 4-2 Client core competencies mean and standard deviation



Where:

EBF: Effective brief design

AD: Authoritative decision

EDRP: Effective deign or role participants

ACIDP: Ability to contribute ideas to design process

The results clearly indicate the importance of client involvement and competency in the project management of real estate development projects. The descriptive research undertaken by Ogunde et al. (2017, p.1) to examine the challenges confronting construction project management system in Nigeria involving fifty-nine (59) construction professionals showed that the lack of client involvement in making decisions were major part of the problem. Bannerman (2008) Multilevel Project Success Framework indicates level 3 which is product success includes measures relating to the deliverables itself (such as its match to specifications, requirements and quality expectations) and to the client satisfaction (such as product acceptance, use and effectiveness). Indeed, if that success to be achieved, it's critical that the client's ability to clearly state their ideas and of objectives, divide and distribute roles and responsibilities as they see fit and make authoritative decisions when necessary.

4.3.3. PHYSICAL ENVIRONMENT

The project environment was divided as physical, economic, socio-political and industrial environments. Due to the wide and different nature of the project environment, each sub classification was treated as an independent variable. The classification in physical environment offered for the respondents were geographical locations, weather conditions, water supply and access to infrastructure. The percentage of the independent variables of the respondents that rated for these factors, for geographical location 2.2% ranking low, 19.8% ranking average, 57.1% ranking high and 20.9% ranking very high with a mean content of 3.976, weather condition 3.3% ranking low, 24.2% ranking average, 46.2 ranking high and 26.4 ranking very high with mean content of 3.956. The third independent factor is water supply 2.2% of the respondents ranking low, 16.5% ranking average, 70.3% ranking high and 11% ranking very high with a mean content of 3.901. The fourth subcategory for physical environment which is access to infrastructure respondents replied with 1.1% ranking low, 22% ranking average, 62.6% ranking high and 14.3%

ranking very high with an average mean content of 3.901 which has equal result with water supply. From among the critical success factors respondents emphasized that geographical location affects the construction work progress and is ranked as the most critical for real estate development project with high mean of 3.967 and standard deviation of 0.706. The standard deviation 0.706 shows that the values in the data set are not farther away from the mean value. Which implies that the response of the respondents on this research has a consistency.

The result in the table 4-5 below; implies that physical environment is from the most critical success factors for real estate project development following client objectives and client core competencies ranking their mean value which is presented in table 4-11.

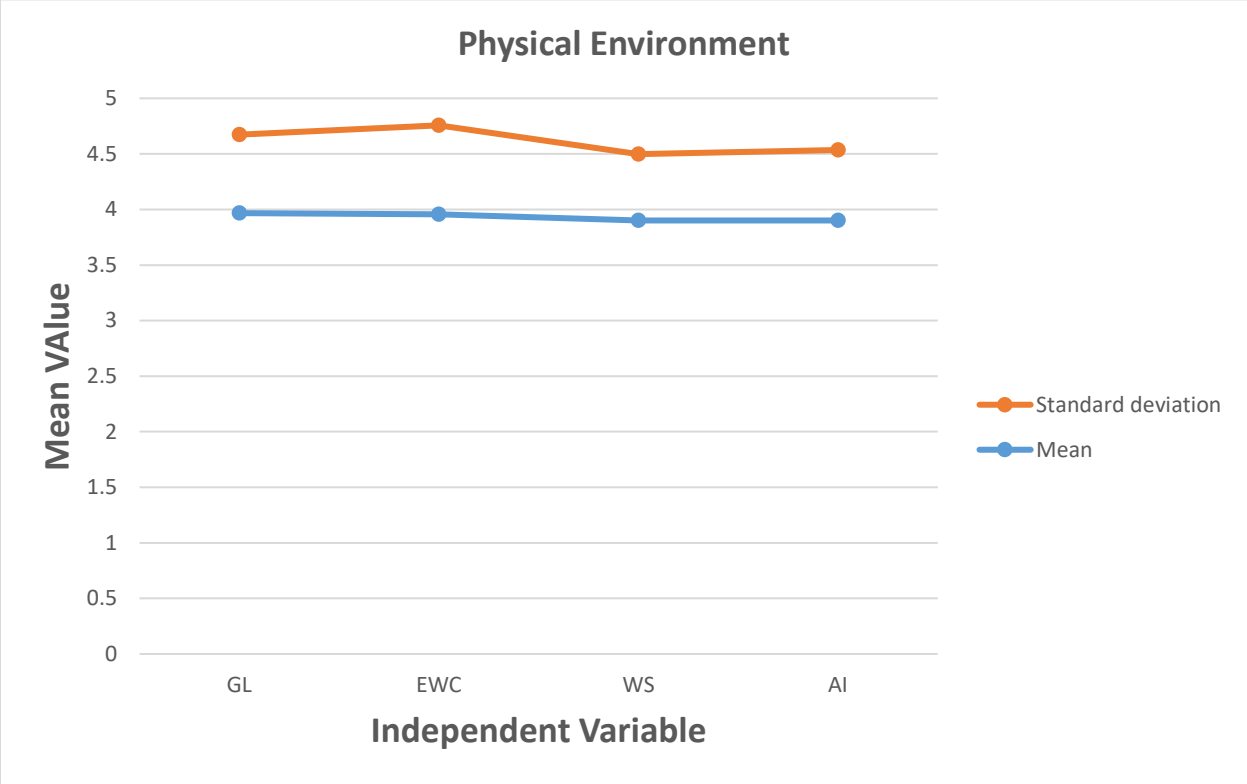
Table 4-5: Physical environment descriptive statistics

	Descriptive statistics	
Independent variables	**Mean**	**Standard deviation**
Geographical location	3.967	0.706
Effect of weather condition	3.956	0.801
Water supply	3.901	0.597
Access to infrastructure	3.901	0.633
Physical environment overall Mean	3.931	0.684

Source: Own Survey (2021)

The severity of the mean value and standard deviation of the physical environment that are contributed by the respondents are illustrated below by figure 4-4 below starting from the lowest to the highest value of rates.

Figure 4-3 Physical Environment mean and standard deviation



Where:

Gl: Geographical Location

EWC: Effect of weather condition

WS: Water supply

AI: Access to infrastructure

4.3.4. ECONOMIC ENVIRONMENT

Economic environment is classified to access to quality resource, availability of funds, effects of inflation on construction material, financial liquidity of the construction companies and labor availability. Labor availability was ranked the highest from among the classified independent variables in economic environment 1.1% ranking very low, 3.3% ranking low, 17.6% ranking average, 31.9% ranking high, 46.2% ranking very high we meant content of 4.186. Availability of

fund taking second place respondents responding 3.3% ranking low, 13.2% ranking average, 52.7% ranking high, 30.8% ranking very high with mean content of 4.109. Access to quality resource 11% ranking low, 42.9% ranking average, 25.3% ranking high and 20.9% ranking very high with mean content of 3.56. Effects of inflation on construction material 6.6% ranking low, 25.3% ranking average, 46.2% ranking high and 22% ranking very high with mean content of 3.835. And the last financial liquidity of construction companies 25.3% ranking average, 56% ranking high and 18.7% ranking very high with mean content of 3.924 and standard deviation of 0.824. The standard deviation 0.824 shows that the values in the data set are not farther away from the mean value. Which implies that the response of the respondents on this research has a consistency.

The result in the table 4-6 implies that economic environment is from the most critical success factors for real estate project development following client objectives, client core competencies and physical environment ranking their mean value which is presented in table 4-11.

Tagesse (2017,117) assessed the construction project performance challenges in selected university buildings in which the results indicated that the challenges were escalation of material prices, unavailability of resources, number of disputes between owners and project parties, review of failures and solving them and quality of equipment or machineries and raw materials. The result of the study indicates that the availability of labor is quite important as real estate development is labor intensive and requires many skilled and unskilled labor to build the properties. In addition, gaining access to quality resources means developing real estate properties that are of higher quality. This complements the results of the study that it's quite critical that a project's access quality resources determine partly its success, especially in real estate industry. The financial liquidity rated by the respondents confirm to the fact that most real estate companies operate on loans and reinvestment of sales revenue to new real estate development projects. Though the availability of funds that cover the costs of real estate developments projects is highly critical, the liquidity of the firm is not as so.

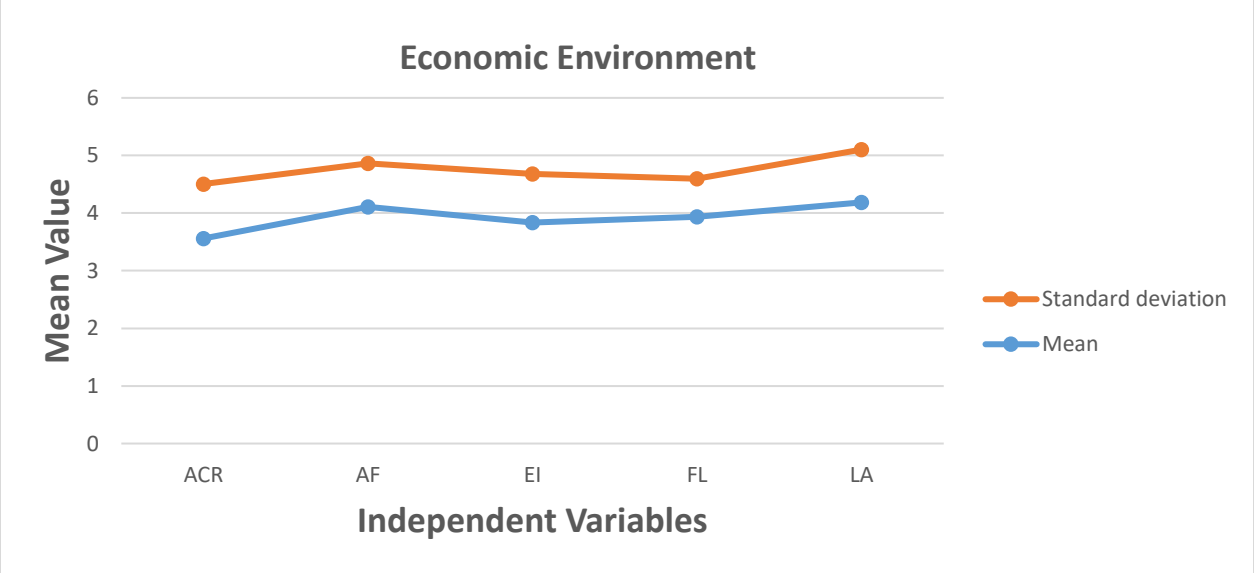
Table 4-6: Economic Environment Descriptive Analysis

	Descriptive statistics	
Independent variables	**Mean**	**Standard deviation**
Access to quality resource	3.560	0.945
Availability of funds	4.109	0.752
Effects of inflation	3.835	0.846
Financial liquidity	3.934	0.663
Labor availability	4.186	0.917
Overall mean	3.924	0.824

Source: Own Survey (2021)

The severity of the mean value and standard deviation of the economic environment that are contributed by the respondents are illustrated below by figure 4-4 below starting from the lowest to the highest value of rates.

Figure 4-4 Economic Environment mean and standard deviation



Where:

ACR: Access to quality resource

AF: Availability of funds

EL: Effects of inflation

FL: Financial liquidity

LA: Labor availability

4.3.5. SOCIO-POLITICAL ENVIRONMENT

Socio- political environment is further classified to political stability on the country's economic development, occupational health and government expenditure on construction.in political stability 3.3% ranking very low, 5.5% ranking low, 13.2% ranking average, 62.6 ranking high and 15.4% ranking very high with mean content of 3.813. Respondents on occupational health replied as 2.2% ranking very low, 9.9% ranking low, 22% ranking average, 49.5% ranking high and 16.5% ranking very high with mean content of 3.681. Government expenditure on construction 11% ranking low, 42.9% ranking average, 34.1% ranking high and 12.1% ranking very high with mean content of 3.472. Political stability of the country's economic development was given high and above importance making it most critical among the other independent factors. The overall mean of socio-political factor as a whole indicates its importance compared to others with 3.6 mean. Political stability is an important factor for real estate development as any instability stagnates the economy.

The result in the table 4-7 implies that socio political environment is a critical success factors for real estate project development following client objectives, client core competencies, physical environment and economic environment ranking the mean value taken from the reply of the respondents which is presented in table 4-11.

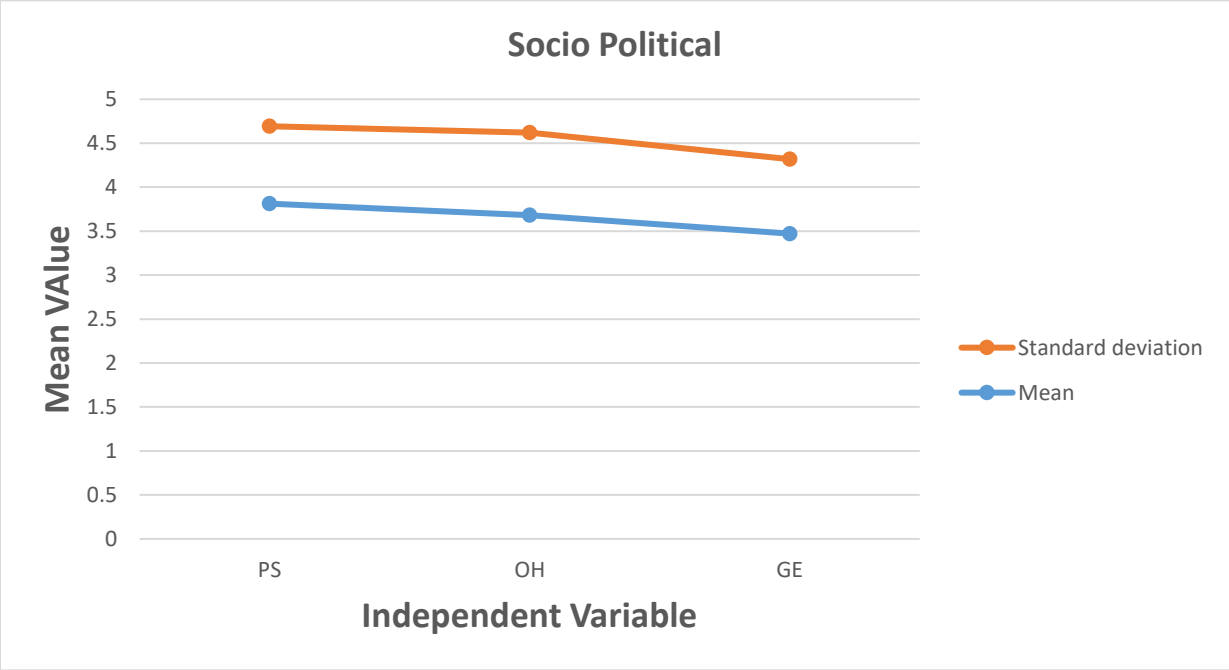
Table 4-7: Socio Political environment descriptive analysis

	Descriptive statistics	
Independent variables	**Mean**	**Standard deviation**
Political stability	3.813	0.880
Occupational health	3.681	0.941
Government expenditure	3.472	0.847
Over all mean	3.655	

Source: Own Survey (2021)

The severity of the mean value and standard deviation of the Socio-Political environment that are contributed by the respondents are illustrated below by figure 4-4 below starting from the lowest to the highest value of rates.

Figure 4-5 Socio Political Environment mean and standard deviation



Where:

PS: political Stability

OH: Occupational health

GE: Government expenditure

4.3.6. INDUSTRIAL RELATION ENVIRONMENT

Industrial relations are sub classified to institutional factor, organizational structure of labor force, social and cultural diversity of labor force and placement of conflict management. Institutional factor was rated by 5.5% ranking very low, 30.8% ranking low, 46.2 ranking average, 16.5% ranking high and 1.1% ranking very high with mean content of 2.769. Organizational structure of labor force 2.2% ranking very low, 17.6% ranking low, 28.6% ranking average, 27.5% ranking high, and 24.2% ranking very high with mean content 3.538. Social and cultural diversity 16.5% ranking very low, 41.8% ranking low, 25.3% ranking average, 14.3% ranking high and 2.2%

ranking very high with mean content of 2.439. respondents replied on conflict management as 4.4% ranking very low, 8.8% ranking low, 17.6 ranking average, 34.1 ranking high and 35.2 ranking very high with mean content 3.868. The overall mean of the industrial relations factor indicates that it is slightly less critical than socio-political environment with average mean of 3.153

The result in the table 4-8 implies that industrial is a less critical success factors for real estate project development factors comparing it from the other independent variables which are: client objectives, client core competencies, physical environment, economic environment, socio political, project team leader performance, and project management action by ranking their mean value which is presented in table 4-11.

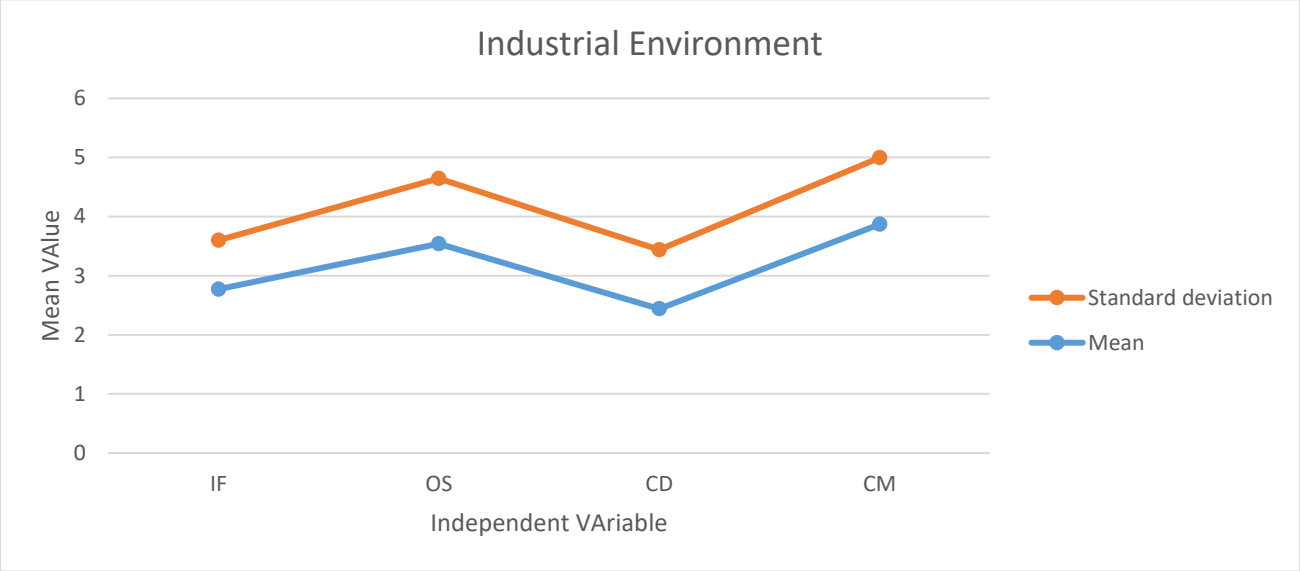
Table 4-8: Industrial relation environment descriptive analysis

	Descriptive statistics	
Independent variables	**Mean**	**Standard deviation**
Institutional factor	2.769	0.831
Organizational structure	3.538	1.108
Cultural diversity	2.439	1.00
Conflict management	3.868	1.127
Over all mean	3.153	1.016

Source: Own Survey (2021)

The severity of the mean value and standard deviation of the Industrial Relation that are contributed by the respondents are illustrated below by figure 4-4 below starting from the lowest to the highest value of rates.

Figure 4-6 Industrial Relation mean and standard deviation



Where:

IF: Institutional factor

OS: Organizational structure

CD: Cultural diversity

CM: Conflict management

4.3.7. PROJECT TEAM LEADERS' PERFORMANCE

The project team leader's performance is further classified to effective design team leader, effectiveness of construction team leader and measures of project team leader's performance. The character of a project team leader's commitment which is an experienced professional that keeps the top management constantly informed of the wellbeing and progress of the project was rated as the most critical factor with an average mean of 4.736. 2.2% ranking low, 2.2% ranking average, 15.4% ranking high and 80.2% ranking very high. Effects of design team progress and management on construction was responded with 9.9% ranking low, 18.7% ranking average, 22% ranking high and 49.5% ranking very high with mean content of 4.109. technical skill of design with 1.1% ranking low, 35.2% ranking average, 45.1% ranking high and 18.7% ranking very high with mean content of 3.813. Effect of construction team performance 1.1% ranking low, 4.4% ranking average, 54.9% ranking high, and 39.6% ranking very high with mean content of 4.329.

Technical skill of project team leader 5.5 % ranking low, 34.1% average, 40.7% ranking high, 19.8% ranking very high with mean content of 3.747. Planning skill 25.3% ranking average, 51.6% ranking high and 23.1% ranking very high with mean 3.978. Organizing skill of project team leader was ranked as 3.3% low, 33% ranking average, 46.2% ranking high and 17.6% ranking very high with mean content of 3.780.

Motivating skill of project team leader 16.5% ranking low, 49.5% ranking average, 25.3% ranking high and 8.8% ranking very high with mean content of 3.263. the other critical success factor category in project team leader is project team leader early and continued involvement in project respondents with 1.1% ranking low, 24.2% ranking average, 72.5% ranking high and 2.2% ranking very high with mean content of 3.758. Project team leader experience and capabilities with 1.1% ranking low, 20.9% ranking average, 23.1% ranking high and 54.9% ranking very high with mean content of 4.318. Project team leader's adaptability with ranking percentile of 9.9 for low, 41.8% for average, 47.3% ranking high and 1.1% ranking very high with mean content of 3.395. Support by project team leaders 7.7% ranking very low, 33% ranking low, 49.5% ranking average, 7.7% ranking high and 2.2% ranking very high with mean content of 2.637. And the last project team leader working relationship with employees 1.1% ranking very low, 3.3% ranking low, 11% ranking average, 82.4% ranking high and 2.2% ranking very high with mean content of 3.813.

The result in the table 4-9 implies that project team leader performance is a critical success factors for real estate project development following client objectives, client core competencies, physical environment, economic environment and socio-political environment by ranking the mean value which is presented in table 4-11.

The analysis of the data collected clearly indicated that a project team leader that communicates with top management of progress matched with an effective design team leader had a huge impact on the completion of the real estate development project on schedule where it will in return satisfy clients (buyers) whose homes have been delivered on time. The project leader's experiences and capabilities acquired over time, had an impact on its leadership skill that to the efficiency and effectiveness of project teams. The commitment to cost, time and quality objectives by project leaders led to team members to work accordingly to achieve

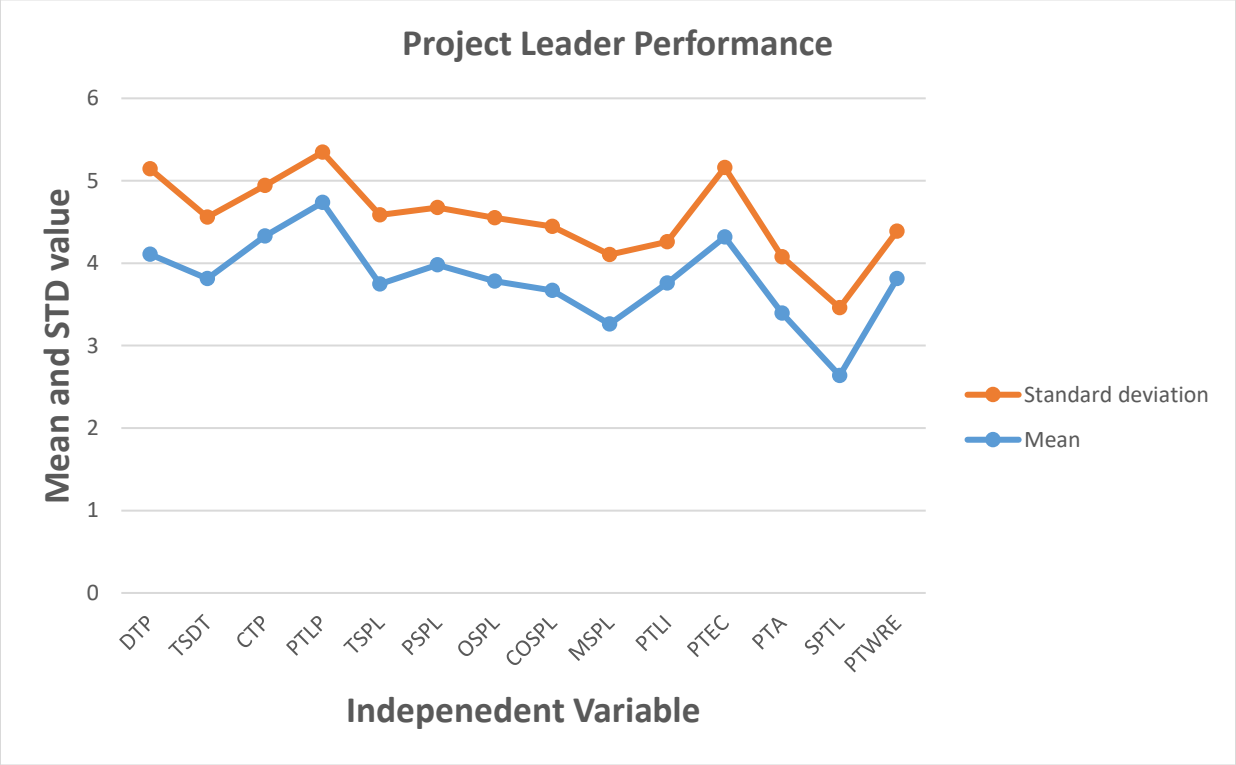
Table 4-9: project team leader's performance descriptive analysis

	Descriptive statistics	
Independent variables	**Mean**	**Standard deviation**
Design team progress	4.109	1.037
Technical skill of design team	3.813	0.744
Construction team performance	4.329	0.615
Project team leader commitment	4.736	0.611
Technical skill project leader	3.747	0.837
Planning skill project leader	3.978	0.698
organizing skill project leader	3.78	0.771
Coordinating skill project leader	3.67	0.775
Motivating skill project leader	3.263	0.8411
Project team leader involvement	3.758	0.502
PT experience and capabilities	4.318	0.841
PT adaptability to change	3.395	0.681
Support by project team leader	2.637	0.823
PT working relationship with employees	3.813	0.575
Overall mean	3.810	0.739

Source: Own Survey (2021)

The severity of the mean value and standard deviation of the project team leader performance that are contributed by the respondents are illustrated below by figure 4-4 below starting from the lowest to the highest value of rates.

Figure 4-7: Project team leader performance mean and standard deviation



Where:

DTP: Design team progress

TSDT: Technical skill of design team

CTP: Construction team performance

PTLP: Project team leader commitment

TSPL: Technical skill project leader

PSPL: Planning skill project leader

OSPL: organizing skill project leader

COSPL: Coordinating skill project leader

MSPL: Motivating skill project leader

PTLI: Project team leader involvement

PTEC: Project team leader experience and capabilities

PTA: Project Team leader adaptability to change

SPTL: Support by project team leader

PTWRE: Project Team leader working relationship with employees

4.3.8. PROJECT MANAGEMENT ACTIONS

Several sub classifications were made to the critical success factor of Project Management actions. From among the many monitoring and updating plans was rated the most critical 4.4% ranking low, 15.4% ranking average, 69.2% ranking high and 11% ranking very high with mean content of 3.868. Planning and installing communication system 9.9% ranking low, 64.8% ranking average, 16.5% ranking high and 8.8% ranking very high with mean content of 3.241. While developing an appropriate organizational structure 1.1% ranking very low, 8.8% ranking low, 37.4% ranking average, 41.8% ranking high and 11% ranking very high. Controlling project success 3.3% ranking very low, 2.2% ranking low, 11% ranking average, 78% ranking high and 5.5% ranking very high. Implementing an effective safety program 6.6% ranking very low, 20.9% ranking low, 52.7% ranking average and 19.8% ranking high with mean content of 2.857. Development of good reporting system 18.7% ranking low, 59.3% ranking average, 22% ranking high with mean content of 3.033. Implementing of effective quality assurance program 6.6% ranking very low, 39.6% ranking low, 52.7% ranking average, 1.1% ranking very high with mean content of 2.494. Holding regular meeting 17.5% ranking very low, 14.3% ranking low, 41.8% ranking average, 18.7% ranking high and 7.7% ranking very high with mean content of 2.846. The other critical success factor is development of standard procedures 17.6% ranking low, 37.4% ranking average, 29.7% ranking high and 15.4% ranking very high with mean content of 3.4286.

The result in the table 4-10 implies that project management action is a less critical success factors for real estate project development factors comparing it from the other independent variables which are: client objectives, client core competencies, physical environment, economic environment, socio political, project team leader performance, and project management action by ranking their mean value which is presented in table 4-11.

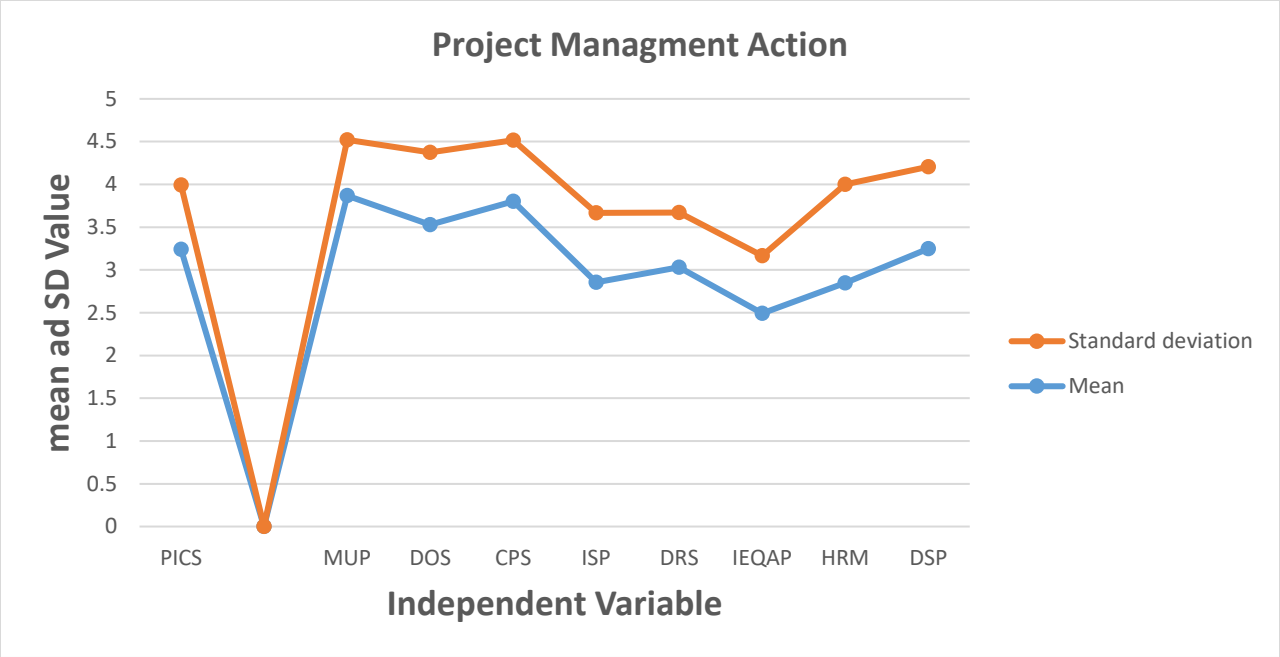
Table 4-10: Management Actions Descriptive Analysis

	Descriptive statistics	
Independent variables	**Mean**	**Standard deviation**
Planning and installing communication system	3.241	0.75
Monitoring and updating plans	3.868	0.653
Developing organizational structure	3.527	0.847
Controlling project success	3.80	0.718
Implementing safety program	2.857	0.810
Developing reporting system	3.03	0.64
Implementation of effective quality assurance program	2.494	0.672
Holding of regular meeting	2.846	1.153
Development of standard procedures	3.248	0.956
Overall mean	3.212	0.799

Source : Own Survey (2021)

The severity of the mean value and standard deviation of the project management action that are contributed by the respondents are illustrated below by figure 4-4 below starting from the lowest to the highest value of rates.

Figure 4-8 Project management action mean and standard deviation



Where:

PICS: Planning and installing communication system

MUP: Monitoring and updating plans

DOS: Developing organizational structure

CPS: Controlling project success

ISP: Implementing safety program

DRS: Developing reporting system

IEQAP: Implementation of effective quality assurance program

HRM: Holding of regular meeting

DSP: Development of standard procedures

4.4. RANKING OF CRITICAL SUCCESS FACTOR ACCORDING TO REPONDENTS

The critical success factors independent variables from the data collected of the perception of the respondents on the project team the following values are

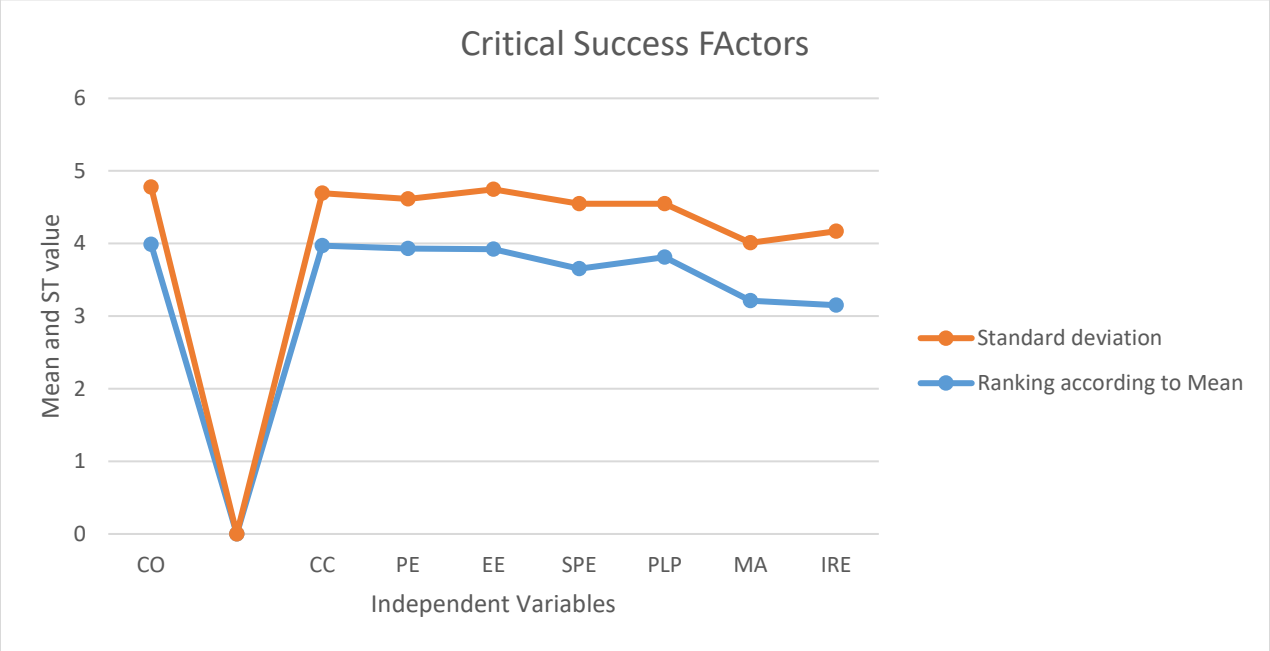
Table 4-11: Ranking Critical success factors

	Descriptive statistics	
Critical success factors	**Ranking according to Mean**	**Standard deviation**
Client objective	3.99	0.789
Client core competency	3.97	0.722
Physical environment	3.931	0.684
Economic environment	3.924	0.824
Socio political environment	3.655	0.892
Project team leader performance	3.81	0.739
Management actions	3.212	0.799
Industrial relation environment	3.153	1.016

Source: Own Survey (2021)

The table below shows the ranking of the independent variables for the critical success factors for real estate development

Figure 4-9 critical success factor mean and standard deviation



4.5. PROJECT SUCCESS ASSESEMENT

The project success assessment was made by the respondent's perception of the project success measured by its completion within the planned cost, time and quality standards. In addition, it was measured by the real estate success indicators which are buyer satisfaction, current use of property and future plans of another purchase by buyer. From among the indicators of project success project completion 74.7% ranking low, 25.3% ranking average with mean content of 2.252. Project was completed within budget 2.2% ranking very low, 82.4% ranking low, 15.4% ranking average with mean content 2.131. Project was completed in with quality standard 14.3% ranking low, 69.2% ranking average, 16.5% ranking high with mean content 3.022. The respondents regarding the client satisfaction rated 25.3% ranking low, 54.9% ranking average, 8.8% ranking high and 11% ranking very high with mean content of 3.05. Regarding the comeback of the clients for more purchase 2.2% ranking very low, 20.9% ranking low, 47.3% ranking average, 18.7% ranking high and 11% ranking very high with mean content of 3. 153. Client satisfaction with mean of 3.05 and client come back for further purchase with mean content of 3.153 where it indicates agreeability according to the perception of the respondents that indicated project success.

In the table 4-12 below shows that the project success assessment analysis implies that clients in the selected projects will come back for further purchase and that the clients are satisfied with the project construction according to the mean value replied by the respondents.

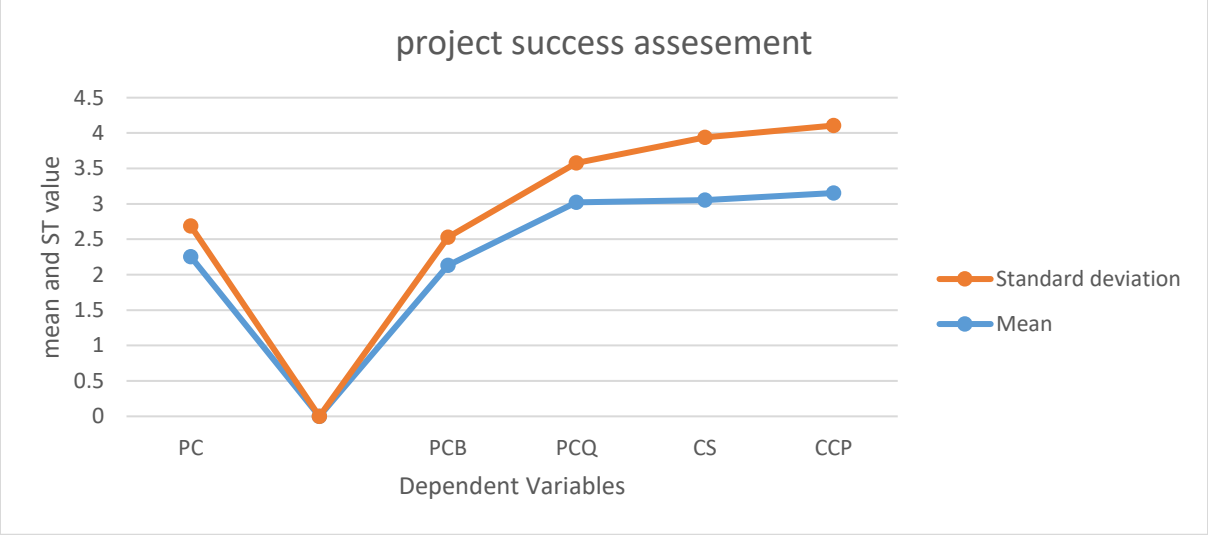
Table 4-12: Project success assessment descriptive analysis

	Descriptive statistics	
Dependent variables	**Mean**	**Standard deviation**
Project completed on time	2.252	0.436
Project completed within budget	2.131	0.400
Project completed with quality standard	3.022	0.557
Client was satisfied	3.054	0.886
Client will be back for further purchase	3.153	0.953

Source: Own Survey (2021)

The table below shows the mean value of the dependent variable project success assessment of real estate development

Figure 4-10 Project success assessment action mean and standard deviation



4.6. RELATIONSHIP BETWEEN CRITICAL SUCCESS FACTORS AND PROJECT SUCCESS

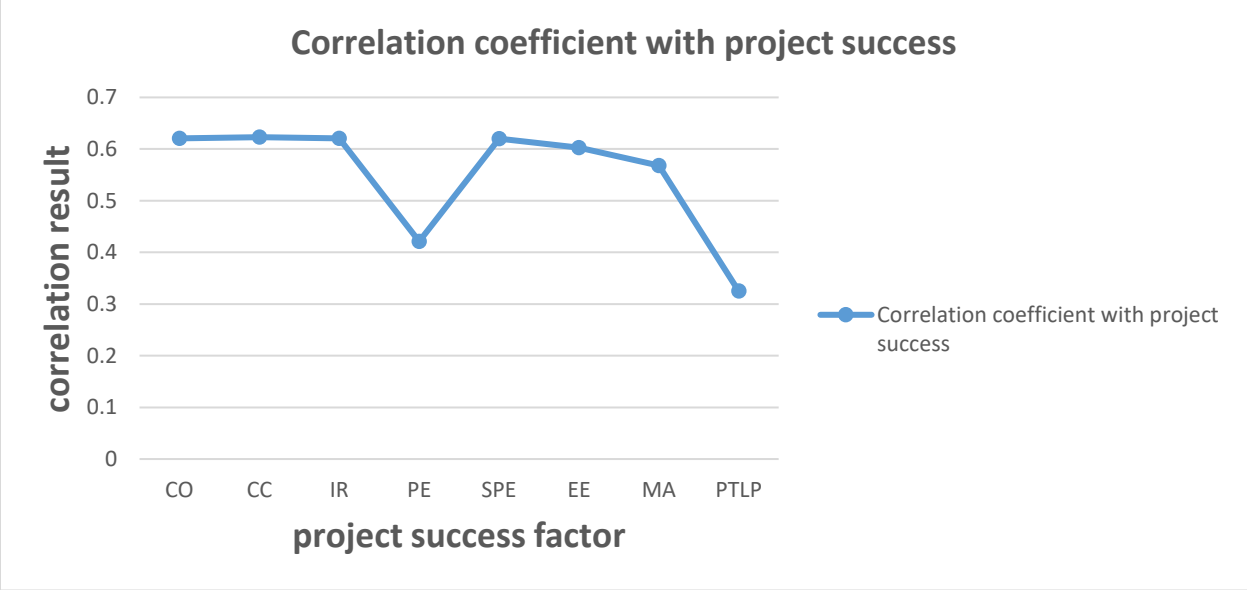
This table lists the correlation of the critical success factors with project success on descending manner. According to the respondents, Project Management Actions, Project Team Leader Performance and Client Core Competency have indicated a positive strong correlation with project success.

Table 4-13: Correlation between critical success factor and project success

Critical success factor	Correlation coefficient with project success
Client objective	0.621
Client core competencies	0.623
Industrial relation	0.621
Physical environment	0.421
Socio political environment	0.62
Economic environment	0.603
management actions	0.568
Project team leader performance	0.325

Source: Own Survey (2021)

Figure 4-11 Correlation between critical success factor and project success



Client objective have the highest positive correlation with project success with correlation coefficient of 0.621. From among the sub variables construction cost, proper construction time usage and construction quality are the strong factors that contributed to a high mean of the respondent's response. It is well established that the cost, quality and time constitute major part of success criteria of construction projects that are commonly known as "iron triangle" (Atkinson, 1999). (Coll, 2002) emphasized that the factors that affect a project's success are very consistent and some of them include knowledge, preparation, organization, leadership, teamwork, timeliness and effective conclusion. Each one of these factors is equally critical to the successful outcome of any worthy undertaking. Client core competencies imply a strong positive correlation with project success with 0.623 coefficient of correlation. The major contributor of this variable is ability to effectively brief design team in a project as well as ability of making an authoritative decision. In real estate development, design team consists of architects and engineers that develop conceptual and detailed design that ensures the property design will for its purpose. They are responsible for taking a client's idea and bringing it to work using their professional skills.

The effectiveness of design team leaders has indicated its importance to project success, especially to the quality of the development. Abdulsamad and Chileshe,(2009) emphasized that the success and failure of any project depends on many factors but project leaders are considered to be key contributors to the success of a project as well as guide to the team members to achieve the client satisfaction (cost, time and quality). In addition, effective construction manager is highly critical that can manage construction time according to schedule. The ability to make authoritative decisions contributed the highest mean followed by ability to contribute ideas to the design process, ability to define the roles of participating organizations and ability to brief the design teams respectively. This is added to the emphasis that client involvement and ability to articulate their objectives as well as decision making power is quite relevant to the project success. Project environment which includes sub categories such as physical environment, economic environment, socio political environment and industrial relation has positive correlation coefficient of 0.412, 0.603, 0.62 and 0.621 with project success. From among these physical environments has a positive weak correlation with project success. The access to infrastructure is the contributor to mean value of 3.901 in physical environment. Real estate development is for the purpose of developing and selling to potential buyers where the development of infrastructure and proximity

of geographical location will be part of the promotion. The water supply is an important factor for construction and for the buyers that will inhabit the project output of residential property.

Therefore, the research has identified critical success factors according to the perception of the real estate project teams. The results have emphasized the client's objectives, client core competencies and physical environment as critical success factor in relation with the other success factors. The human related factors and actions that combine realistic goals, competency and systematic approach to project management have certainly taken its importance to the success of a project.

5. CHAPTER FIVE

5.1. CONCLUSION AND RECOMMENDATION

The objective of the study was to find and assess critical success factors in real estate construction projects and their impact on successful completion of projects. In this final chapter, the conclusions and recommendations are presented.

5.2. CONCLUSION

The study was conducted to study critical success factors in real estate development projects. The study was conducted in six selected real estate development projects New hope real estate, Kazaids, Sicamas, MSN, Afrovill and Sirdenji real estate. The research objectives were to identify critical success factors and their relationship with project success. The study was conducted by collecting data through questionnaires to project managers, engineers and foremen of the six real estate companies. 8 critical success factors identified were included in the questionnaires in a Likert scale format adopting it from (Ramakrishna et.al, 2012) on "Determinants of the Success of Real Estate Projects: A Study of Select Firms in Hyderabad". These critical factors are identified as Client Objectives, Client Core Competency, Physical Environment, Economic Environment, Industrial Relations, Socio-Political Environment, Project Team Leader's Performance and Managerial Actions. By applying the mentioned critical success factors and using descriptive analysis and correlation studies, the study has responded to the research questions provided.

Regarding the sample taken for analysis six out of eight were found to be critical success factors of real estate development projects in Addis Ababa. That is client objectives, client core competency, physical environment, economic environment, socio political environment and project team leader's performance. From the critical success factors client objectives, client core competencies and socio-political environment were found having strong positive relationship with real estate development for project success.

The most critical factor is client objectives especially construction cost followed by proper construction time usage. The objective of real estate development is to build residential properties for the purpose of selling them to specific market segment. Given the objective, customers (buyers)'s have high influence and interest where their requirements are given priority in devising business objectives. As part of the overall project objective and organizational strategy, real estate

developers being the project sponsors(clients) emphasis on delivering properties on time with high quality with proper construction cost to gain competitive advantage.

Another critical success factor is the client core competency which has positive strong relationship with project success. The involvement and competency of the real estate developers during the initiation and planning phase creates a shared understanding of success criteria and improves deliverable acceptance and buyer satisfaction. In addition, it will result in less scope creep and design changes. The project environment comprises of physical, economic, socio political and industrial relations. From among the economic factors, the availability of labor and was emphasized as a key factor in real estate development project success. Socio-political and industrial factors were given average importance while the sub factors of political climate institutional factors and organizational structures are conditions that influence projects according to project management knowledge.

In conclusion the study result indicated that client objective and client core competencies were found to be the most critical factor to the success of real estate projects. These factors affect project success even though the degree of influence might vary from variables. Success in real estate development will be achieved with clear objective centered requirements from the clients

5.3. RECOMMENDATION

On the basis of the conclusions discussed above, the following recommendations have been given:

- Real Estate developers and project leaders in order to align real estate development projects with business strategy and to make decisions that satisfy buyers needs and expectations with regard to delivery on time and of high quality.
- Real estate developers should have a full pledged design on the construction project to be developed in order to decrease discrepancy.
- Real estate developers should study about the physical environment of the given project to be developed before starting the construction whether it is accessible or not.
- Real Estate developers should involve themselves in the project initiation and planning phase where all aspects of scope, time, cost, quality, communications, human resources, risks, procurements and stakeholder engagement is being analyzed.
- Finally, to achieve project success, project leaders should attain proper training in project team development that requires diverse skills.

5.4. AGENDA FOR FUTURE RESEARCH

The researcher suggests further research in this area of the relationship between two variables which is project management actions, project team leader's performance and industrial relation environment with real estate development success because the respondents of this study have emphasized the Client objective (cost, time and quality) followed by client core competencies as critical factor for real estate development and project management action as an average influence on the development. Additionally, the researcher suggests further research in the area of assessing critical success factor in project success.

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APPENDIX:

Title: **An Assessment of the critical success factors for real estate development: in the case of selected companies in Addis Ababa**

Dear Respondent,

This questioner is prepared by Jihan Mohammed for partial fulfillment of MPM program at St Mary University. The survey is titled on **"An Assessment of the critical success factors for real estate development: in the case of selected companies in Addis Ababa."** I kindly request you to fill this questioner while assuring you that the information that you provide will be treated with confidentiality and shall only be used for academic purpose. I would like to remind you that your fair and impartial feedback helps this research to be successful.

I**nstruction**

The questionnaire will have two sections.

1. **Section 1: Presents 5 independent variables to rate their influence on project success**.

   1.1. Client objectives

   1.2. Client Competency Measures

   1.3. Project Environment

   1.4. Project Team Leadership

   1.5. Managerial Action

2. **Section 2: Presents measure of Project success with the iron triangle of cost, time and quality**

In answering the questions,

- ✓ There is no need to write a name
- ✓ The responses will be recorded on a Rensis Likert five Scale rating

1- Very Low,	2 – Low	3- Average	4- High	5- Very High
1- Strongly Disagree	2- disagree	3- Neutral	4- Agree	5- Strongly Agree

In rating the importance of each factors to project success

- ✓ Put an '**x**' on the boxes to answer the questions on Likert Scale

✓ Please respond honestly to the best of your abilities

1. General Information

1.1. Gender

☐ Male ☐ Female

1.2. Age

☐ 18-25 ☐ 26-33 ☐ 34-41 ☐ 42-49 ☐ 50-60

☐ above 60

1.3. Education Level

☐ Elementary level ☐ complete High School Diploma

☐ Vocational Training ☐ Undergraduate (Bachelor's Degree)

☐ Graduate (Master'degree) ☐ Post Graduate (Ph.D.) and above

1.4. Job Position

☐ Project Manager ☐ Engineer ☐ Forman ☐ Admin

For specific job description_____

2. Section I

Company of employment _____

These are the identified success factors for real estate construction projects to assess in the context of Addis Ababa City Administration. Please answer by rating their contribution to project success using the 5 Likert scale.

Factors	**Very Low**	**Low**	**Average**	**High**	**Very High**
2.1. Client Objectives					
Construction Cost					
Proper Construction time usage					
Construction Quality					
2.2. Client Core Competencies					
Ability to effectively brief design teams					
Ability to quickly make authoritative decisions					
Ability to effectively define the roles of participating organizations (Consultant and Contractor)					
Ability to contribute ideas to design process					
2.3. Project Environment					
2.3.1. Physical Environment					
To what extent does the geographical location affect the construction work progress					
Effect of Weather condition on construction					
Water supply					
Access to infrastructure					
2.3.2. Economic Environment					
Access to quality resources					
Availability of Funds					

Effects of Inflation on construction material					
Financial Liquidity of the construction companies					

Labor Availability					
2.3.3. Socio-political Environment					
Political stability on the country's economic development					
Occupational Health					
Government Expenditure on construction					
2.3.4. Industrial Relations Environment					
Institutional factor (Government policy and labor legislations)					
Organizational Structure of labor force					
Social and cultural diversity (religion, ethnic groups, culture and customs) of labor force					
Conflict Management between parties (contractor and client)					
2.4. Project Team Leaders Performance					
Effects of design team progress and management on construction project progress					
Technical skill of the design team leaders					
Effects of construction team performance on project progress					
Project leader's commitment to cost, time and quality objectives					
Technical skills of the project team leaders					
Planning skills of project team leaders					
Organizing skills of the project team leaders					
Coordinating skills of the project team leader					
Motivating skills of the project team leaders					

Project team leaders' early and continued involvement in the project					
Project team leaders' experience and capabilities					
Project team leaders' adaptability to changes in the project plan					
Support by project team leaders' parent company					
Project team leaders' working relationship with employees (site engineers, Forman’s and labors)					
2.5. Management Actions					
Planning and installing Communication system					
Monitoring and updating plans					
Developing an appropriate organizational structure					
Controlling project progress					
Implementing an effective safety program					
Development of good reporting system					
Implementation of effective quality assurance program					
Holding of regular meetings					
Development of standard procedures					

Section II - Project Success Assessment

Factors	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Project Success					
The project was completed on time					
The project was completed within budget					
The project was completed in with in quality standard					
The client (real estate buyer) was satisfied					
The buyer will comeback for future purchase					

Thank you