ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

FACTORS AFFECTING SUCCESS OF REAL ESTATE PROJECTS: THE CASE OF FLINTSTONE HOMES

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

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Declaration

I, **Tseada Seifu**, declare that this research project titled, "**Factors Affecting Success of Real Estate Projects: The Case of Flintstone Homes**" is my original work and it is submitted to this university for the first time. It has never been given in to any university for the purpose of earning any degree. All resource materials used for this research project had been acknowledged accordingly. This research project was done for the partial fulfilment of M.A in Project Management.

Signature:_____ Date:____/___/ 2023

Table of Contents

List of Figures

List of Tables

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Abstract

In Ethiopia, there is escalating demand for residential houses. Besides the government, the real estate sector shares the responsibility of addressing this demand. This research project aimed to identify the factors affecting success of real-estate projects. A descriptive and explanatory research design was deployed. Primary data was collected using a structured questionnaire. A total of 35 questionnaires were filled by project managers, site supervisors and other project team members of Flintstone Homes. The data collected from the respondents was analyzed using SPSS software version 26 and the data was interpreted using descriptive statistics such as mean, standard deviation, percentage and frequency. Correlation analysis was used to show the relationship between the factors and real estate project success and regression analysis was done to indicate the impact of the factors. The results indicated that project management related factors are the most practiced among the seven factors. Project manager related factors has very strong relation with real estate project success. Whereas design team related, client related and project management related factors have strong relation with project success. Environment and procurement related factors has moderate relation and contractor related factors has no relation with real estate project success. It was recommended that the level of practice should be improved regarding design team related factors to ensure project success. Special attention must be given to project manager related factors as they have very strong relation and high impact on real estate project success.

Key word: success factors, real estate, project success

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The construction industry in general is dynamic in nature and the increasing uncertainties in technology, budget, and development processes are contributing to its dynamicity (Milka, 2016). Rural to urban settlement created a huge gap between the demand and supply of housing in Ethiopia particularly in Addis Ababa. This paves the way for many real estate developers to invest their capital in the sector (Gebreyohannes, 2021).

As construction industry is project-based, its success is mainly determined by project success. From the reputation of the real estate companies that are engaged in Ethiopian construction industry, few of the real estate companies delivered their projects according to the planned cost, time and quality. Unsatisfied customers raised lawsuits and the companies that failed to deliver according to the initial promise are facing the battle in courts. Real estate developers in our country are using the public resource and their failure to complete their projects successfully saves the resource from being wasted. Failure in the real estate sector is at the cost of the resources of the country (Biniyam, 2021). This problem urged the need of identifying factors affecting real estate project success and examining the existing relationship with real estate project success.

Contribution of the real estate sector goes beyond easing the housing problem to aiding economy of the country. However, different problems are hindering real estate development in our country. Problems that exist in the real estate development make the business environment susceptible to failure (Milka, 2016).

This study identified factors that affect the success of real estate projects and examined their relationship with project success. The inputs that directly or indirectly leads the management system to success of the project or business by increasing the likelihood of success are called Critical Success Factors (Mamaru Dessalegn Belay,, Esayas Alemayehu Tekeste,Sintayehu Assefa Ambo, 2017). Seven critical success factors of construction projects were identified by (Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi, 2008) were used in this study. The factors are project management related, procurement system related, clients related, design team related, contractor related, project manager related, and environment related.

1.2 Background of the Company

It is being common to see residential homes being built by real estate developers. The front liners in real estate development include Ayat, Sunshine, Ambassador, Tracon, Gift, Enyi and Zenebe Frew Real Estate in addition Country Club Developers and Flintstones Homes (Access Capital, 2010). Among these real estate companies, Flintstones Homes was selected for this study.

Previously "Tsedeke Yihune Construction" was established in 1992 as level 8 contractor. In 1993, it was renamed as Flintstone Engineering. Since the local construction sector was just beginning on early 1990's, Flintstone started to engage in sub-contract works from prevailing companies and began its outstanding journey by developing its construction management, and manpower capacity. Among the known construction contractors, Flintstone Engineering is recognized for its rare combination of affordable price and quality. Flintstone delivered a total unit of 1,532 to the home buyers. (www.flinstonehomes.com, 2023).

Among the many handed over projects, this study focused on five projects. Namely Twin crossing residential neighborhood, Oasis residential neighborhood, Hayahulet apartment building, Megenagna apartment building and Urael apartment building.

1.3 Statement of the Problem

The real estate sector is an emerging sector across the globe. The increasing challenges and uncertainties in real estate and many housing construction projects are the main causes of failure in completing projects successfully. Ethiopian construction industry experiences show that, medium to large size projects have high failure rate. The consequences can be costly and lengthy, with the worst outcomes often leading to undesirable litigation engagements (Lepartobiko, 2012).

The demand for residential houses is growing in major cities of Ethiopia and addressing this demand is one of the responsibility of the real estate sector. When projects turn out to be a failure, the nation's precious resources will be prone to be wasted. To enhance the probability of successful completion of real estate construction projects, it was found important to study the major success factors in the real estate construction projects and their relationship with project success.

Recently, real estate sector is facing a challenge of completing projects successfully. There are certain factors that contribute to the failure. Identifying them and incorporating the mitigation

mechanism in planning the projects is essential to solve this problem from the root. If the problem is left unsolved, it will continue causing project failures, which in turn lead to waste of resources of the country (Hari et al., 2012).

A number of researchers in different countries studied the factors affecting the success of real estate sector. Lists of variables have been abounded in the literature; however, no general agreement was made. In addition, most researches focused on identifying the factors and neglect to study the relationship of the factors with project success. If the relationship is known, it will be beneficiary to focus on the strongest relationship. Hence, identifying the factors affecting the success of real estate projects and to determining their relationship with project success is important to offer alternative ways to the real estate sector (Korovin, 2019).

Accordingly, this research project tried to fill an existing research gap by identifying major influential factors and examine the relationship they have with project success. Various factors in real estate projects were identified through review of research publications. Therefore, this study gave more emphasis on investigating the relationship between the factors and real estate project success. The type of relationships, once identified, will be a useful input to implement a project successfully.

1.4 Research Questions

This research project had the following research questions.

1. What are the major factors affecting success of real estate projects?
2. What is the level of practice of the identified success factors?
3. What is the impact of the identified success factors on success of real estate projects?

1.5 Objectives of the Study

1.5.1 General Objective

- To assess the factors affecting success of real estate projects in the case of Flintstone Homes.

1.5.2 Specific Objectives

1. To identify the major factors affecting success of real estate projects.
2. To show the level at which the identified success factors are being practiced.
3. To examine the impact of the identified success factors on real estate project success.

1.6 Significance of the Study

Having information about the type of relationship between the factors affecting the success of real-estate projects and project success will make a significant difference in completing projects successfully. This will in turn be very useful for real estate companies to prepare their plans accordingly and act to prevent projects from failure.

Moreover, there is observed gap in literature that show the relationship between success factors and project success. This study will contribute in filling this gap. In addition, this study will serve as a basis for other researchers who wish to study real estate project success.

1.7 Scope of the Study

Timely delimited to completed real estate projects exclusive of on progress projects undertaken by the case company: Flintstone Homes. Geographically limited to projects found in Addis Ababa.

1.8 Limitation of the Study

Even though there are many real estate companies in Ethiopia, this study focused on only one real estate company. This may limit the generalizability of the result. This study is merely based on the opinion of project team members, exclusive of the customer's perspective. This is due to the unavailability of most customers and difficulty to distribute and collect the questionnaires with in the time limit.

For future studies, it is recommended to incorporate the views of customers and to include more real estate companies for more generalizable result.

1.9 Organization of the Study

The study is organized in to five chapters. The first chapter gives a brief background of the study, statement of the problem together with the research questions. It includes the objectives of the study, significance of the study, the scope and limitation of the study. The second chapter focuses on various literature on the problem under study to provide definition to various concepts.

Moreover, theoretical perspectives and conceptual framework is incorporated. The third chapter presents research methodology. It covers research approach, research design, sampling design, source of data, research instrument, method and procedure of data collection, data analysis method, validity and reliability with ethical consideration. The fourth chapter covers findings and discussion part. The last chapter provides summary of findings, the conclusion and recommendation.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this chapter, literature on project, project management, project management in construction projects, real estate and success in projects are reviewed. Literature related to project success and project management success are included in the review with the factors affecting project success to establish good theoretical characteristic for this research project. At the end conceptual framework of the study was developed.

2.2 Theoretical Literature

2.2.1 Project

A definition given by (PMI, 2013) says that a project is a temporary endeavor undertaken to create a unique product or service. When the project's objectives are achieved or when its objectives cannot be met, then it can be said that the end is reached. The outcome of the project may be tangible or intangible.

Although repetitive elements may be present in some project deliverables and activities, this repetition does not change the fundamental, unique characteristics of the project work (PMI, 2013). A repetitive process of an ongoing work effort will follow an organization's existing procedures. "A project is a sequence of unique, complex, and connected activities having one goal or purpose that has got to be completed by a specific time, within budget, and according to specification" was a definition given by (R. K. Wysocki, J.R. Beck and D. B, Crane, 2000).

Projects are characterized by general attributes such as the purpose, life cycle, uniqueness, interdependencies, and conflict (J, R. Meredith and S. J. Mantel Jr.,, 2006).

Existing studies implicitly indicated that each project must have well-defined objectives and adequate resources to accomplish the tasks. Meanwhile, (Olsen, 1971) states that "a project is a combination of human and non-human resources pulled together during a temporary organization to achieve a specified purpose." In this context, a project generally combines a start and end date; constituted of specific goal or target; involves series of complex activities.

2.2.2 Project Management

According to (Atkinson, 1999), many researchers tried to define the concept of project management. One definition given to project management is that it is an act of manipulating appropriate tools and techniques to undertake a unique, complex, and non-repetitive task within time, cost and quality constraints (Olsen, 1971). The process of controlling the achievement of the project objectives is another definition of Project management. (Kerzner, 2003).

The roles of project management include defining the requirement, assigning the resources required, planning the execution of the work, monitoring the progress of the work and adjusting nonconformities from the plan (Kerzner, 2003).

2.2.3 Project Management in Construction Projects

The dynamic nature in construction industry is due to enhancing uncertainties in technology, budgets, and development processes. Construction project management is the process of managing construction projects (Santos.J, 2019).

The construction industry is in charge for scheduling, design, construction, repairs, and subsequent demolition of buildings. It has a connection with other sectors and it has a considerable impact on related socio-economic developments (Pakseresht A, Asgari G, 2012).

Recent literatures indicated that construction projects are facing problems related to large cost overruns, elongated time lines, and poor quality. (Babu.N.J, 2015).

2.2.4 Real Estate

Modern definitions focus on the fact that a real estate refers to the land and fixtures together, as distinguished from real property, referring to ownership rights of the land itself. A contemporary definition of real estate as provided by investors: Real estate represents a term that contains land together with anything that permanently attached to the land, that include buildings and property that is stationary to the location (Paul N. Balchin, David Isaac, Jean Chen, 2000).

A definition (Wiegelmann, 2012) gives for development with respect to real estate or property is “a process of conversion (development or redevelopment) of land from one use to another.” Real estate development is linked with specialization in the sense that a person develops land and property for sale or rent (Tiruneh, 2013).

2.2.4.1 Real Estate in Ethiopia

Among the countries in Africa, the real estate sector in Ethiopia is the fastest-growing economy. The average annual growth is 10.9%. Even if the real estate sector is given appropriate credit, there are many shortcomings being observed that need instant action and serious management Mamaru et al., (2017).

In the past few years, there was an increase in demand for residential houses in Addis Ababa. Migration rate is also increasing (Ethiopian-Homes, 2018).

Ethiopia's construction sector is one of the significant economic pillars in the country. According to the information acquired from the Ministry of Construction, 12.5 percent in Gross Domestic Product was contributed by real estate and other constructions (Ethiopian-Homes, 2018).

In Ethiopia, real estate business begins to flourish in early 1990s. Although different corporate entities emerged in the business, there were not few that failed to keep the promise they made to their clients. In most cases, advance payments were collected but without success of delivery. This resulted in mistrust on the industry and has caused legal cases. (Zeleke, 2021)

2.2.5 Success in Projects

The word success is very general and wide in nature. This makes it difficult to define and obtain mutual agreement when asked from different individuals. In their article (Judgev, k and Muller, R., 2005) stated that "in order to define what success means in the project context is like gaining consensus from a group of people on the definition of good art." There is wide divergence of opinions in this field; the only agreement seems to be the disagreement on what constitutes 'project success' (Pinto, J.k and Slevin, D.P., 1988). Project success is a topic that is frequently discussed and yet rarely agreed upon (Baccarini D. , 1999).

The views on project success have evolved over the years from simple definitions that were limited to the implementation phase of the project life cycle to definitions that reflect an appreciation of success over the entire project and product life cycle (Judgev, k and Muller, R., 2005).

Every business aim to attain success. However, the definition of success varies depending on the external factors and company strategies. Since construction industry is project-based, the success of construction firms depends heavily on success of a project. There are various indicators of

construction project success. Several assessment methods, techniques, and frameworks have been proposed by researchers to assess the performance of projects and to describe the relationship between success and various criteria (Prathamesh et al., 2015).

In general, construction project success is measured based on project management performance. If a project is completed within budget and on schedule within a pre specified scope, and if it meets users' expectations, quality requisites, and technical specifications then a project is acknowledged successful (Prathamesh et al., 2015).

It is known that the cost, quality and time constitute major part of success criteria of construction projects that are commonly recognized as "iron triangle" (Atkinson, 1999).

The determinants of project success are earning attention in the recent past in the wake of falling demand for real estate construction projects worldwide (Trerry Cookie Davies, Hang Vo, Terry Williams, Rick Foster, Amanda Howells and Richard John Kirkham, 2011).

2.2.6 Project Success and Project Management Success

Categorizing a project as success or a failure is very a complex task. It is a vague duty to determine and measure the success or failure of a project. For instance, delayed projects are common but there is a chance for them to be categorized as successful. A research done by (De Wit, 1988) was among the first to show an existence obey variance between project success and project management success.

Project management success is concerned about short-term life of the project and focus on the planning and controlling actions. On the other hand, project success is concerned with long term life of the project and emphasizes on final product the project delivers in other words the project objective.

Talking about the difference between the two concepts is not just a terminological argument; rather it is a necessary pointer to the formation of suitable approaches for handling the project life cycle and to pick best-fit measurement techniques (Bryde, 2005).

In conclusion, defining success is mandatory step in understanding the significant "success factors" (Cooke-Davies, 2002). According to (Cooke Davies, 2002) project management success is measured against the traditional measures of performance (i.e., time, cost and quality/performance) and project success, is measured against the overall objectives of the project.

Figure 1 Layers in Project Success

Source: Adopted from International Project Leadership academy

A peculiarity between project success and project management success was made by (De Wit, 1988) and other writers. They depict that project success can be measured in accordance to the objectives of the project traditional measures of performance against cost, time and quality can be used as measure project management success as shown in figure 1 above.

Three core factors can determine success of projects: Quality, costs and time known as the iron triangle). (Pinto, 2013)

Quality: Projects are expected to fulfil initially set specification. Thus, measuring success consider determining to what extent the project fulfills the predefined specification (Pinto, 2013).

Time: Projects are required end during the planned time rang. To determine project success it is common to check whether it is completed on the pre-planned schedule or not (Pinto, 2013).

Cost**:** Projects are expected to use a limited budget, as there is limited asset to spend on projects. In order to use the available resources in effective way, projects must perform under the budget limit. (Pinto, 2013).

Project success deals with project goals, project purpose and satisfaction of stakeholders (Baccarini D. , 2009).

2.2.7 Factors Affecting Project Success

Success of construction project is characterized by its repeatability. Forecasting construction time and identifying the main factors leading to project success is becoming important to the success of construction projects.

The former researcher to present the concept of "success factor" in management literature is (Daniel, 1961), as cited by (Korovin, 2019). In his study, he emphasized on industry related success factors that were relevant to any company in a particular industry. However (Rockart, 1979) refined success factors into critical success factors. Although many researchers have been trying to investigate CSFs for almost 60 years, the CSFs definitions still differ from each other and there is no agreement between researchers regarding CSFs (Korovin, 2019).

As seen from a Project Management standpoint, critical success factors are variables or conditions, that have a significant impact on the success of the project when properly sustained, maintained or managed (Milosevic, D,. Pantanakul, P., 2005).

A number of studies were performed regarding the issue of project success and resulted numerous lists of success factors. For instance, (Pinto, J.k and Slevin, D.P., 1988) provided a reference point by listing ten success factors. Another list of factors that were suggested by (Turner J.R & Muller R., 2005) are mission of project, support of top management, schedule and plans, client consultation, personnel, technical tasks, client acceptance, monitoring and feedback, communication, troubleshooting (Pinto, J.k and Slevin, D.P., 1988).

2.2.8 Factors Affecting Construction Project Success

Several studies that identify critical success factors leading to effective completion of projects are reviewed. There is a discrepancy among these studies regarding the way they address the problem and also the mechanism they used to evaluate success factors.

Interview conducted in research done by (Ashley & Jaselskis, 1987) offer insight into factors that influence construction project effectiveness. These researchers started with a list of approximately 2,000 success factors from previous studies and construction management personnel interviews, which they reduced to 46 success factors grouped into five major categories, as follows: -

1. Management, organization, and communication
2. Scope and planning
3. Controls
4. Environmental, economic, political, and social
5. Technical

Most of the studies considered human related factors as critical success factors. One of these studies is the one done by (Nguyen DL, Ogunlana SO,Quang T and Lam KC, 2004) in Vietnam's large construction projects. From the list of 20 success factors, competency of project manager, enough project fund that last up to project completion, competency of project team, commitment to project and resource availability were the 5 critical success factors identified.

2.2.9 Factors Affecting Success of Real Estate Projects

There are many determiners of construction project success. Several assessment methods, techniques, and frameworks have been proposed by researchers to assess the performance of projects and to describe the relationship between success and various criteria (Prathamesh et al., 2015).

The list of criteria for project success included points like finishing the project within the planned cost and time, satisfaction of both client and project manager, proper technology transfer, environment friendliness, and health and safety issues. (Prathamesh et al., 2015), (Baccarini, David and Collins, Adam., 2003) described critical success factors as group of vital variables that can impose positive influences on the result of the project.

Real estate development involves acquiring a tract of land, determining the marketing of the project, developing the building program and design, earning the necessary public approvals and financing, building the structure, then leasing, managing, and finally selling it. The real estate–development decisions generally consider only the financial aspects of the projects (Prathamesh et al., .2015). This study claims that a complete model for assessment of real estate project success is not found and a systematic evaluation of this issue demands a framework that brings financial and non-financial aspects together.

2.2.10 Measuring Real Estate Project Success

Projects often have different measurements for success. One definition that the project management institute for project success is that the project has been completed "on time, within budget, and to specification" (PMI, 2013). This is a very technical definition that might not apply to every project, but components of this definition can be useful when understanding how to measure project success (Alka Rani, Rajwinder Singh, Shilpa Taneja,Arun B.Prasad, Sonia Shiman , 2021).

A systematic literature review done by the above authors revealed key performance indicators for measuring real estate project success. The result indicated that success and performance of construction project depend heavily on customer satisfaction, quality, time, cost, budget, project management skills, and project schedule.

Time refers to the available time to deliver the project output; the cost is representing the amount of money and available assets and the quality representing the capability to perform satisfactorily (K.N.Jha, K. Iyer, July 2007).

A study by (Ashley, D., Jaselskis E. and Lurie, C.B., 1987) suggested six criteria that can be used to measure construction projects success. These criterions are budget, schedule, functionality and satisfaction of client, project manager and contractor.

From literature reviewed, it was found out that accomplishment of project objectives, variance between time planned and actual completion time, variance between planned cost and actual cost, quality of completed work relative to the specification and client satisfaction are the most frequently measured aspects of real estate project success. These measurements are helpful to operationalize the concept of real estate project success and are used in this study.

2.3 Empirical Literature

Number of researchers tried to determine CSFs that exist in real estate construction industry. As a result, numerous variables were proposed in which only few were common to more than one study. (Babu.N.J, 2015). An indication made by (Frefer A.A, Mohmoud. M, Haleema.H and Almamlook. R,, 2018), showed that nowadays the topic of critical success factors is wining the attention of researchers.

There are ten critical success factors identified by (Pinto, J.k and Slevin, D.P., 1988).While (Kerzner H. , 1987) identified six critical success factors for successful projects. A study done by (Belassi, W. & Tukel, O.I., 1996) identified critical success factors and they grouped these factors into four areas: factors related to the project, project manager and the team members, the organization, and the external environment.

A research conducted by (Babu.N.J, 2015) focused on factors affecting success of construction project. He identified 60 factors affecting success based on literature review and grouped them into 10, which are cost, time, quality, productivity, clients-satisfaction, regular & community satisfaction, people, health & safety, innovation & learning, and environment factors.

Ramakrishna et al., (2012) studied Indian construction industry and listed critical success factors through an extensive review of prior research. The result obtained showed that client objectives was the most important factor followed by measures of core competence.

(Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi, 2008) identified 77 major success factors for construction projects and classified them into seven categories. These include project management related, procurement-related, client-related, design team related, contractor-related, project manager-related, and environment related factors. The conclusion of the study indicated that factors related to clients, project manager, procurement, design-team, and project management were critical to the success of projects.

An investigative study was done by (Melat, 2017) on success factors for real estate development construction projects in Addis Ababa real estate developers. The study used seven critical success factors of construction projects as independent variables and project success as dependent variable. Project success was measured in terms of time, cost and quality. The major finding of this study showed that positive relation exists between Project team motivation and goal orientation, project

managers' competency and goal commitment, safety precautions and applied procedures and control systems.

Biniyam researched on success factors on construction projects and project manager competency, time, cost, and quality related factors were found to be critical for project success (Biniyam, 2021).

Arsema intended to identify and study the critical success factors and show the extent of the relationship between CSFs and project performance in her research paper. Factors related to project management, clients, project manager, and environment were statistically significant to successful completion of projects. Factors related to procurement, design team, and contractor were statistically insignificant to project success. (Arsema, 2020). The researcher concluded that implementation of the identified factors can increase project performance.

2.4 Conceptual Framework

Based on the literature reviewed, a conceptual framework for this study was developed and is shown in Figure 2 below. The respective definition of the independent variables is presented as follows.

Project Management related Success Factors- are the practices experienced in the companies and actions used by project managers and team members to plan and execute their construction projects in order to maximize the project's chances of success (Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi, 2008).

Procurement System related Success Factors- focus on the procurement system used by companies and factors that define the scope of procurement as the framework within which construction is brought about, acquired, or obtained (Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi, 2008).

Clients/Owners related Success Factors- are one party from different parties that are involved in building construction projects, which are mostly the source of the budget for a project. These are factors concerned with client characteristics, client type, and experience (Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi, 2008).

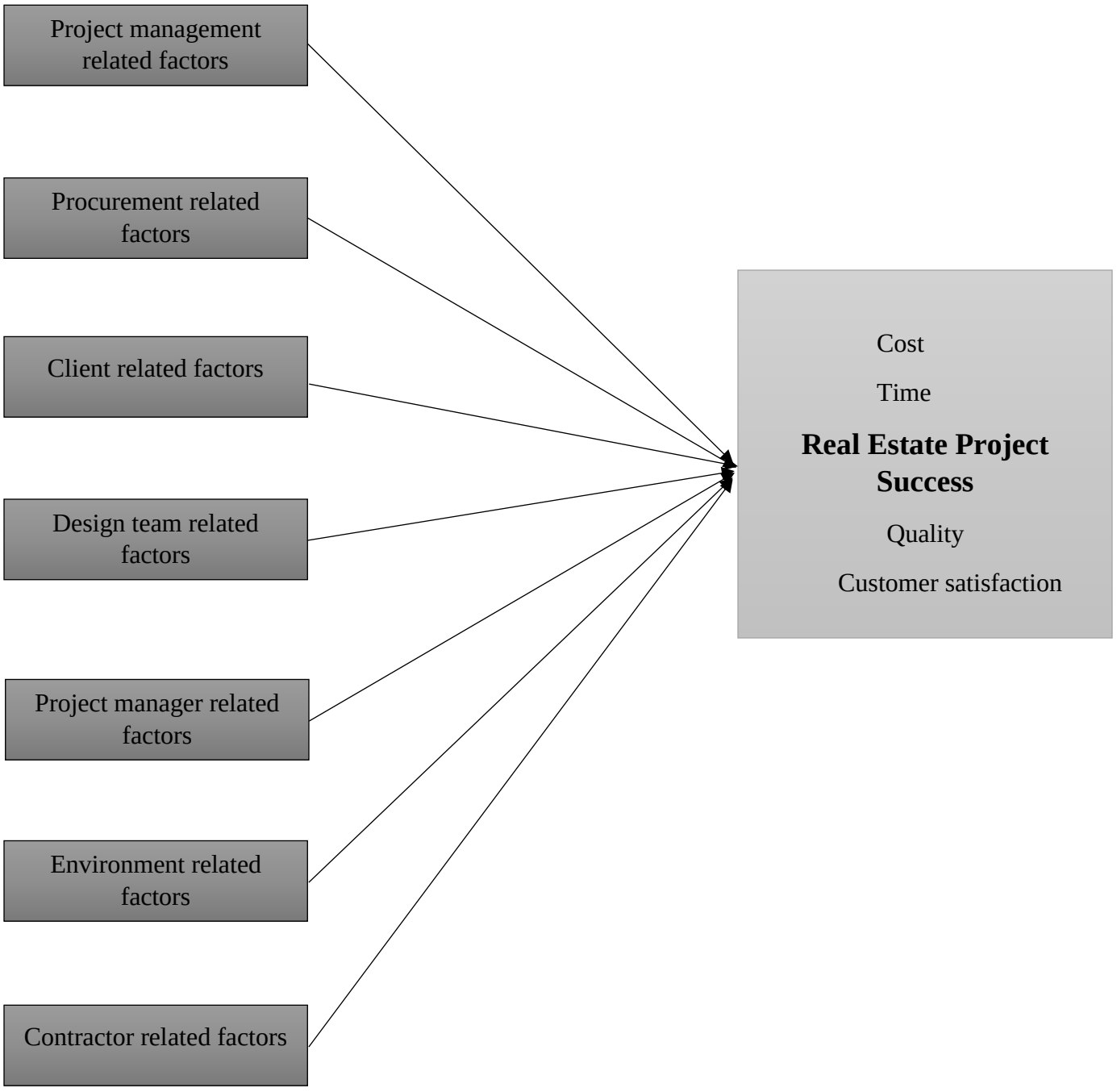
Design Team related Success Factors- focuses on factors consisted of design team experience, delays, and complexity. Those parties play a vital role in the project as their work involves from inception to completion on a project (Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi, 2008).

Contractor related Success Factors- are one of the main parties in any construction industry. Those factors focused on variables including contractor experience, contractor's cash flow and the effectiveness of cost control system, site management, supervision and involvement of subcontracting, and speed of information flow (Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi, 2008).

Project Manager related Success Factors- focuses on factors consisting of the skills and characteristics of the project managers, their commitment, competence, experience, and authority (Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi, 2008).

Environment-related Success Factors- are all external influences on the construction process, including social, political, and technical systems (Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi, 2008).

Figure 2 Conceptual Framework of the Study (Source: Own Representation)



Chapter Three: Research Methodology

Introduction

This chapter will discuss all information regarding the methods that were used to carry out this research project: research approach, research design, sampling design, source of data, research instrument, data collection method and procedure, data analysis method, validity and reliability issues and ethical considerations are presented. The aim of this research was to assess the factors affecting success of real-estate projects. The methodologies were chosen considering the nature of the project work.

3.1 Research Approach

A research approach used in this study was quantitative. Quantitative approach was used because the research objective required numerical data analysis.

3.2 Research Design

Researches are undertaken for different purposes. Both descriptive and explanatory research designs were employed to perform this research project. Since the aim is to study the relationship between the factors and real estate project success, explanatory research design was found appropriate. Moreover, description of the mean values and the correlation between success factors and real estate project success is included in this research.

3.3 Sampling Design

3.3.1 Population of the Study

Target population refers to the entire group of individuals or objects from which the study seeks to generalize its findings (Cooper, D. R., & Schindler, P. S., 2014). In this study, the samples were chosen from professionals that were involved in completed real estate projects. The population of the study were project managers, site supervisors and other project team members that participated in completed projects. The total population size of the study was 39.

3.3.2 Sampling Techniques, Procedure and Sample Size

This study used census survey, as the number of target population is small. This technique is used in order to identify and select information with rich samples and to maximize efficiency and validity of the study.

A purposive sampling technique was used for selecting projects that are completed. Those projects were selected deliberately by the researcher using purposive sampling because they were considered more suitable for this specific topic of study.

3.4 Source of Data

Both primary and secondary sources of data were used in this research. Primary data was collected using structured questionnaires from the targeted respondents in the case company. A structured questionnaire was prepared based on (Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi, 2008) critical success factors. Secondary data was obtained from review of company documents, different websites, journals and reports.

3.5 Research Instrument

Different research works were reviewed to adopt the survey questionnaire instead of developing a new one. Few amendments were performed on the questionnaire to suit the problem under study. Data were collected using questionnaire adopted from (Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi, 2008) "The Effect of Project Management on the Success of Construction Projects".

Questions related to measurement of project success were compiled from different research works. These authors tried to measure project success in terms of cost, time and quality separately (Abel.S, 2022), (Biniyam, 2021), (Tadele.M, 2018), (Sirgut.S, 2018), (Fitusm.B, 2018).

3.6 Method and Procedure of Data Collection

The questionnaire was delivered through google forms. Google Forms was found to be a great tool for collecting data. It is easy to use and can be shared with others easily. The following steps were followed to collect data for this research project. First, the link https://forms.google.com was opened and signed in to Google account. Then a new form was created. After creating the form, title and description for the required form was entered. Next, the settings for the form was configured to be anonymous to follow the ethical considerations and respect respondent's privacy. The form was previewed to check if it was designed as required and a link was shared to respondents via telegram channel. Responses were collected and saved in a Google Sheet. Afterwards the responses were extracted from the google form and exported into excel file. Finally, the collected data was inserted to SPSS version 26 software for analysis.

3.7 Data Analysis Method

SPSS Software was selected for the reason that it is readily available and user-friendly analysis tool. To analyze the responses, descriptive statistics including percentage, frequency and measures of central tendency (mean and standard deviation) were used. In addition, to indicate the type and strength of relationship between the variables (independent and dependent) correlation analysis was done. More over to examine the impact of the factors on real estate project success, inferential analysis was used. The exported excel data was fed to the SPSS software version 26. A numerical code was given for each response. Numbered data was analyzed using statistical procedures.

3.7.1 Model Specification

This study used multiple regression analysis. Multiple regression is an extension of simple linear regression in which the dependent variable (project success) is equated to the sum of constant term α, the seven independent variables and their respective coefficients with the introduced error Ɛ.

For analyzing the project success this formula was developed

$$\mathbf{PS = \alpha + \beta 1PMR + \beta 2PSR + \beta 3CRF + \beta 4DTRF + \beta 5CORF + \beta 6PMRRF + \beta 7ERF + Ɛ}$$

Where, PS is the measured value of project success

α: is the constant term

β1, β2, β3, β4, β5, β6 and β7 are coefficient of the variables whereas,

PMR: project management related, PSR: procurement system related, CRF: clients related factor, DTRF: design team related factor, CORF: contractor related factor, PMRRF: project manager related factor, ERF: environment related factor, Ɛ: error term

3.8 Validity and Reliability

3.8.1 Validity

Validity represents the extent to which the research instrument measures what it is designed to measure and shows the degree of coverage to research objectives. In other words, it means the accuracy of a test (Saunders et al., 2009). To establish validity, this study used expert opinions in the process of surveying.

3.8.2 Reliability

After data collection was completed, reliability was checked using SPSS software. Multiple choice question Likert scale surveys were checked for reliability using Cronbach's alpha tests. Cronbach's alpha is a coefficient that is used to determine item dependability or internal consistency.

"It tells how closely items are related to one another and how bias-free they are" (Sekaran, U. and Bougie, R., 2009).

Cronbach's alpha value greater than 70% for all variables indicates acceptable. "Reliability" is how well a test measures what it should. Reliability test coefficient can hold a value of 0 to 1 and the result of 0.7 and above implies an acceptable level of internal reliability (Pallant.J, 2005). Table 1 below shows reliability test result of this study.

Table 1 Reliability Statistics

Factors	Cronbach's Alpha	No of Items
Project Management Related Factors	0.922	8
Procurement System Related Factors	0.769	3
Clients Related Factors	0.781	8
Design Team Related Factors	0.851	4
Contractor Related Factors	0.807	6
Project Manager Related Factors	0.860	9
Environment Related Factors	0.862	8
Project Success	0.773	11
Total Reliability	0.947	57

As the result in the table above shows, all variables have Cronbach's alpha greater than 0.7. This implies that the variables, which the research used, are acceptable.

3.9 Ethical Considerations

Researches are required to reflect Ethics as major consideration. This study was also subjected to the following ethical considerations. The first one is informed consent i.e. by informing the respondents regarding the background of the study, including the importance of the data that is going to be gathered from them. The second one is issues of confidentiality that is by ensuring respondents that all of the information in this study will solely be used for the academic purpose only.

Chapter Four: Result and Discussion

In this chapter the result obtained from data analysis, interpretations, and discussions of findings are presented. The study results were analyzed and interpreted corresponding to the objective (which was to assess the factors that affect success of real estate projects. From 39 questionnaires that were distributed, 35 were returned thus the response rate became 89.74 percent.

4.1 General Information of Respondents

As general information, Age, Gender, Education, Job position and Years of experience were asked from the respondents and the following data was collected.

Table 2 General Information of Respondents

	Description	Frequency	Percent
Age	under 25	0	0
	26-35	11	31.42
	36-45	14	40
	46-55	10	28.58
	above 55	0	0
Gender	Male	25	71.42
	Female	10	28.57
Education	First Degree	21	60
	2nd Degree/Post graduate	14	40
Job Position	Project Manager	8	22.9
	Site Supervisor	13	37.1
	Other Project team Member	14	40
Years of Experience	Below 2 years	10	28.6
	3-5 years	14	40
	More than 5 years	11	31.4

From the total respondents of the questionnaire (35), number of male respondents were 25 (71.42%) while female respondents were 10 (28.58%). The age pattern of respondents indicates that most of the respondents are aged between 36-45, which makes 40% of total respondents, followed by 26-35 with 31.42% and 46-55 with 28.58%. There were no respondents whose age is below 25 or above 55.

Regarding education status of respondents, first-degree holders are 21 (60%) of the total respondents while the other 14 (40%) are second / Postgraduate degree holders.

Regarding job position, 8 (22.86%) of the respondents are Projects managers, 13 (37.14%) are site supervisors and the rest 14 (40%) are other project team members.

Regarding years of experience of respondents, the data showed that 10 (28.57%) of them have experience below 2 years, 14 (40%) between 3-5 years of experience, and 11 (31.43%) of them are with more than 5 years of experience.

4.2 Descriptive Analysis of the Success Factors

Respondents were asked to show the extent to which each factor influences/contributes to project success in their company using the five Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, and 5 = Strongly Agree). The data was analyzed using the mean and standard deviation.

Table 3 Mean Values Interpretations

Range	Interpretation
From (0.5 - 1.5)	Inconsiderable
From (1.5-2.5)	Low
From (2.5-3.5)	Medium/Neutral
From (3.5-4.5)	High
From (4.5-5.0)	Extreme

According to (Watiki.C, 2014) factors with a mean between 0.5 and 1.5 will not be considered as affecting/contributing factors, and those factors with a mean between 1.5 and 2.5 were considered low affecting factors. Factors with a mean between 2.5 and 3.5 were considered neutral, factors with a mean between 3.5 and 4.5 were considered high affecting factors, and factors with a mean value greater than 4.5 would be extremely affecting factors for project success as the questionnaire is presented on a five-level Likert scale.

As (Watiki.C, 2014) stated, a standard deviation greater than one indicates no consensus among the respondents; the higher the standard deviation, the higher the level of dispersion among the respondent's response.

Table 4 Overall Mean and Standard Deviation

Factors	Mean	Std. Deviation
Client Related Factors	**3.9143**	**0.7419**
Design Team Related Factors	**3.9286**	**0.7809**
Environment Related Factors	**3.7500**	**0.6875**
Procurement System Related Factors	**4.0190**	**0.8029**
Project Manager Related	**4.2190**	**0.7477**
Project Management Related Factors	**4.2679**	**0.7923**
Contractor Related Factors	**4.0619**	**0.5776**
Project Success	**4.0390**	**0.8160**

The overall mean outcome indicated that all the obtainable factors affect success of real estate projects at high level (with a mean value in a range of 3.5 and 4.5). Project Management Related factors (with a highest mean value of 4.2679) are the most affecting ones followed by project manager related factors (with a mean value of 4.2190). Contractor related factors, procurement related factors, design team related factors, client related factors, and environment related factors have mean values of 4.0619, 4.0190, 3.9286, 3.9143 and 3.7500 respectively.

Regarding standard deviation, the factors listed above has standard deviation less than 1. Consequently, it can be determined that there was agreement among the respondents.

4.2.1 Project Management Related Factors

The study seeks to find out if project management related factors affect the success of real estate project. Respondents were requested to rate eight items under this factor based on the factor's importance to successful completion of real estate projects.

Table 5 Project Management Related Factors Mean and Standard Deviation

Project Management Related Factors	**Mean**	**Std. Deviation**
Established communication system	4.6286	.54695
Using control mechanism	4.2571	.81684
Practice of Planning effort	4.1714	.82197
Decision making effectiveness	4.2000	.71948
Project monitoring activities	4.2000	.96406
Implementing effective quality assurance program	4.2571	.78000
Prior project management experience	4.0857	.88688
Risk identification and allocation practice	4.3429	.80231
Average	**4.2679**	**0.7923**

As can be seen in table 5, there was no mean score between 0.5-1.5 and 1.5-2.5. Therefore, all the factors mentioned above are influential to the success of real estate project success. Moreover, an average mean value of 4.2679 with a standard deviation of 0.7923 indicated the majority of the respondents agreed to the statements given showing there is high level of influence on project success.

Established communication system was rated as extremely high with a mean value of 4.6286 and a standard deviation of 0.54695 which indicates established communication system have the most influence on the success of real estate projects. Risk identification and allocation practice comes second with mean value of 4.3429 and standard deviation of 0.80231. Using control mechanisms and implementing effective quality assurance program follow at third place with the same mean value of 4.2571 and standard deviation of 0.81684 and 0.78000 respectively.

Decision-making effectiveness and project monitoring activities take the fourth place with similar mean value of 4.2000 and standard deviation of 0.71948 and 0.96406 respectively. The last two places are taken by Practice of Planning effort and Prior project management experience with mean values of 4.1714 and 4.0857 respectively.

Established communication system was rated with mean value above 4.5 indicating extreme influence, while all other factors under project management were rated as highly influential with mean values above 3.5.

4.2.2 Contractor Related Factors

To examine if contractor related factors are influencing project success, respondents were asked to rate six items under this factor. Table 6 shows the result obtained.

Table 6 Contractor Related Factors Mean and Standard Deviation

Contractor Related Factors	**Mean**	**Std. Deviation**
Contractor's experience	4.1714	0.70651
Site management actions	3.9429	0.72529
Supervision activities	4.1143	0.71831
Extent (Involvement) of Subcontracting	3.9429	0.72529
Contractor's cash flow	4.1429	0.35504
Effectiveness of cost control system	4.0571	0.23550
Average	**4.0619**	**0.57765**

All the factors mentioned are influential to the success of real estate projects since there was no mean score between 0.5-1.5 and 1.5-2.5. The responses showed an average mean value of 4.0619 with a standard deviation of 0.57765 indicating the majority of the respondents agreed to the statements given showing high level of influence. Among the six factors under contractor related factors, contractor's experience was found to have the highest mean value of 4.1714 and standard deviation of 0.70651. This result shows that experience of contractors has influence on project success followed by contractor's cash flow with mean value of 4.1429 and standard deviation of 0.35504. Supervision activities (with mean value 4.1143) and effectiveness of cost control systems (4.0571) are the third and fourth influential factors with standard deviation of 0.71831 and 0.2355 respectively. The least mean value was obtained for site management actions and extent of sub-contracting with similar mean value of 3.9429 and standard deviation of 0.72529.

4.2.3 Procurement System Related Factors

This study tried to show how influential Procurement system related factors are to success of real estate project. Three items were presented for the respondents to rate the influence on real estate project success. The results are shown in the table 7 below.

Table 7 Procurement System Related Factors Mean and Standard Deviation

Procurement System Related Factors	**Mean**	**Std. Deviation**
Proper use of Project delivery system (e.g. design-bid-build, design build)	4.2000	.71948
Proper use of Project bidding method (e.g. price based competitive bidding, negotiated bidding, best value bidding)	3.9429	.80231
Choice of Project contract mechanism (e.g. lump sum, unit price, cost plus, etc.)	3.9143	.88688
Average	**4.0190**	**0.8029**

The responses indicated an average mean value of 4.0190 with a standard deviation of 0.8029 indicating the majority of the respondents agreed on high influence of the factors on real estate project success. This show there is high level of influence by procurement related factors on real estate project success. Proper use of project delivery system was found to have the highest influence on the success of real estate projects with a mean value of 4.2 and standard deviation of 0.71948. Proper use of project bidding method has slightly higher mean value than choice of project contract mechanism, mean value of 3.9429 and 3.9143 respectively.

4.2.4 Project Manager Related Factors

Respondents were asked if the items listed under project manager related factor have influence on successful completion of real estate projects. The results are presented below.

Table 8 Project Manager Related Factors Mean and Standard Deviation

Project Manager related factors	**Mean**	**Std. Deviation**
Project Manager's competence	4.6000	.55307
Project Manager's experience	4.2571	.74134
Project Manager's authority to take financial decision, selecting key team members, etc.	4.1714	.82197
Technical capability of project manager	4.2571	.61083
Leadership skills of project manager	4.0000	.97014
Coordinating ability and rapport of project manager with contractors/ subcontractors	4.2571	.70054
Motivating skill of project manager	4.1429	.73336
Project manager's commitment to meet cost time and quality	4.3429	.72529
Project manager's adaptability to changes in project plan	3.9429	.87255
Average	**4.2190**	**0.7477**

The average mean value of 4.2190 and a standard deviation of 0.7477 for all the nine items under the factor indicated that project manager related factors have high influence on real estate project success.

According to the respondents of this study, all project manager related factors are highly influential to the success of real estate projects, which all are indicated by mean values greater than 3.5. Highest mean value (4.600) was obtained for project manager's competence. This indicates that this factor is the most influential one among the nine items listed under project manager related factors.

Project manager's commitment to meet cost, time and quality has a mean value of 4.3429. Project manager's adaptability to changes in project plan has a mean value of 3.9429, which is the least mean value obtained.

4.2.5 Design Team Related Factors

The respondents were asked to rate the influence of the design team related factors on real estate project success. The results of their ratings are shown in table 9 below.

Table 9 Design Team Related Factors Mean and Standard Deviation

Design Team Related Factors	**Mean**	**Std. Deviation**
Design team experience	4.0000	.76696
Project design complexity	4.0000	.64169
Mistakes/delays in producing design documents	3.7143	.98731
Adequacy of plans and specifications	4.0000	.72761
Average	**3.9286**	**0.7809**

The response rate indicated in the above table shows that an average mean value of 3.9286 with a standard deviation of 0.7809 that showed the respondents agreement on project success highly influenced by design team related factors.

Design teams experience, project design complexity and adequacy of plans and specification are rated with a similar mean value of 4 and standard deviation of 0.76696, 0.64169 and 0.72761 respectively. In addition, mistakes/delays in producing design was rated a mean value of 3.714 and standard deviation of 0.98731 showing agreement of responders on influence of design team related factors on real estate project success.

All items have mean value greater than 3.5 that indicates all are highly influential to success of real estate projects.

4.2.6 Client Related Factors

This study also attempted to identify the influence of client related factors on the project success. Respondents were asked to rate eight items under client's related factors and their responses are presented in table 10 below.

Table 10 Client Related Factors Mean and Standard Deviation

Client Related Factors	**Mean**	**Std. Deviation**
Client's experience	4.0857	.70174
Nature of client (privately vs. publicly funded)	3.8857	.83213
Owner's clear and precise definition of project scope & objectives	3.9429	.48159
Owner's risk attitude (willingness to take risk)	3.6857	.79600
Client's emphasis on low construction cost	4.0000	.76696
Client's emphasis on high quality of construction	4.0000	.64169
Client's emphasis of quick construction	3.7143	.98731
Client's ability to make timely decision	4.0000	.72761
Average	**3.9143**	**0.74187**

Table 10 shows an average mean value of 3.9143 with a standard deviation of 0.74187 verifying project success highly affected by clients/owners related factors.

Client's experience has the highest mean value (4.0857) indicating its high influence on real estate project success. All of the items listed under the client's related factor has effect on success of real estate project. Specifically, client's emphasis on cost, time and quality was rated with similar mean value of 4. This shows respondents of this study agreed on the influence of the client related factors on success of real estate projects.

4.2.7 Environment Related Factors

The other factor under study was environment related factors. The respondents were asked to rate their agreement on the items listed under the environment related factor as shown in table 11 below.

Table 11 Environment Related Factor Mean and Standard Deviation

Environment Related Factors	Mean	Std. Deviation
Economic environment	4.2571	.61083
Social environment	3.6857	.67612
Political environment	3.7714	.59832
Physical work environment	3.7143	.57248
Industrial relations environment	3.4000	.97619
Administrative approvals environment	3.7143	.62174
Technology availability	3.6571	.72529
Other Factors such as Corruption, lack of ethics, fraudulent practices, favoritism	3.8000	.71948
Average	**3.7500**	**0.49816**

As shown in table 11, the response rate indicates an average mean value of 3.75 with a standard deviation of 0.49816. This result indicates that there is agreement among the respondents on the influence of the environment related factors on real estate project success. Economic environment has a mean value of 4.2571 and standard deviation of 0.61083. Industrial relations environment has a mean value of 3.4, which shows it has neutral influence on real estate project success.

To summarize the results presented in the above tables, all of the listed factors (project management related factors, procurement system-related factors, clients related factors, design team related factors, contractor related factors, project manager related factors, and environment related factors) have high influence on the success of projects. Moreover, project manager's competence and established communication systems have the highest mean value indicating extreme influence on real estate project success. While industrial relations have the least mean value indicating a neutral relation it has with real estate project success.

4.2.8 Project Success

Success of projects was measured based on the respondent's judgment regarding project's performance on cost, time, quality and achievement of project objectives. The respondents were asked to specify the extent to which the project they undertook was completed within the intended cost, time, and quality and whether it was completed in accordance to the initial project objective.

Table 12 Project Success Mean and Standard Deviation

Project Success Parameters		Mean	Std. Deviation	Average Mean
Quality Performance Related	Projects output was found in compliance with contractual requirement	4.6	0.55307	4.2572
	There was variance when the actual results are compared to the quality standards	4.0286	0.85700	
	Defects were found after the completion of projects	4.1429	0.80961	
Time Performance Related	Project tasks were accomplished during original contract duration	4.0286	0.74698	3.9143
	Waiting time for approval of testing and inspection was short	3.6857	0.98251	
	Project activities were completed during the estimated duration	4.0286	0.82197	
	Project activities were accomplished according to the planed sequence	3.9143	0.88688	
Cost Performance Related	Projects were completed in range of estimated cost	4.1143	0.86675	4.0571
	There were additional cost for rework	4	0.90749	
	There were additional cost due to project design changes	4.0571	0.59125	
Achievement of Project Objective	In general projects has met their intended objective	3.8286	0.95442	3.8286
Average			**0.81617**	**4.0390**

Table12 above shows an average mean value of 4.039 and standard deviation of 0.81617 for project success. This verifies that there is an agreement among respondents regarding successful completion of projects undertaken by their real estate company.

The result indicated that projects were completed according to quality of standard with a mean value of 4.2572 whereas the projects completed within the stated time and cost was rated with mean value of 3.9143 and 4.0571 respectively. This result showed that the projects were completed successfully.

4.3 Rank of Factors

In the third part of the questionnaire respondents were asked to rank the seven factors listed based on the extent to which they are being practiced in their company.

Project management related factors are ranked as the number one practiced factors in the case company by 13 (37.14%) respondents. As the second most practiced factor, project manager related factors follow by 7 (20%) respondents and contractor related factors 5 (14.28%) are ranked as third most practiced factor. Client related, design team related, procurement related and environment related factors took fourth, fifth, sixth and seventh places respectively. Table 13 below shows the rank of factors.

Table 13 Rank of Factors (based on level of practice in the case company)

Factors	Frequency	Percentage	Rank
Project Management Related Factors	13	37.14	1
Project Manager Related Factors	7	20.00	2
Contractors Related Factors	5	14.28	3
Client Related Factors	4	11.40	4
Design Team Related Factors	3	8.57	5
Procurement System Related Factors	2	5.71	6
Environment Related Factors	1	2.90	7

4.4 Correlation Analysis

The third objective of this study was determining the relationship between independent and dependent variables. To accomplish this objective, both type and strength of the relationship was evaluated using Pearson's correlations.

A very common method used for measuring the relationship among variables is Pearson's correlation. The scale recommended by (Hair Jr., J. F. et al., 2002) was used in interpreting the measurement results and it is shown in table 14 below.

Table 14 Relation Measurement Scale between Variables

Pearson Correlation	Type of Relation
0.00-0.20	no relation
0.21-0.40	weak relation
0.41-0.60	moderate relation
0.61-0.80	strong relation
0.80-1.00	very strong relation

Table 15 Correlation Analysis

Factors	Project Success	
	Pearson Correlation	Sig. (2-tailed)
Client Related Factors	.674**	0.000
Design Team Related Factors	.717**	0.000
Environment Related Factors	.557**	0.001
Procurement System Related Factors	.479**	0.004
Project Manager Related Factors	.843**	0.000
Project Management Related Factors	.742**	0.000
Contractor Related Factors	.198**	0.255

From the correlation result we can see that project manager related factors have very strong correlation to project success (0.843) followed by project management related factors (0.742).

Design team related factors (0.717) and client related factors (0.674) comes third and fourth respectively. Environment related factors (0.557) and procurement related factors (0.479) took fifth and sixth place. Contractor related factors with Pearson correlation (0.198) took the last place.

Project manager related factors has very strong relation (0.843) with project success. Design team related, client related and project management related factors have strong relation with project success. Environment related and procurement related factors has moderate relation and contractor related factors has no relation with real estate project success.

All relationships were found to be positive. Positive relationship means improving one variable leads to improvement in the other. Meaning, improving the activities under the seven factors will lead to improved chance of project success. The opposite is also true: a significant negative relationship between dependent and independent variables means, an increase in the independent variable will cause a decrease in the dependent variable.

Regarding the significance of the relationship, except contractor related factor (with significance level of 0.255 which is greater than 0.05) all factors have significant relationship with project success.

4.5 Test for Assumptions of Multiple Regression Analysis

4.5.1 Normality Test

In order to examine normality, one has to measure each variable's skewness, which looks at lack of symmetry of distribution and kurtosis which looks at whether data collected are peak or flat with relation to normal distribution (Marczyk, G., Dematteo, D., & Festinger,D., 2005). According to (Hair Jr., J. F. et al., 2002) skewness and kurtosis should be within the range of +2 to -2 when the data are normally distributed.

Table 16 Normality Distribution

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Client Related	35	.266	.398	.005	.778
Design Team Related	35	.351	.398	-1.015	.778
Contractor Related	35	-.010	.398	-.109	.778
Environment Related	35	.083	.398	-1.139	.778
Procurement System Related	35	-.622	.398	1.228	.778
Project Management Related	35	-.441	.398	-1.058	.778
Project Manager Related	35	-.143	.398	-.984	.778
Project Success	35	.399	.398	-.693	.778

4.5.2 Multi Collinearity Test

It denotes a situation where a number of independent variables are closely correlated to one another. Multi collinearity test was done using variance inflation factor (VIF). The VIF indicates whether a predictor has a strong linear relationship with the other predictors. As a rule of thumb, if the VIF of a variable exceeds 10, there will be a serious multi collinearity problem. The tolerance statistics, which is the reciprocal of VIF (1/VIF), also used to test multi collinearity. Tolerance values below 0.1 indicates serious multi collinearity problem (Dormann,C.F., et al., 2013).

Table 17 Multi Collinearity Test Statistics

Model	Collinearity Statistics	
	Tolerance	VIF
Client Related Factors	0.124	8.038
Design Team Related Factors	0.113	8.798
Contractor Related Factors	0.478	2.094
Environment Related Factors	0.669	1.494
Procurement System Related Factors	0.533	1.876
Project Management Related Factors	0.378	2.642
Project Manager Related Factors	0.209	4.774

The tolerance is above 0.1 and the VIF is less than 10. Therefore, it indicates that there is no multi collinearity among the predictor variables.

4.6 Overall Regression Analysis

Regression analysis is a statistical process for estimating the relationships among variables. As it can be depicted from the table 18 below 85% (R^2=.85) variation on Project Success is explained by the independent variables.

Table 18 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.924[a]	.854	.816	.20149

Table 19 ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.413	7	.916	22.564	.000[b]
	Residual	1.096	27	.041		
	Total	7.509	34			

From the ANOVA table it has been determined that F=22.564 and Sig.is .000 which indicates that the indicated success factors have a significant impact on project success.

Table 20 Coefficients of Independent Variables

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std.Error	Beta		
(Constant)	-.184	.528		-.349	.006
Client Related	.555	.207	.560	2.687	.000
Design team Related	-.193	.165	-.270	-1.174	.003
Contractor Related	-.162	.118	-.146	-1.371	.000
Environment Related	.254	.085	.269	2.996	.004
Procurement System Related	.046	.071	.065	.644	.005
Project Management Related	.042	.090	.055	.460	.000
Project Manager Related	.594	.145	.657	4.089	.000

Regression Equation

PS= α + β1PMR + β2PSR+ β3CRF+ β4DTRF+β5CORF+ β6PMRRF+ β7ERF+Ɛ

PS= -.184+.42PMR+.046PSR+.555CRF-.193DTRF-.162CORF+.594PMRRF+.254ERF+ Ɛ

The beta values obtained imply that project manager related, client related, environment related, procurement related and project management related factors have positive impact on project success with beta value 0.594, 0.555, 0.254, 0.046 and 0.042 respectively. Both design team and contractor related factors has negative impact on real estate project success with beta values -0.162 and -0.193 respectively.

Chapter Five: Summary, Conclusion and Recommendation

This research project was done with the aim of identifying the factors that affect the success of real estate project. In this chapter a summary of results, conclusions and recommendations are presented.

5.1 Summary

This study aimed to assess factors that are affecting the successful completion of real estate projects in the case company, Flintstone Homes. As data collection instrument the study used structured questionnaire. A response rate of 89.74 % was achieved. The data obtained through questionnaire was analyzed using SPSS software version 26.

To identify the major factors that affect the success of real estate projects, which was the first objective of this research project, mean value was used for each of the identified factors. According to the overall mean result, all the identified factors have influence on success of real estate projects (with a mean value in a range of 3.5 and 4.5). All mean values obtained are less than 4.5 indicating that not any of the factors extremely influence real estate project success. However, there were two items (established communication system under project management related factors and project manager's competence under project manager related factors) with mean value of 4.6. This indicated that having established communication system and competent project manager have the most influence on successful completion of real estate projects.

To show the level of practice of the identified factors was the second objective of this study. Respondents were asked to rank the listed factors based on the extent to which they are being practiced in their company. The result showed that project management related factors, project manager related factors and contractors related factors are the top three factors that are practiced in the case company.

Responses were also analyzed using standard deviation. All values obtained for standard deviation are less than one showing existence of an agreement between respondents.

Examining the relationship between the factors and real estate project success was one of the aim of this research project. All the seven factors have positive relationship with real estate project success. Moreover, all of the factors except contractor related factors, have significant relationship with project success with p-value less than 0.05.

The last objective of this study was to examine the impact of the success factors on real estate project success. To meet this objective regression analysis was done. The results of the beta value indicated that the top three factors are project manager related, client related and environment related factors. As it can be depicted from the regression analysis, 85% variation on Project Success is explained by the independent variables.

5.2 Conclusion

According to the mean results, it can be concluded that having established communication systems, proper use of project delivery system, competent project manager, and stable economic environment have remarkable effect on real estate project success.

Regarding project success, the high mean value obtained leads to a conclusion that projects undertaken by the case company were completed successfully.

According to the rank given by respondents regarding the level of practice of the factors it can be concluded that project management related factors, project manager related factors and contractors related factors are being practiced well. Moreover, these top three factors have high mean value. From this, it can be concluded that the case company is on the right track in practicing these most influential factors.

Concerning the relationship among the success factors and real estate project success, the P value leads to a conclusion that project manager related factors, design team related factors, client related factors, project management related factors, environment related factors and procurement related factors have significant relation with real estate project success. The only factor that has insignificant relation with real estate project success is contractor related factor.

A conclusion can be made in reference to Pearson correlation result that project manager related factors have very strong correlation with real estate project success. Whereas design team related factors, client related factors and project management related factors have strong relation with project success. Environment related and procurement related factors have moderate relation and contractor related factors have no relation with real estate project success. Moreover, all the factors have positive relation with real estate project success.

According to the results of the regression analysis, project manager related, client related, environment related, procurement related and project management related factors have positive

impact on real estate project success. Both design team related and contractor related factors has negative impact on real estate project success. From this, it can be concluded that not all the seven factors have same impact on real estate project success.

5.3 Recommendation

Real estate companies are recommended to have established communication systems, proper use of project delivery system and competent project manager in order to ensure real estate project success. Real estate companies are also recommended to give emphasis to improve project manager's competence and to update communication system since they have extreme influence on real estate project success.

It is recommended for the case company to continue practicing project management related factors, project manager related factors and contractors related factors as they are the most influential factors for successful completion of real estate projects. For design related factors, the level of practice must be improved to ensure project success.

It is recommended to give emphasis for practicing project management related factors, project manager related factors, client related factors, environment related factors and procurement related factors. Increasing effort on these factors can increase likelihood of real estate project success since they have positive and significant relation with real estate project success.

Special attention should be given to project manager related factors as they have positive impact on real estate project success and very strong relation with real estate project success.

This study was done on a single real estate company, which may limit its generalizability. Thus, it is recommended for future studies to undertake similar study with more case companies to enhance generalizability.

Since the respondents of this study were company professionals, there might be a chance for them to over emphasize their managerial and technical contribution to project success. To have a more balanced view, it is recommended to include customer's perspective in future studies.

References

Abel.S. (2022, 02). EVALUATION OF TOTAL QUALITY MANAGEMENT PRACTICE OF BUILDING CONTRACTORS, THE CASE OF ADDIS ABABA BASED PRIVATE LOCAL CONTRACTORS. Addis Ababa, Ethiopia.

Access Capital. (2010). *Sectoral Report Real Estate.* Addis Ababa.

Alka Rani, Rajwinder Singh, Shilpa Taneja,Arun B.Prasad, Sonia Shiman . (2021). A revie on Key performance indcators for measuring rela estate project succcess. *nternational Journal of Sustainable develeopment planing*.

Arsema, E. (2020, 06). Assessment of the Identified Critical Success Factors in Real Estate Projects: a case of the selected real estate company projects. Addis Ababa, Ethiopia.

Ashley & Jaselskis. (1987). Determinants of construction project success. *Project Management Journal*, pp 69-79.

Ashley, D., Jaselskis E. and Lurie, C.B. (1987). The Determinants of Construction Project Success. *Project Management Journal*, 69-79.

Atkinson, R. (1999). Project management: cost, time and quality, two best guesses and a phenomenon, its time to accept other success criteria. *International Journal of Project Management*, pp 337-342.

Babu.N.J. (2015). Factors Affecting Success of Construction Project. *IOSR Journal of Mechanical and Civil Engineering(IOSR-JMCE).Volume 12(2)*, pp 17-25.

Baccarini, D. (1999). The Logical Framework Method for Defining Project Sucess. *Project Management Journal 30(4)*, pp 25-32.

Baccarini, D. (2009). Critical Success Factors in Construction Engineering Projects:A Case Study. Australian Institute of Project Management.

Baccarini, David and Collins, Adam. (2003). Critical success factors for projects. *Management Challenges;Management Solutions,Proceedings of the 17th ANZAM Conference.* Fremantle,Western Australia.

Belassi, W. & Tukel, O.I. (1996). A new framework for determining critical success/failure factors in projects. *International Journal of Project Management*, pp.141-151.

Biniyam, B. (2021, 06). ASSESSMENT OF THE CRITICAL SUCCESS FACTORS IN THE CASE OF SELECTED BUILDING CONSTRUCTION PROJECTS IN HAWASSA. Addis Ababa, Ethiopia.

Bryde, D. J. (2005). Methods for Managing Different Perspectives of Project Success,Vol. 16. *British Journal of Management*, pp. 119-131.

Cooke-Davies, T. (2002). The real success factors in projects. *International Journal of Project Managemenet, Vol. 20*, pp. 185-190.

Cooper, D. R., & Schindler, P. S. (2014). *Business Research Methods (12th ed.).* New York: McGraw-Hill/Irwin.

Daniel, D. (1961). Management Information Crisis. Harvard Business Review.Sept.-Oct. US.

De Wit, A. (1988). Measurement of project sucess. *International Journal of Project Management*, pp.164-170.

Dormann,C.F., et al. (2013). Collinearity:A Review of Methods to Deal with it and a Simulation Study Evaluating Their Performance.Ecography,36.

Ethiopian-Homes. (2018). *Ethiopia: High-end Real Estate in High Demand causing dilemma for Low-cost Demands.* Retrieved from http://www.ethiopianhome.com/ethiopia-role government-private-sector-housing-development/

Fitusm.B. (2018, 06). CAUSES OF PROJECT COST OVERRUN AND TIME DELAY:The Case Of Afar Sustainable Development Goals Program Office Projects. Addis Ababa, Ethiopia.

Frefer A.A, Mohmoud. M, Haleema.H and Almamlook. R,. (2018). Overview Success Criteria and Critical Success Factors in Project Management. *Journal of Industrial Engineering and Management.Volume 7(1)*, pp 3.

Gebreyohannes, M. M. (2021). THE IMPACTS OF FINANCIAL CHALLENGES IN CASE OF REAL ESTATE DEVELOPERS IN ETHIOPIA . *UGC Care Journal*.

Hair Jr., J. F. et al. (2002). *Multivariate Data Analysis with Readings.* Englewood Cliffs: NJ-Printice Hall.

J, R. Meredith and S. J. Mantel Jr.,. (2006). Project Management:A Managerial Approach. Boston: McGraw-Hill.

Judgev, k and Muller, R. (2005). A Retrospective Look at Our Evolving Understanding of Project Success. *Project Management Journal 36(4)*, 19-31.

K.N.Jha, K. Iyer. (July 2007). Commitment, coordination, Competence and the Iron triangle. *international Journal of Project management*, 527-540.

Kerzner. (2003). In Search of Executive in Project Management Successful practices in high performance organization. New York: John Wiley and Sons.

Kerzner, H. (1987). In Search of Excellence in Project Management. *Journal of Systems Management.Volume 38(2)*, pp.30-40.

Korovin, A. (2019). An analysis of the critical success factors in corporate real estate Greenfield projects in Russia for foreign investors at pre investment stage.Master's Degree.University of Applied Scineces.

Lepartobiko, W. (2012, 11 16). FACTORS THAT INFLUENCE SUCCESS IN LARGE CONSTRUCTION PROJECTS: THE CASE OF KENYA URBAN ROADS AUTHORITY PROJECTS. Nairobi, Kenya.

Mamaru Dessalegn Belay,, Esayas Alemayehu Tekeste,Sintayehu Assefa Ambo. (2017). Investigation of Major Success Factors on Building Construction Projects Management System in Addis Ababa, Ethiopia. *American Journal of Civil Engineering*, pp 155-163.

Marczyk, G., Dematteo, D., & Festinger,D. (2005). Essential of Research Design and Methodology. New York: John Wiley & Sons,Inc.

Melat, G. (2017, 01). INVESTIGATING SUCCESS FACTORS FOR REAL ESTATE DEVELOPMENT CONSTRUCTION PROJECTS IN ADDIS ABABA . Addis Ababa, Ethiopia.

Milka, H. (2016, 12). Analysis of Risks in Residential Real Estate Development Projects of Addis Ababa. Addis Ababa, Ethiopia.

Milosevic, D,. Pantanakul, P. (2005). Stadardized project management may increase development projects sucess. *International Journal of Project Management. Vol 23(3)*, pp.181-192.

Nguyen DL, Ogunlana SO,Quang T and Lam KC. (2004). *International Journal of Project Management,Elsevier, 22(7)*, pp.553-561.

Olsen, p. R. (1971). Can Project Management be Defined? Volume 2(1). *Project Management Quarterly*, pp. 12-14.

Pakseresht A, Asgari G. (2012). Determining the Critical Success Factors in Construction Projects:AHP Approach. *Interdiscipilinary Journal of Contemporary Research in Business.Volume 4(8)*, pp 383-393.

Pallant.J. (2005). *SPSS Survival guide a step by step guide to data analysis using SPSS for Windows.* New York: Open University Press.

Paul N. Balchin, David Isaac, Jean Chen. (2000). Urban economics : global perspective. Basingstoke: Palgrave.

Pinto, J. K. (2013). Project Management:Achieving competitive advantage.3rd edition. Boston: Pearson.

Pinto, J.k and Slevin, D.P. (1988). Critical Success Factors in Effective Project Implementation. In *Project Management Handbook* (pp. 902-909). New York: Van Nostrand Reinhold.

PMI. (2013). A guide to the project management body of knowledge:(PMBOK guide). 5th edition. Newton Sqaure, Pennsylvania: Project Management Institure.

Prathamesh. P. Satankar, Asst. Prof. S. S. Jain. (2015). Study of Success Factors for Real Estate Construction Projects. *International Research Journal of Engineering and Technology (IRJET)*, pp 804-808.

R. K. Wysocki, J.R. Beck and D. B, Crane. (2000). Effective Project Management. New York: Wiley Computer Publishing.

Rockart, J. (1979). Chief Executives Define Their Own Data Needs. Harvard Business Review.

Santos.J. (2019, 04 26). *What is Construction Project Management?* Retrieved from projectmanagment.com: https://project-management.com/what-is-construction-project-management/

Saqib. M, Rizwan U.Farooqui, Sarosh. H.Lodi. (2008). Assessment of critical success factors for construction projects in Pakistan,Master;s Degree.University of Engineering and Technology. Karachi, Pakistan.

Sekaran, U. and Bougie, R. (2009). *Research Methods for Business: A Skill-Building Approach. 5th Edition.* Hoboken: John Wiley and Sons Inc.

Sirgut.S. (2018, 11). Factors Affecting Effective Project Cost Management:The Case of Nashcon Construction PLC. Addis Ababa, Ethiopia.

Tadele.M. (2018, 06). FACTORS AFFECTING PROJECT COST AND TIME OVERRUN: IN THE CASE OF ADDIS ABABA UNIVERSITY BUILDING PROJECTS. Addis Ababa, Ethiopia.

Tiruneh, F. (2013). Institutioinal Interfaces and Actors' Behaviour in Transitional Real Estate Markets of Addis Ababa(Ethiopia). Netherlands: Erasmus University Rotterdam.

Trerry Cookie Davies, Hang Vo, Terry Williams, Rick Foster, Amanda Howells and Richard John Kirkham. (2011). An empirical study of assurance in the UK government major projects portfolio: from data to recommendations, to action or inaction. *International Journal of Managing Projects in Business ahead-of-print(ahead-of-print)*.

Turner J.R & Muller R. (2005). The Project Managers Leadership Style as a Success Factor on Projects: A Literature Review. *Project Management Journal*, pp.49-50.

Watiki.C. (2014). Service Quality and Customer Satisfaction In hotels in Nairobi, Kenya.Master's Degree. School of Business.

Wiegelmann, T. (2012). Risk Management in the Real Estate Development Industry. Australia: Bond University.

www.flinstonehomes.com. (2023, 03 15). Retrieved from Flinstone Homes: https://www.flintstonehomes.com/

Zeleke, M. H. (2021, 07). Retrieved from https://furtherafrica.com/2021/07/05/real-estate-business-is-booming-in-ethiopia/

Appendix: Questionnaire

This questionnaire is prepared for collecting data for the study to be undertaken under the title of "Factors Affecting Success of Real Estate Projects: the case of Flint Stone Homes". The researcher will appreciate it if you spend a few minutes of your time filling this questionnaire. The questionnaire is prepared only for academic purpose and your response will be treated confidentially and anonymously. I thank you in advance and if you have any inquiry, please be free to contact the researcher at the following addresses: E-mail: tseadi3@gmail.com /t.tibebu3@gmail.com

Part I: Respondent General Information

This part is on general information about you as respondent. Please provide answers to the following questions by ticking (√) against the most suitable alternative. Your response shall be accorded all the confidentiality it deserves and will only be used for academic purposes.

1. Gender Male ⬭
   Female⬭

2. Age
   Under 25 ⬭ 26-35 ⬭ 36-45 ⬭ 46-55 ⬭ Above 55 ⬭

3. Educational status
   Diploma ⬭ 1 st Degree ⬭ 2 nd Degree/ Postgraduate ⬭ Other ⬭

4. Job Position
   Project Manager ⬭ Engineer ⬭ Other project staff member ⬭

5. Years of experience
   Below 2 years ⬭ 3-5 Years ⬭ More than 5 Years ⬭

Part II: Project success factors

Below are the identified success factors for real estate projects to assess project success. Please show the extent to which each factor influences/contributes to project success in your company using the 5 Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, and 5 = Strongly Agree)

1. Project Management Related Factors	1	2	3	4	5
Established communication system					
Using control mechanism					
Practice of Planning effort					
Decision making effectiveness					
Project monitoring activities					
Implementing effective quality assurance program					
Prior project management experience					
Risk identification and allocation practice					

2. Procurement System Related Factors	1	2	3	4	5
Proper use of Project delivery system (e.g. design-bid-build, design build)					
Proper use of Project bidding method (e.g. price based competitive bidding, negotiated bidding, best value bidding)					
Choice of Project contract mechanism (e.g. lump sum, unit price, cost plus, etc.)					

3. Clients Related Factors	1	2	3	4	5
Client's experience					
Nature of client (privately vs. publicly funded)					
Owner's clear and precise definition of project scope & objectives					
Owner's risk attitude (willingness to take risk)					
Client's emphasis on low construction cost					
Client's emphasis on high quality of construction					
Client's emphasis of quick construction					
Client's ability to make timely decision					

4. Design Team Related Factors	1	2	3	4	5
Design team experience					
Project design complexity					
Mistakes/delays in producing design documents					
Adequacy of plans and specifications					

5. Contractor Related Factors	1	2	3	4	5
Contractor's experience					
Site management actions					
Supervision activities					
Extent (Involvement) of Subcontracting					
Contractor's cash flow					
Effectiveness of cost control system					

6. Project Manager Related Factors	1	2	3	4	5
Project Manager's competence					
Project Manager's experience					
Project Manager's authority to take financial decision, selecting key team members, etc.					
Technical capability of project manager					
Leadership skills of project manager					
Coordinating ability and rapport of project manager with contractors/ subcontractors					
Motivating skill of project manager					
Project manager's commitment to meet cost time and quality					
Project manager's adaptability to changes in project plan					

7. Environment Related Factors	1	2	3	4	5
Economic environment					
Social environment					
Political environment					
Physical work environment					
Industrial relations environment					
Administrative approvals environment					
Technology availability					
Other Factors such as Corruption, lack of ethics, fraudulent practices, favoritism					

Part III: Success Factors and Project success

Rank the factors presented in the table based on the extent to which they are being practiced in your company.

Rank	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Project Management Related Factors							
Procurement system related factors							
Client related factors							
Design team related factors							
Contractor related factors							
Project manager related factors							
Environment related factors							

Project Success		**1**	**2**	**3**	**4**	**5**
Quality related	Projects output was found in compliance with contractual requirement					
	There was variance when the actual results are compared to the quality standards					
	Defects were found after the completion of projects					
Time related	Project tasks were accomplished during original contract duration					
	Waiting time for approval of testing and inspection was short					
	Project activities were completed during the estimated duration					
	Project activities were accomplished according to the planed sequence					
Cost related	Projects were completed in range of estimated cost					
	There were additional cost for rework					
	There were additional cost due to project design changes					
Objective related	In general projects has met their intended objective					