COLLEGE OF BUSINESS AND ECONOMICS

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Assessment of the practice and challenges of project planning & scheduling in real estate projects: in the case of Noah real estate

By:

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Addis Ababa, Ethiopia

Addis Ababa University

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College of Business and Economics

Master of Art Degree in Project Management

ASSESEMENT OF PRACTICE AND CHALLENGES OF PROJECT PLANNING AND SCHEDULING IN REAL ESTATE PROJECT: THE CASE OF NOAH REAL ESTATE IN ADDISABABA ETHIOPIA

By:

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Statement of Certification

I hereby certify that I have read and evaluated the thesis that was prepared with my supervision, by Betelhem Abadi Entitled “ASSESEMENT OF PRACTICE AND CHALLENGES OF PROJECT PLANNING AND SCHEDULING IN REAL ESTATE PROJECT: THE CASE OF NOAH REAL ESTATE IN ADDISABABA ETHIOPIA". As it satisfies the thesis's requirements, I advise submitting it.

Research Advisor	**Signature**	**Date**
Dr.Adane Atara	_____	_____

Declaration

I, Betelhem Abadi Gebere yohannes, completed a project titled " Assessment of the practice and challenges of project planning & scheduling in real estate projects: in the case of Noah real estate." I completed this project on my own to fulfill the requirements for my Master of Project Management degree. I declare that all the work you see here is my own original research, and it hasn't been submitted to any other educational institution for any reason. All citations used in this work have been properly cited.

Name: - Betelhem Abadi

Signature: -

Date: - June 2023

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Abstract

This thesis was conducted in Noah Real Estate PLC at Project Site and Head Office, Addis Ababa with the aim of assessing the practice and challenges of project planning and scheduling. Stakeholders and employees both provided data. The study included 40 respondents in all. When gathering and analyzing the data, both qualitative and quantitative methods were used. An assessment of the degree of effect and an open-ended question were used in the two sets of questionnaires that were used to gather the data. The following metrics were used to analyze the data: frequency, percentage, mean, and standard deviation. The study has determined the company's actual project planning procedures as well as the key difficulties in the project planning and scheduling procedure. The findings of the study discovered that project scope in project planning, project schedule planning, project cost estimation, project resource planning and project risk management were practiced well in a limited manner even though more effort is required from the organization to make the practice more effective in creating well organized and attainable project management plan. Whereas, project risk planning and project quality planning application of planning tools were poorly practiced under the study organization. The major challenges identified by this study include delay of material delivery, project planning/scheduling driven by owner perspective, on time design delivery problem, lack of currency for imported goods, communication gap, lack of experienced contractor and the current condition of the country As a result, the study recommended that the organization give each project planning area its full attention and put forth more effort to address any problems that were discovered and examined during the study. .

Key Words: project planning practice, project planning challenges, project scheduling

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Abbreviation

FMCG	Fast moving consumer goods
WBS	Work break down structure
PMBOK	Project management body of knowledge
PSS	Project scope statement
PMI	Project management institute
AACE	American association of cost engineers
PPE	Personal protective equipment

Chapter 1: - Introduction

1.1Background of the study

The largest city in Ethiopia, Addis Ababa, with a population of almost 5,461,000, a rise of 4.46% from 2022 has physical structure which unable to withstand the rising demand brought on by its expanding population. According to estimates from the World Bank Group (2019), the rate of growing urbanization, which was 5.8% between 2007 and 2012, will increase by 5.1% between 2012 and 2037.

The government of Ethiopia must enhance opportunities for developer-built affordable housing and develop new affordable housing regulations, according to 2019 research by the World Bank Group. Also, allowing international investors to form collaborations with regional real estate developers will offer technical skill, finance skill, and advanced productivity. Real estate's main goal is to create a structure for commercial or residential use in order to generate profit.

The building procedure is a difficult task. From initial planning to final execution, it consists of a lot of individuals and various actions (Gray & Larson, 2008). To complete a construction project, the duties, and obligation of the owner, employees, designer, engineers, project managers, contractor, subcontractors and finance can be structured in a variety of ways.

To complete projects successfully, the real estate business must be properly planned and scheduled since it is a highly involving and changing sector. Real estate project management requires the management of several tasks, goods and services, and participants to accomplish project goals; project planning and scheduling are essential parts of this tsks. Planning and scheduling projects have the purpose to guarantee that resources are used properly, schedules are met, and project goals are accomplished.

Even yet, real estate projects frequently run into issues like poor interaction, insufficient control of risks, unrealistic cost estimates, and unsatisfactory resource allocation. Delays, excess expenses, and project failure are all possible consequences of these difficulties.
The objective of this research is to evaluate the existing techniques and obstacles of project planning and scheduling in real estate projects. The results of this assessment will give readers an

overview of the present status of project planning and scheduling in real estate projects, a list of the most frequent problems encountered, and suggestions for how to proceed.

1.2Background of the organization

Noah Real Estate PLC was established in 2013 G.C. and has since delivered 16 residential, 5 commercial, and 8 mixed uses mid to large-scale projects, with additional 10 projects under development at various sites in Addis Ababa. Within these 10 years of experience, Noah has constructed and is constructing a total of 29 projects.

With a solid financial base, outstanding innovation, quality, and on-time delivery, Noah is a well-considered construction business. This combination gives the ability to create strong visual representations and may create an immediate need to explore deeply. In the real estate industry, Noah aspires to make a huge impact. Commitment to give the consumers a great transaction experience by reflecting the motto "Design, Build, and Deliver."

Responsible selling is the simplest way to describe the methodology. The company sells the finished pieces of when they have been completed. Once every aspect of the construction has been finished, delivery is made. The goals are bold. to become the real estate industry's top brand and to represent excellence in performance via excellent design, building, and delivery. Great Abyssinia PLC, a renowned FMCG firm with brands like Abyssinia Coffee, Prigat juice, Tulip, Aby soda drinks with diverse flavors, and in a recent notable agreement also linked up with Nestlé in water bottling, continuation of the Abyssinia Springs brand, is the parent company of Noah, which is a sister company.

1.3Statement of the problem

Effective project planning and scheduling are crucial to the success of real estate projects in order they contribute to guarantee that tasks are completed effectively and on time, budgets are appropriately distributed, and resources are used in a rightful way. The real estate industry is a rapidly evolving and challenging sector that involves a variety of participants, from builders and designers to contractors. This paper tries to evaluate the current practices and challenges of project planning and scheduling in real estate projects to discover key areas where changes can be made. But regardless of the importance of project planning and scheduling, many real estate projects face

difficulties caused by delays, cost overruns, and other difficulties that can have a major effect. This study might help in giving emphasis on the essential elements that are important to effective project planning and scheduling, and also on the challenges such as lack of coordination among project stakeholders, uncertainty of real estate projects to accurately forecast cost, time and resource, shortage of qualified skilled manpower(**Contractors)** that frequently block such efforts, by performing a thorough assessment of appropriate research and analyzing case studies of current real estate projects. In the end, the study's conclusions will offer helpful guidance to those engaged in the development, management, and implementation of real estate projects.

1.4Reaserach questions

The study tried to answer the following basic questions,

1. What are the current practices of project planning and scheduling in the company?
2. What are the common challenges faced in the company when planning and scheduling projects?
3. What strategies can be implemented overcome the challenges faced in the company during project planning and scheduling process?
4. Who are the stakeholders that involve in the project planning and scheduling process of the company?
5. What is expected from stakeholders to achieve successful project completion in the company?

1.5Objective of the research

1.5.1 General Objectives

The general objective of the study is to assess the current practice and challenges of project planning and scheduling in Noah real estate Company in Addis Ababa.

1.5.2 Specific Objectives

1. To identify the current practice of project planning and scheduling in Noah real estate.
2. To identify the challenges faced by the company.
3. To identify strategies for overcoming the challenges faced by the company.

4. Provide recommendation for improving project planning and scheduling practices in the company.

1.6 Significance of the study

The study will contribute to the existing body of knowledge on project planning and scheduling practices in the real estate industry. The study recommendation for improving project planning and scheduling practices will help to improve project outcomes and project efficiency. The study can also help identify best practices and potential areas for improvement in project planning and scheduling in real estate projects. It may also inform the development of policies and regulations aimed at improving project planning and scheduling practices in the construction industry.

1.7 Scope of the study

The study will focus on project planning and scheduling practices in real estate project, which includes residential, commercial and mixed-use projects which are located around Addis Ababa. The study will involve project stakeholders such as owners, contractors, architects, engineers, purchaser, finance and technical team which are involved in real estate project. The study scope is limited to the assessment of project planning and scheduling practices and challenges in the real estate industry.

1.8 Limitation of the study

The study was only conducted at Addis Ababa Noah Real Estate Construction Company. As a result, the conclusions and suggestions may not be useful for the country's real estate development industry as a whole. The study's quality is limited due to the focus primarily on respondents' questionnaire responses and ideas. There is also a risk of responses being biased or inaccurate due to respondents wanting to present themselves or their projects in a positive way. As well as the study assesses only the planning and scheduling practices and challenges of the organization even if there are several factors that affect the success of a given project.

1.9 Definition of terms

Real estate: -Real estate is any tangible object, such as a building or other structure, which is permanently attached to land. This type of physical property, which can be bought, sold, rented, or used for a variety of purposes including residential, commercial, industrial, agricultural, and recreational uses.

Project planning: - A project's planning process begins at the start and continues through all of the project's phases, from beginning to closeout. (AACE International Recommended Practice No. 14R-90)

Project scheduling: -Project scheduling is the process of breaking a project down into smaller tasks, assigning each task to a specific team member, and setting completion dates and timetables for each task in order to achieve a specific project goal.

1.10 Organization of the study

This thesis has five chapters. Chapter one constitutes the introduction, which focuses mainly on the background of the study, background of the organization, statement of the problem, research questions, objective of the research, significance of the study, scope of the study, limitation of the study, definition of terms and organization of the study. Chapter two consists of review of different literatures; theories focused mainly on what project planning and scheduling is about; the practice of construction project planning and scheduling in Noah real estate project and Head Office; and its major challenges that delay project activities and become obstacles. Chapter Three deals with methodological approach and the research design. Chapter Four covers result and discussion. Finally, Chapter Five constitutes findings, conclusion, recommendations of the study, and area of further research.

Chapter 2: - Literature review

2.1 What is project planning

Planning for a project starts at the beginning and continues throughout the many stages of the project phase, from project inception to completion and closeout. Those stages are the WBS (Work Breakdown Structure) which further divides in to activities leading to project plan. (AACE International Recommended Practice No. 14R-90)

As I mentioned above Noah real estate is currently developing about 10 projects simultaneously so the project planning issue will further upgrade to multi project planning mechanism. This is not easy as single project handling so to overcome the problem that will due to poor project planning mechanism in dealing with multi-project management, the coordination between tactical and operational project planning's must be considered so that the overall re- sources for a multi-project, especially the non-regular resources, are optimally planned using the resource requirements proposed and confirmed by projects through their scheduling processes.

According to PMBoK, a project plan expresses the objectives and requirements of the project in terms of:

- **Project Scope**: -Project scope is a component of project planning and refers to the extent of the project, outlining the specific objectives and outcomes that need to be achieved. Companies that adopted formal project management procedures were better at defining project scope, which reduced project risk and improved project outcomes. (Gladstone and Mitroff, 2015).

  Love and Edwards (2015) compared two alternative methods for determining project scope, the Work Breakdown Structure (WBS) and the Project Scope Statement (PSS). They found that both methods were effective for defining project scope, but the PSS was more beneficial when stakeholders needed a precise understanding of the project's objectives. Stakeholder involvement throughout the project was increased by their participation in the scoping process, which also helped them understand the project's objectives. (Turner and Muller, 2014).

- **Resource requirement**: -Resource planning is a project management step that involves determining what resources (such as time, money, and people) are needed to finish a project successfully.

  The quantity of resources required varies depending on how challenging the project is. Compared to simpler projects, complex projects with high levels of uncertainty require more resources. (Geraldi, Thuesen, Oehmen, & Stingl, 2014)

  Normally demands for resources exceed supply, which results in delays and cost overruns. So that resource planning needs to account for the entire projects and balance resource allocation in order to maximize resource consumption. (Hoelscher, Michaelis, & Moser, 2018)

  Resource planning for projects must be flexible and take into account the constantly changing characteristics of rapid project execution. The authors suggest an integrated resource planning framework including cooperation, interaction, and evaluation to optimize resource consumption. (Liu and Li, 2019)

- **Project cost estimation**: -Is a method of dividing the project into smaller parts and estimating the costs of each segment, as well as allocating resources, planning a budget, and scheduling.

  If there is good data gathered from previous projects the bottom-up technique is most effective. The top-down strategy is an additional method of cost estimate. In this method, the whole project cost is estimated before being divided into portions. When the project scope is unclear or if there is little information available, the top-down technique is frequently adopted. This strategy should only be utilized if there are no other viable options because it can result in wrong cost estimates. (Keskinocak et. Al, 2011)

  Another method for estimating expenses is parametric estimation, which makes use of statistical data. This method requires choosing a group of factors that affect project costs and then using previous information to build a statistical model. After that, using the values of the variables in the model, project costs are estimated. (AACE International, 2015).

- **Project quality**: - Project quality is the degree to which deliverables, schedules, budgets, and other project criteria succeed in accomplishing stakeholder expectations.

  Project quality management includes all of the planning, controlling, and improving of output and process quality through the use of quality response and continuous improvement

techniques. The objective of quality control activities, which monitor and estimate project outputs against the planned quality standards, is to ensure that corrective actions are taken to sustain or develop project quality. (PMI, 2017).

Keeping stakeholders' needs and expectations stable can be difficult because they can change depending on their importance, position, and level of participation. (Jugdev and Muller, 2005).

In order to measure and evaluate the project's products, quality planning requires categorizing and capturing the requirements, standards, and procedures that will ensure high quality. Information on customer needs and preferences, industry standards and best practices, and organizational policies and guidelines must be gathered in order to do this. (Garvin, 1988).

- **Project risk management**: -An approach to risk identification, evaluation, and management throughout the project lifecycle is the main focus of project risk management. To effectively manage risk, project managers must involve stakeholders, communicate effectively, and display leadership. A more efficient use of technology can result in improved project management outcomes in terms of risk management.

  Risk management is used throughout the whole lifecycle of a project, from planning to finish. Proper risk recognition provides the way for effective risk mitigation and response measures. Project risk management is significantly facilitated by the involvement of stakeholders in the procedure. (Pinto and Slevin, 2013)

- **Project schedule**: -Project scheduling is important because it aids in determining the tasks and durations needed to complete the project on schedule and within budget.

  Determining the activities, order, duration, and resources needed to complete a project is known as developing a project schedule. Monitoring a project's schedule involves keeping how the project is actually progressing in comparison to the original schedule, identifying deviations, and taking remedial measure. (Kerzner, 2013)

  Following the project schedule can result in timely completion, lower costs, and higher quality work. (Babu and Arockiasamy, 2016)

2.2 Practice of project planning

Project planning is the process by which project managers' outline how they will manage and carry out a building's construction, from designing the building to purchasing the materials to assigning workers and subcontractors to carry out specific duties. Every action that needs to be taken to achieve the desired result is outlined in a building plan. The practice of project planning may include the following steps: - (Ermias, 2021)

Step 1: Create the project

In order to plan a project, there must be a project no matter how big or little. After having the project, we are going to proceed identifying the purpose and objectives of the project, define its scope, and determining the key stakeholders.

Step 2: Create the project plan

This involves determining the specific tasks and activities required to achieve the project objectives, estimating the resources needed, and developing a timeline to carry out the project. Creating a project plan helps project managers and team members in organizing their work and establishing a clear direction for the project.

Step 3: Execute the plan & Allocating Resources

This involves putting the plan into action to achieve the desired goals and objectives. Begin by assigning assignments to each stakeholder. And identifying the resources required for the project, such as people, materials, and equipment, and allocating them appropriately.

Step 4: Track your performance & Identifying Risks

This involves checking and ensuring the stakeholders whether they're on track to reach the objectives. It also identifies the risks that delayed a project, to look into to figure out why it happened and how to avoid it happening again.

Step 5: Close out and evaluate the project

Closeout comprises completing all remaining project tasks, documenting final outcomes for stakeholders, and providing any relevant reporting to guarantee that all project components were finished in accordance with schedule. All financial transactions must be completed, hardware and papers must be archived, and staff members must be let go from the project.

Evaluate the project involves evaluating the project's progress, examining its advantages and disadvantages, and recording lessons gained that might be applied to future projects. This crucial stage will guarantee ongoing development and support future project success.

2.3 What is project scheduling

In order to determine the final project length and the project delivery date, the planning team must analyze each action in detail and explicitly to create a schedule. Cost, time, and quality are the primary variables used to assess a project's performance; yet, time (schedule) directly affects cost. Due to an increase in indirect costs, delay in schedules is one of the main causes of cost overrun, argue, debate, and termination of contracts in building projects. Project scheduling is a critical component of project management and helps to ensure that all team members are aware of their roles and responsibilities and the deadlines they need to meet.

Fayek (2013) argued that the performance of the business and the nation's economy are subsequently impacted when a building project goes over budget and past its deadline.

Noah real estate is currently developing about 10 projects simultaneously so as the project planning the project scheduling issue also must further upgrade to multi project planning mechanism. Yaghootkar and Gil (2012) studied the impact of project management that is driven by schedules when handling many projects. The results showed that a schedule-driven project management policy might significantly boost success and strengthen the business' capacity to meet the long-term scheduled project milestones.

The common sequential procedures of scheduling are developing work breakdown structure (WBS) and activity sequence, and allocating resource to activities so that the cost-time relation would be optimized. Effective project scheduling is critical in real estate development to ensure timely delivery of the property and to minimize delays and cost overruns.

The project schedule typically includes: -

- Site preparation
- Gaining permits and approvals
- Design and engineering
- Construction

- Monitoring and Inspections
- Sales.

2.4 Practice of project scheduling

Creating a thorough and practical schedule for a development project that accounts for all of the project's phases, from site selection through completion, is the practice of project scheduling in the real estate development industry. Each phase's essential path should be identified, team members should have their roles and due dates assigned, and the project plan should make sure that all required building licenses and permissions are secured on time.

The practice of schedule development includes the following, AACE PLANNING

1. **Defining project objective**: - is identifying important project objective, such as the purchasing of the project's land, the completion of the project's design, the beginning of construction, and the project's completion date, is the first stage in scheduling a real estate project.
2. **Creating a project schedule**: - A project timetable should be made when the objectives have been determined. In order to develop a timeline, this will entail predicting how long it will take to accomplish each milestone and putting those deadlines on a calendar.
3. **Identify critical path activities**: - Activities in the project's critical path are those that must be finished on time for it to be finished on schedule. Finding these activities is beneficial to keep the project on schedule.
4. **Develop a WBS & Schedule resource**: - detailed schedules by assigning costs, labor, and equipment to each activity to determine progress requirements to meet the project completion date. For each project activity, resources including staff, materials, and tools must be scheduled. This includes calculating the amount of time needed for each resource and making sure they are not exceeding its capacity.
5. **Monitor Schedule and Adjust the schedule as needed**: - It's crucial to keep track of how the project is progressing in relation to the schedule. This can aid in locating any delays or problems that might have an impact on the project's schedule. It's also important to modify the project schedule as necessary to take changes in scope, available resources, or any other elements that can affect project deadlines into account.

2.5 Challenge of project planning

1. **Working drawing**: - due to many corrections that the architect made in drawings during and after the work had started. As drawings play an important role for assigning the task so it should be completed properly with a better understanding.
2. **Limited land availability**: - The lack of available land is one of the biggest problems in real estate development. As a result, there may be more competition, more expensive goods, and longer project planning times.
3. **Complex government authorizing processes**: - These procedures can be complicated to understand since they include numerous legal and regulatory criteria that must be fulfilled before a project can move forward; if these requirements are not completed, the project may be delayed.
4. **Financing**: - Essential initial investments are needed for real estate development, which can be difficult to finance. Sometimes it is challenging to find investors and secure loans.
5. **Unforeseen cost**: - One of the difficulties was obtaining the precise data or information needed for cost estimation. This occurred because the project lacked all of the required design details. This issue is caused by the lack of reliable project cost estimates for significant projects that were implemented by the research organization. Unexpected expenses include site clearing, unanticipated delays in development, environmental issues, weather condition, labor shortage, supply chain issue and changes in market conditions.
6. **Stakeholder management**: - Investors, governmental regulators, clients, contractor, architects, engineers and members of the community are just a few of the many stakeholders involved in real estate development projects. Conflicting goals of different stakeholders can be difficult to manage and balance, and doing this for careful planning and communication. Making sure that everyone involved is on board with the project's aims and objectives and that any disputes or differences are settled quickly and effectively is the task. And intervention of owner of the company makes change to the planned tasks and leads to delay.

2.6 Challenge of project scheduling

1. **Unexpected delays**: - as we mentioned earlier since Real estate development projects are complex and involve several stakeholders any delay caused by a stakeholder can cause an impact and lead to delays in the overall project timeline.
2. **Material and labor shortage**: - Material and labor shortages such as steel, cement, aluminum, ceramic, waterproof material, wooden material can lead to delays in the project schedule; the problem of assigning the right person for the right project. This was because of sufficient time is not spent in analyzing and selecting the required qualified personnel for the job.
3. **Tight project timeline and deadline**: - it makes it difficult to allocate the appropriate resources in a timely and efficient manner, failure to meet project goals or deliverables.

2.7 Conceptual framework

The conceptual framework gives particular emphasis to the practice of project planning and scheduling process and its challenges in Addis Ababa in real estate project.

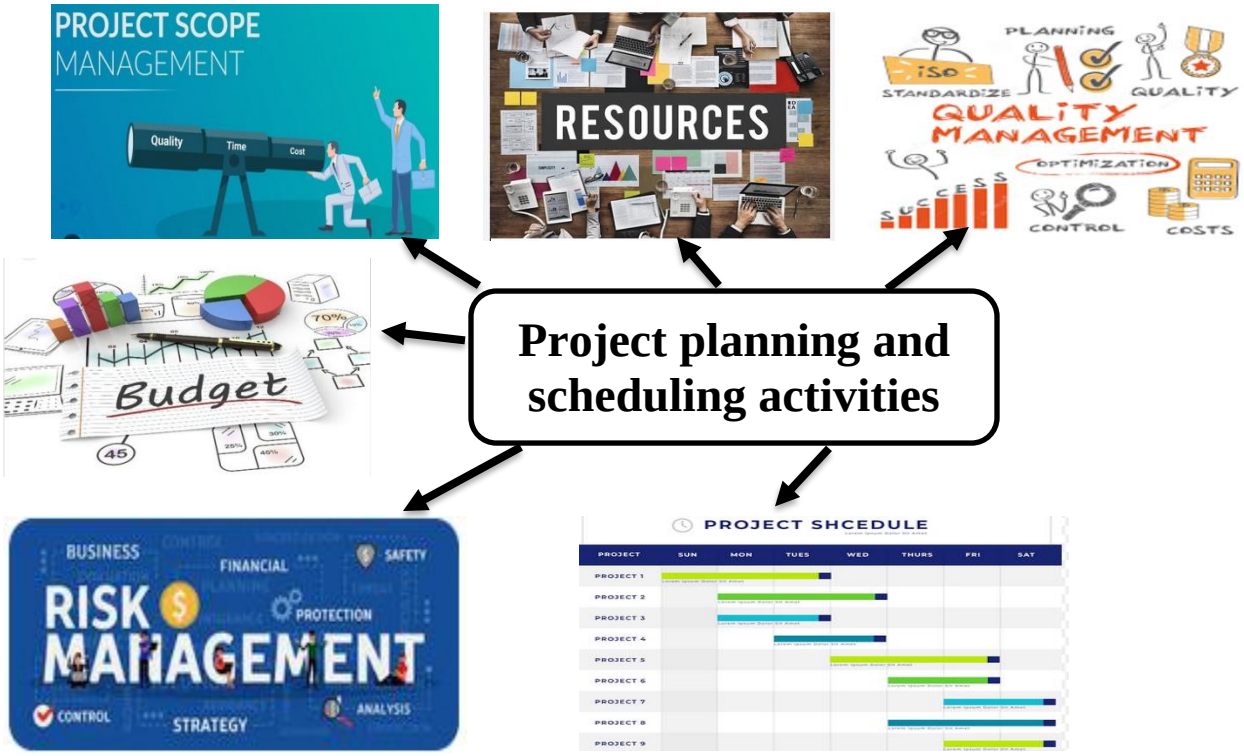

Figure 1:- Conceptual framework for assessing the activities of project planning and scheduling practice

Figure 2:- conceptual framework for assessing the challenges of project planning and scheduling practice

Chapter 3: - Research design & methodology

3.1 Research Design

The research design used descriptive research design that is done by gathering information at a certain period with the goal of getting actual data about the current status of the company about the planning and scheduling culture they are using. So, mixed methods research approach is used; in which both quantitative and qualitative approaches are used. (Creswell J, (2009)) The qualitative approach is done by gathering information from both primary and secondary sources of data. The primary data is gathered through questionnaires; while, the secondary data is gathered from published resources, reviewed articles, literature review journals and others. In quantitative approach is used to collect data through survey and test existing theories to verify the data.

Baker (2010) Walden university press argues that mixed methods approach is better than the methods alone because it provides more information. The advantage of mixed method approach is: -

- The capacity to respond to questions requiring more research
- Combining both inductive and deductive reasoning

3.2 Data collection method

Questionnaire and interview are used to gather the data. An interview which comprises of a few questions is conducted with selected individuals to investigate their perception regarding the planning process in the company. Along with the survey and interview, secondary sources like books, published and unpublished materials and manuals are analyzed.

3.3 Population of the study

Project teams, contractors, stakeholders, suppliers, project manager, project coordinator, site engineer, office engineer and project team members, who were involved in Noah real estate projects are the study's target population. To better understand the project's planning procedures, samples from these groups are obtained.

3.4 Data type & source

Mixed methods research approach is employed, in which it uses both quantitative and qualitative approach. The qualitative approach is utilized for gathering information from both primary and secondary sources of data. The primary source of data is gathered by using interview and questionnaires; while the secondary source of data is collected using published resources, reviewed articles, literature review journals and others. In quantitative research, data is typically analyzed through statistical tests, which allow researchers to draw conclusions about the relationship between variables, which are being studied. It typically involves collecting data through structured surveys and observations, with the goal of testing hypotheses or answering research questions.

3.5 Sampling technique and sample size

Sampling technique is a method used in research studies to choose a representative group of participants or subjects from a larger population that the researcher is interested in studying. This method is widely applied to determine the sample size and select the participants for the study. In this study census sampling technique is used, in which data is collected from every member of the population. Instead of selecting a sample the entire population is included in the study.

The sample size refers to the number of participants included in a study. So based on the above sampling technique a total of 40 individuals is included to fill out the questionnaire established. These 40 respondents included individuals the real estate project.

3.6 Method of data analysis

The analysis of research at Noah real estate Company in Addis Ababa was analyzed by using questionnaires. Close ended and open-ended question is used for the questionnaires''. The data through primary and secondary sources are analyzed using quantitative and qualitative approach. Simple statistical analysis like percentage, mean and standard deviation utilized in order to analyze the data.

3.7 Research validity and reliability

3.7.1 Research validity

Validity, describes how well a measurement tool matches its intended purpose. (Kothari, 2004) What the researcher seeks to assess is measured by an instrument's precision or effectiveness. The data collection tool's content validity is attempted to assure that the survey questions accurately represent the themes that is measured.

Questionnaires and interviews are utilized as a methodology, and their validity and reliability are evaluated and revised in accordance with the literature review. The advisor checks for validity.

It ensures that the research results are trustworthy and tough. In order to achieve high levels of validity it requires careful research design, data collection, and analysis methods.

3.7.2 Research reliability

Research reliability is described as the extent to which a research study's findings may be repeated under comparable circumstances with little to no change in the outcomes. The consistency with which a research tool or instrument measures the variables it is designed to measure.

One of common method used to assess the questionaries' internal consistency was the Cronbach's alpha test, which was found to be 0.93, which is higher than 0.7, indicating that the reliability was adequate. And which indicates us the items in the test are strongly correlated with each other, indicating that the test is a measuring a similar construct consistently.

Table 1:- Cronbach's Alpha for the project scope in project planning

Reliability Statistics

Cronbach's Alpha	N of Items
.677	3

Table 2: - Cronbach's Alpha for the resource requirement in project planning

Reliability Statistics

Cronbach's Alpha	N of Items
.844	2

Table 3:- Cronbach's Alpha for the cost estimation in project planning

Reliability Statistics

Cronbach's Alpha	N of Items
.852	6

Table 4:- Cronbach's Alpha for the project quality in project planning

Reliability Statistics

Cronbach's Alpha	N of Items
.834	4

Table 5:- Cronbach's Alpha for the project risk management in project planning

Reliability Statistics

Cronbach's Alpha	N of Items
.937	3

Table 6:- Cronbach's Alpha for the project scheduling

Reliability Statistics

Cronbach's Alpha	N of Items
.870	7

Table 7:- Cronbach's Alpha for the current status of the company

Reliability Statistics

Cronbach's Alpha	N of Items
.721	11

Table 8:- Cronbach's Alpha for the entire questionaries

Cronbach's Alpha	Cronbach's Alpha based on standardized item	No of item
0.928	0.930	36

3.8 Ethical consideration

The research is only be conducted with Noah Real Estate's permission. The research is conducted with the approval of the parties who is participating, and managers and employees have access to any necessary data. The information provided by the respondents and the information gathered from the interviews determine the study's findings, and the procedure is practical in considering the information gained. Respondents are informed of the goal and advantages of the study, as well as their complete right to agree or disagree participation. The personal data of the participants is kept private and safe.

Chapter 4: - DATA PRESENTATION, ANALYSIS AND INTERPRTATON

4.1 Introduction

This chapter covers the presentation, analysis and interpretation of information obtained through questionnaires. Descriptive statistics like frequencies were used to analyze the data. Interpretations are created using the data's frequency and percentages. The completion and return of 40 out of the 40 questionnaires that were distributed to respondents of the entire population. There are three sections to the questionnaire. Private information about the responders is included in the first part. In the second segment, it was determined to what extent respondents agreed, declined to comment, or disagreed with the claims. The final section of the question is made up of open-ended surveys that must have in-depth responses in order to gather additional data that was not covered in the second section.

The questionnaire was distributed at various project sites of Noah real estate and at the Noah real estate company's Addis Ababa headquarters. Employees, site engineers, consultants, and contractors all received the survey. The respondents worked as site engineers, office engineers, project coordinators, project managers, contractors, consultants, and construction technical managers, among other occupations.

4.2 General Information of the respondent

This section presents the description of the respondents who participated in this study. Variables related to the respondents' demographic characteristics, such as gender is presented below among the 40 respondents 40% (16) of the respondents were Male and 60% (24) of the respondent were Female. The other variable is related to work experience of respondent among the 40 respondent 65% (26) of the respondent were form 1 – 5 years, 30% (12) of the respondent were from 6 – 10 years, 5% (2) of the respondent were above 10 years. The third indicator of the demography characteristics of respondents is Education background of the respondents, according to the survey 72.5% (29) of the respondent’s has bachelor’s degree, 25% (10) of the respondent’s has master’s degree, 2.5% (1) of the respondent’s has diploma. The fourth indicator of the demography characteristics of the respondent is current working position in which according to the survey 40% (16) of the respondents are site engineer, 20%(8) of the respondents are office engineer, 17.5% (7)

of the respondents are other (are from contractor and consultant side) and 10% (4) of the respondents are project manager.

Table 9 :- frequency distribution of respondent by sex, work experience, educational background, current working experience

Variables	Frequency	Percent
Gender		
Female	24	60%
Male	16	40%
Total	40	100%
Work Experience		
From 1 – 5 years	26	65%
From 6 – 10 years	12	30%
Above 10 years	2	5%
Total	40	100%
Educational Background		
Master's Degree	10	25%
Bachelor's Degree	29	72.5%
Diploma	1	2.5%
Others	0	0
Total	40	100%
Current working position		
Project Manager	4	10%
Project Coordinator	5	12.5%
Site Engineer	16	40%
Office Engineer	8	20%
Others	7	17.5%
Total	40	100%

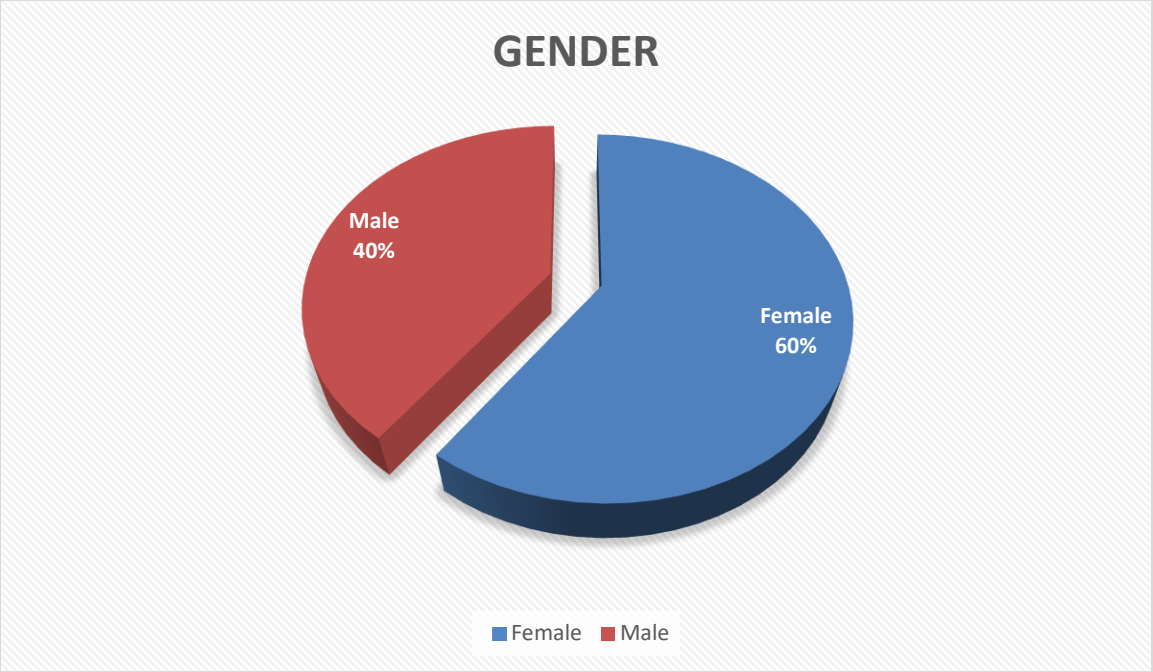

Figure 3:- Gender of the respondent

Figure 4:- Work experience of the respondent

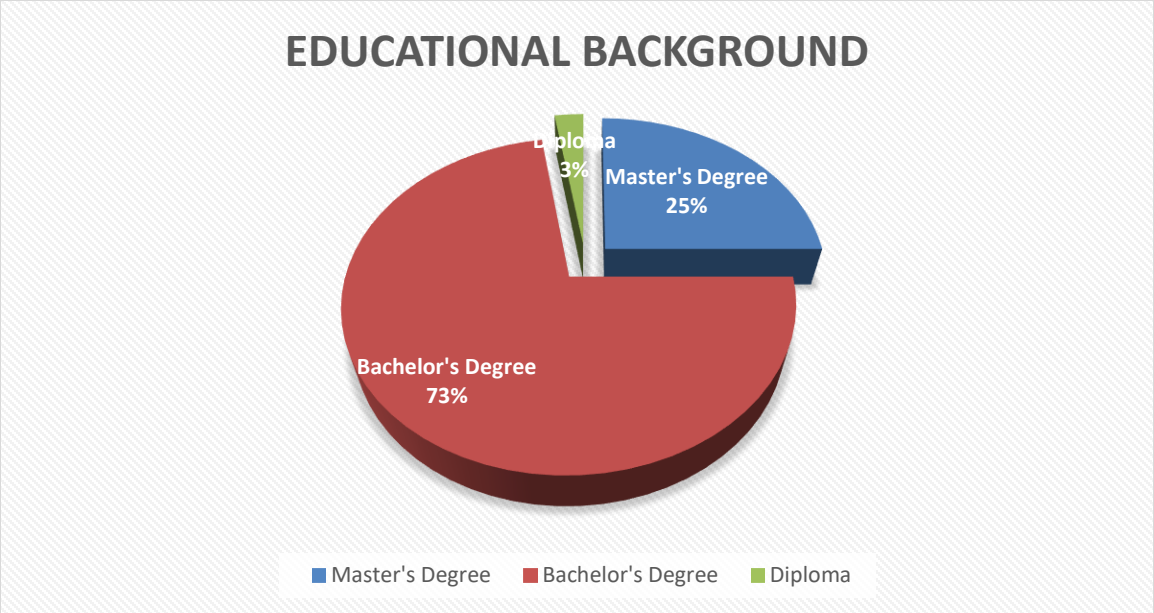

Figure 5:-Educational background of the respondent

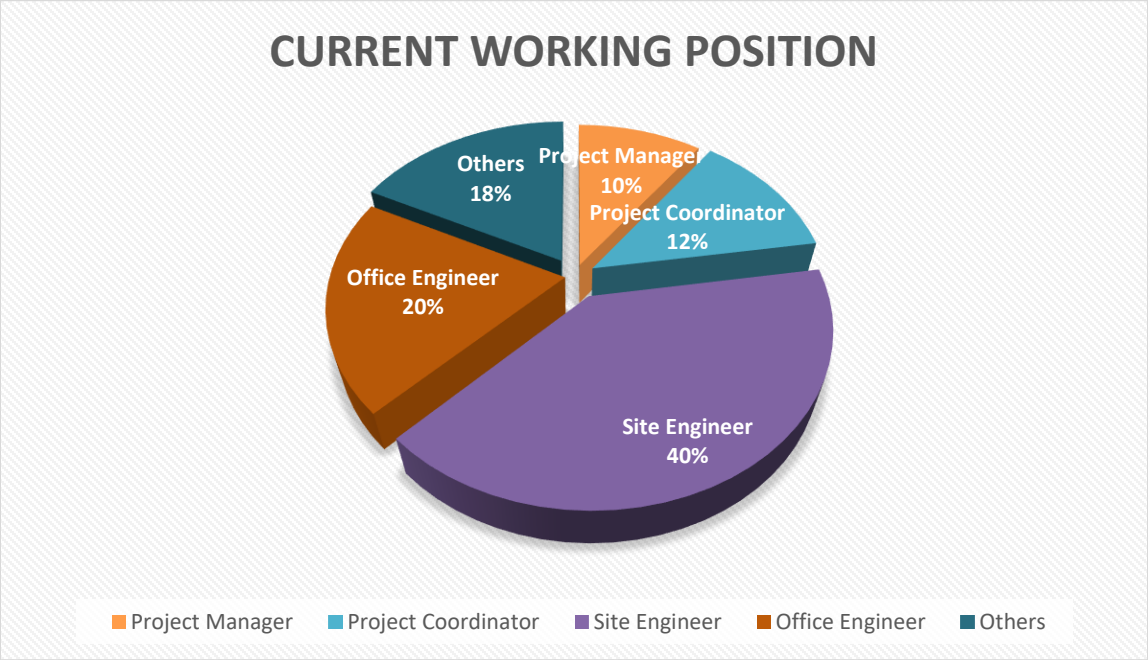

Figure 6:- Current working position of the respondent

4.3 Project scope in project planning

In the distributed questionaries' there were 3 questions that were used to assess the project scope in project planning practices of Noah real estate project in Addis Ababa city. As indicated below the project scope in project planning mean score are above the average. In the project scope

planning process, the item which has the highest mean value is the definition of the project scope with (mean = 3.925, standard deviation = 0.597) and with only 7.5% of the respondent disagreed with the idea, which is above the average mean value. Which indicates us there is well defined project scope in the project planning process.

In the project scope planning process, the next item which has the highest mean value is listing out the features that will be included in the project with (mean = 3.65, standard deviation = 0.55) and with 10% of the respondent disagreed with the idea, which is above the average mean value. Which indicates us the features that will be included in the project were mentioned appropriately in the project planning process.

In the project scope planning process, the last item which has the highest mean value is the adequacy of the time interval given for preparation of the design and quantity with (mean = 3.325, standard deviation = 0.513) which is above the average mean value. Which indicates us there was sufficient time for project design and quantity preparation in the project planning process.

Table 10:- The extent of agreement and disagreement of respondents on project scope in project planning

No.	Description	Scale													
		Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Total		Mean	Standard deviation
		N	%	N	%	N	%	N	%	N	%	N	%		
	Project scope in project planning														
1	The project scope was well defined in the planning phase	8	20%	26	65%	3	7.5%	1	2.5%	2	5%	40	100%	3.925	0.597
2	There was sufficient time for project design and quantity preparation	5	12.5%	16	40%	8	20%	9	22.5%	2	5%	40	100%	3.325	0.513
3	The features that will be included in	6	15%	20	50%	10	25%	2	5%	2	5%	40	100%	3.65	0.55

	the project were mentioned.														

4.4 Resource requirement in project planning

In the distributed questionaries' there were 2 questions that were used to assess the resource requirement in project planning practices of Noah real estate project in Addis Ababa city. As indicated below the resource requirement in project planning mean score are above the average. In the resource requirement of the project planning process, the item which has the highest mean value is the allocation of the project team members in the resource requirement with (mean = 3.925, standard deviation = 0.597) and with only 10% of the respondent disagreed with the idea, which is above the average mean value. Which indicates us the project team members are allocated properly for the resource requirement in the project planning process.

In the resource requirement of the project planning process, the next item which has the highest mean value is the preparation of required resource such as human and physical needed for the project with (mean = 3.875, standard deviation = 0.588), which is above the average mean value. Which indicates us the resource required (human and physical) for the projects were well prepared in the project planning process.

Table 11:- The level of agreement and disagreement of respondent on resource requirement in project planning

No.	Description	Scale													
		Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Total		Mean	Standard deviation
		N	%	N	%	N	%	N	%	N	%	N	%		
	Resource requirement in project planning														
1	The resource required (human and physical) for the projects were well prepared	10	25%	20	50%	5	12.5%	5	12.5%	0	0	40	100%	3.875	0.588
2	Project team members is allocated	10	25%	22	55%	4	10%	3	7.5%	1	2.5%	40	100%	3.925	0.597

4.5 Project cost estimation in project planning

In the distributed questionaries' there were 6 questions that were used to assess the project cost estimation in project planning practices of Noah real estate project in Addis Ababa city. As indicated below the project cost estimation in project planning mean score are almost above the average. In the cost estimation of the project planning process, the item which has the highest mean value is the allocation of project cost in to labor, material and equipment with (mean = 3.8, standard deviation = 0.574), which is above the average mean value. Which indicates us the project cost is appropriately divided in to labor, material and equipment in the project planning process.

In the project cost estimation of the project planning process, the second item which has the highest mean value is the additional cost considered for the design and scope change is with (mean = 3.625, standard deviation = 0.547), which is above the average mean value. Which indicates us the additional cost for the design and scope change is considered appropriately in the project planning process.

In the project cost estimation of the project planning process, the third item which has the highest mean value is the management of project budget by assigning responsible person with (mean = 3.575, standard deviation = 0.54), which is above the average mean value. Which indicates us responsible person for managing the project budget is assigned properly in the project planning process.

In the project cost estimation of the project planning process, the forth item which has the highest mean value is the estimation of project cost with (mean = 3.4, standard deviation = 0.52), which is above the average mean value. Which indicates us project cost is well estimated in the project planning process.

In the project cost estimation of the project planning process, the fifth item which has the highest mean value is the consideration of contingency funding in the project with (mean = 3.325, standard deviation = 0.513), and with only 8% of the respondent disagreed with the idea, which is above the average mean value. Which indicates us there is a contingency funding in the project planning process.

In the project cost estimation of the project planning process, the last item which has the lowest mean value is the completion of project with in planned budget with (mean = 2.75, standard deviation = 0.508), which is below the average mean value. Which indicates us there is problem of completion of projects within the planned budget.

Table 12:- The level of agreement and disagreement of respondent on project cost estimation in project planning

No.	Description	Scale													
		Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Total		Mean	Standard deviation
		N	%	N	%	N	%	N	%	N	%	N	%		
	Project cost estimation in project planning														
1	Project cost is well estimated	9	22.5%	10	25%	11	27.5%	8	20%	2	5%	40	100%	3.4	0.52

2	Additional cost for the design and scope change is considered	8	20%	17	42.5%	8	20%	6	15%	1	2.5%	40	100%	3.625	0.547
3	The project cost is divided in to labor, material and equipment.	12	30%	17	42.5%	5	12.5%	3	7.5%	3	7.5%	40	100%	3.8	0.574
4	There is a contingency funding in the project	4	10%	18	45%	10	25%	3	7.5%	5	12.5%	40	100%	3.325	0.513
5	The project completed within the planned budget	5	12.5%	3	7.5%	15	37.5%	11	27.5%	6	15%	40	100%	2.75	0.508
6	There is a responsible person for managing the project budget	7	17.5%	18	45%	7	17.5%	7	17.5%	1	2.5%	40	100%	3.575	0.54

4.6 Project quality in project planning

In the distributed questionaries' there were 4 questions that were used to assess the project quality in project planning practices of Noah real estate project in Addis Ababa city. As indicated below the project quality in project planning mean score are above the average. In the estimation of project quality of project planning process, the item which has the highest mean value is verifying the project quality by inspection and testing procedure with (mean = 3.925, standard deviation = 0.602), and with only 5% of the respondent disagreed with the idea, which is above the average

mean value. Which indicates us there is an inspection and testing procedure to verify the project quality in the project planning process.

In the assurance of project quality in project planning process, the second item which has the highest mean value is the definition of quality management plan and assurance with (mean = 3.65, standard deviation = 0.55), with only 7.5% of the respondent disagreed with the idea, which is above the average mean value. Which indicates us quality management plan and assurance was well defined in the project planning process.

In the assurance of project quality in project planning process, the third item which has the highest mean value is the evaluation of the effectiveness of the quality management with (mean = 3.625, standard deviation = 0.547), which is above the average mean value. Which indicates us there is an evaluation about the effectiveness of the quality management in the project planning process.

In the assurance of project quality in project planning process, the last item which has the mean value is all stakeholders understand the quality objective with (mean = 3.475, standard deviation = 0.527), which is above the average mean value. Which indicates us all stakeholders understand the quality objective in the project planning process.

Table 13:- The level of agreement and disagreement on project quality in project planning

No.	Description	Scale													
		Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Total		Mean	Standard deviation
		N	%	N	%	N	%	N	%	N	%	N	%		
	Project quality in project planning														
1	Quality management plan and assurance was defined	3	7.5%	25	62.%	9	22.5%	1	2.5%	2	5%	40	100%	3.65	0.55
2	All stakeholders understand the quality objective	5	12.5%	20	50%	5	12.5%	9	22.5%	1	2.5%	40	100%	3.475	0.527

3	There is an inspection and testing procedure to verify the project quality	9	22.5%	24	60%	5	12.5%	0	0	2	5%	40	100%	3.95	0.602
4	There is an evaluation about the effectiveness of the quality management	6	15%	20	50%	9	22.5%	3	7.5%	2	5%	40	100%	3.625	0.547

4.7 Project risk management in project planning

In the distributed questionaries' there were 3 questions that were used to assess the project risk management in project planning practices of Noah real estate project in Addis Ababa city. As indicated below the project risk management in project planning mean score are above the average. In the estimation of project risk management of project planning process, the item which has the highest mean value is the mitigation strategy for the identified risks with (mean = 3.25, standard deviation = 0.508), which is above the average mean value. Which indicates us there is mitigation strategy for the identified risks in the project planning process.

In the assurance of project risk management in project planning process, the second item which has the highest mean value is the conduction of project risk analysis with (mean = 3.225, standard deviation = 0.506), which is above the average mean value. Which indicates us project risk analysis was conducted effectively in the project planning process.

In the assurance of project risk management in project planning process, the last item which has the mean value is the identifying project risk and mechanism for risk management with (mean = 3.1, standard deviation = 0.501), which is above the average mean value. Which indicates us Project risks were identified and risk management mechanisms were included in the planning stage in the project planning process.

Table 14:- The level of agreement and disagreement of respondent on project risk management in project planning

No.	Description	Scale													
		Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Total		Mean	Standard deviation
		N	%	N	%	N	%	N	%	N	%	N	%		
	Project risk management in project planning														
1	Project risks were identified and risk management mechanisms were included in the planning stage	3	7.5%	12	30%	14	35%	8	20%	3	7.5%	40	100%	3.1	0.501
2	Project risk analysis was conducted	2	5%	20	50%	6	15%	9	22.5%	3	7.5%	40	100%	3.225	0.506
3	There is mitigation strategy for the identified risks	6	15%	12	30%	10	25%	10	25%	2	5%	40	100%	3.25	0.508

4.8 Project scheduling in project planning

In the distributed questionnaires there were 7 questions that were used to assess the project scheduling in project planning practices of Noah real estate project in Addis Ababa city. As indicated below the project scheduling in project planning mean score are above the average. In the estimation of project scheduling in project planning process, the item which has the highest mean value is the monitoring and evaluating of the progress of the schedule with (mean = 3.95, standard deviation = 0.602), with only 5% of the respondent disagreed with the idea, which is above the average mean value. Which indicates us the progress of the schedule is monitored and evaluated in the right way in the project planning process.

In the assurance of project scheduling in project planning process, the next item which has the highest mean value is using the work break down structure while planning with (mean = 3.925,

standard deviation = 0.597), with only 5% of the respondent disagreed with the idea, which is above the average mean value. Which indicates us work break down structure is used in the planning stage in the project planning process.

In the assurance of project scheduling in project planning process, the next item which has the highest mean value is identifying the total construction period with (mean = 3.9, standard deviation = 0.593), with only 7.5% of the respondent disagreed with the idea, which is above the average mean value. Which indicates us the total construction period is identified before the project is started in the project planning process.

In the assurance of project scheduling in project planning process, the next item which has the highest mean value is defining the schedule management plan and determining the duration of activities with (mean = 3.825, standard deviation = 0.579), with only 10% of the respondent disagreed with the idea, which is above the average mean value. Which indicates us Schedule management plan was defined appropriately and duration of activities were determined in the planning phase of the project planning process.

In the assurance of project scheduling in project planning process, the last item which has the mean value is using software to develop the project schedule with (mean = 3.7, standard deviation = 0.558), which is above the average mean value. Which indicates us software is used to develop the project schedules in the project planning process.

Table 15:- The level of agreement and disagreement of respondent on project schedule

No.	Description	Scale													
		Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Total		Mean	Standard deviation
		N	%	N	%	N	%	N	%	N	%	N	%		
	Project scheduling														
1	Schedule management plan was defined	10	25%	18	45%	8	20%	3	7.5%	1	2.5%	40	100%	3.825	0.579

2	The total construction period is identified	10	25%	21	52.5%	6	15%	1	2.5%	2	5%	40	100%	3.9	0.593
3	Duration of activities were determined in the planning phase	5	12.5%	28	70%	4	10%	1	2.5%	2	5%	40	100%	3.825	0.579
4	Work breaks down structure is used while planning	6	15%	27	67.5%	5	12.5%	2	5%	0	0	40	100%	3.925	0.597
5	There is a deadline that needs to be met	8	20%	20	50%	9	22.5%	3	7.5%	0	0	40	100%	3.825	0.579
6	The progress of the schedule is monitored and evaluated	10	25%	20	50%	8	20%	2	5%	0	0	40	100%	3.95	0.602
7	Software is used to develop the project schedule	9	22.5%	17	42.5%	7	17.5	7	17.5	0	0	40	100%	3.7	0.558

4.9 Current status of the company

In the distributed questionaries' there were 11 questions that were used to assess the current status of the company in implementing project planning and project scheduling in project planning practices of Noah real estate project in Addis Ababa city. As indicated below the current status of the company mean score are above the average. In the estimation of the implementation mechanism of the company, the item which has the highest mean value is the completion time is affected by material scarcity with (mean = 4.275, standard deviation = 0.673), with only 7.5% of the respondent disagreed with the idea, which is above the average mean value. This indicates us

the scarcity of material currently affects the completion time of the projects in project planning and scheduling process.

In the assessment of the current status of the company in project planning and scheduling process, the next item which has the highest mean value is the completion time is affected by design change with (mean = 4.1, standard deviation = 0.633), with only 5% of the respondent disagreed with the idea, which is above the average mean value. This indicates us design change affects the completion time of the project in the project planning and scheduling process.

In the assessment of the current status of the company in project planning and scheduling process, the next item which has the highest mean value is the completion time affected by the currency/exchange rate with (mean = 4, standard deviation = 0.612), with only 7.5% of the respondent disagreed with the idea, which is above the average mean value. This indicates us the currency/ exchange rate affects the completion time of the project in the project planning and scheduling process.

In the assessment of the current status of the company in project planning and scheduling process, the next item which has the highest mean value is the completion time affected by the payment delays for supplier and subcontractor with (mean = 3.975, standard deviation = 0.607), which is above the average mean value. This indicates us payment delays for supplier and subcontractor affects the completion time in the project planning and scheduling process.

In the assessment of the current status of the company in project planning and scheduling process, the next item which has the highest mean value is the schedule of the project affected by the number of contractors being participated in the project with (mean = 3.9, standard deviation = 0.593), which is above the average mean value. This indicates us the number of contractors being participated in the project affects the schedule of the project in the project planning and scheduling process.

In the assessment of the current status of the company in project planning and scheduling process, the next item which has the highest mean value is the practice of follow up strategy and reporting mechanism with (mean = 3.825, standard deviation = 0.579), which is above the average mean value. This indicates us the reporting mechanism and the follow-up strategy is practiced in the project planning and scheduling process.

In the assessment of the current status of the company in project planning and scheduling process, the next item which has the highest mean value is the consideration of customer requirement in the planning stage of the project with (mean = 3.775, standard deviation = 0.57), which is above the average mean value. This indicates us customer requirement considered in the planning stage of the project in the project planning and scheduling process.

In the assessment of the current status of the company in project planning and scheduling process, the next item which has the highest mean value is the participation of key stakeholders in the planning stage of the project with (mean = 3.675, standard deviation = 0.554), which is above the average mean value. This indicates us key stakeholders are participated in the planning stage in the project planning and scheduling process.

In the assessment of the current status of the company in project planning and scheduling process, the next item which has the highest mean value is identifying roles of stakeholders in the planning stage of the project with (mean = 3.575, standard deviation = 0.54), which is above the average mean value. This indicates us roles of stakeholders are identified in the planning stage in the project planning and scheduling process.

In the assessment of the current status of the company in project planning and scheduling process, the next item which has the highest mean value is project dependency on the imported materials with (mean = 3.275, standard deviation = 0.509), which is above the average mean value. This indicates us the project is dependent on imported materials in the planning and scheduling process.

In the assessment of the current status of the company in project planning and scheduling process, the last item which has the mean value is whether the delivered product met all specification in the planning stage with (mean = 3.2, standard deviation = 0.505), which is above the average mean value. This indicates us the delivered product met all specification in the planning stage in the planning and scheduling process.

Table 16:- The level of agreement and disagreement of respondent on the current status of the company

No.	Description	Scale													
		Strongly Agree		Agree		Neutral		Disagree		Strongly disagree		Total		Mean	Standard deviation
		N	%	N	%	N	%	N	%	N	%	N	%		
	Current status of the company														
1	The project is dependent on imported materials	4	10%	18	45%	8	20%	5	12.5%	5	12.5%	40	100%	3.275	0.509
2	The delivered product met all specification in the planning stage	3	7.5%	15	37.5%	12	30%	7	17.5%	3	7.5%	40	100%	3.2	0.505
3	The currency/ exchange rate affects the completion time of the project	13	32.5%	19	47.5%	5	12.5%	1	2.5%	2	5%	40	100%	4	0.612
4	The number of contractors being participated affects the schedule of the project	10	25%	22	55%	2	5%	6	15%	0	0	40	100%	3.9	0.592

5	Design change affects the completion time of the project	13	32.5%	20	50%	5	12.5%	2	5%	0	0	40	100%	4.1	0.633
6	The scarcity of material affects the completion time	18	45%	18	45%	1	2.5%	3	7.5%	0	0	40	100%	4.275	0.673
7	Payment delays for supplier and subcontractor affects the completion time	16	40%	15	37.5%	3	7.5%	4	10%	2	5%	40	100%	3.975	0.607
8	Key stakeholders are participated in the planning stage	11	27.5%	11	27.5%	14	35%	2	5%	2	5%	40	100%	3.675	0.554
9	Roles of stakeholders are identified in the planning stage	7	17.5%	15	37.5%	13	32.5%	4	10%	1	2%	40	100%	3.575	0.54
10	Customer requirement considered in the planning stage of the project	10	25%	18	45%	7	17.5%	3	7.5%	2	5%	40	100%	3.775	0.57

11	The reporting mechanism and the follow-up strategy is practiced	8	20%	19	47.5%	11	27.5%	2	5%	0	0	40	100%	3.825	0.579

4.10 Performance of project planning and scheduling process

Open ended questionnaires were used to collect the data or information from the survey (questioner) discussion. Out of the 40; 34were well-written.

This paper initially discusses the issue of project planning and scheduling in a company, with most of the respondents stating that it is practiced. The paper presents a list of the respondents' ideas on the practice of project planning and scheduling as follows:

- → Project planning and scheduling is an essential aspect for the building design and process of the company.
- → The process begins with the approval of the building's design and completion time.
- → Afterward, a work-flow-based detailed schedule is prepared by allocating appropriate resources within the estimated budget and time frame; The contract administration team is responsible for overseeing the project scheduling, taking into consideration the scope of work and material delivery time when distributing tasks to project engineers and store management department.
- → The sales team also takes part in the scheduling process based on the remaining handover date.
- → Finally, Effective policies and methodologies are designed to ensure successful project completion within the allocated time and budget.

Respondents report that the company faces challenges in project planning and scheduling, and have provided the following list of issues: -

- → Project scheduling is affected by material delivery time.
- → Project planning/scheduling become unclear sometimes itis driven by the owner's perspective.

→ Previous project data is used for scheduling and planning, but it become challenging to apply in practice for some sites due to the project manager are not capable of implementing the planned tasks accordingly and limited leading capacity of site engineers and construction engineer.

The second issue identified in the company's assessment was the common challenges encountered during project planning and scheduling. The respondents highlighted various issues not only during the planning phase but also during the implementation stage. In summary, the respondents' idea can be summarized by the following key points.

→ On time design delivery problem which leads to rescheduling and lag of schedule from the scheduled ones.
→ Material supply and resource allocation problem due to late submission of proforma for the supply chain management team; and improper usage of supplied material which leads to wastage of resources.
→ Lack of currency for imported goods lead the projects to delays, higher construction costs due to the need to source materials locally, and reduced quality of construction due to the use of lower-quality locally sourced materials. (The materials are most of the time ceramic, water proofing chemicals, aluminum, lift accessories, sanitary and electrical accessories with fitting)
→ Lack of identifying project risk results in unexpected delays and cost overruns, which influence the project's timeline and profitability. And in case of safety risks (proper scaffolding, excavation, and fall protection procedures, establish safety zones for hazardous work areas, Provide adequate lighting in work areas, Conduct regular inspections of equipment and machinery, Require personal protective equipment (PPE)) it leads to accidents and injuries.
→ Communication gap between operation manager who prepare the schedule and the implementer (project manager, site engineer, construction engineer, store department and others) which leads to schedule slippage and unrealistic deadlines.
→ Lack of experienced contractors with limited performance and unqualified workmanship; which affect the overall quality of the project, which can lead to repetitive damage and financial losses.

→ Contractor rate approval problem results delays in the project timeline in which the contractor waits until their rate is approved, difficulty in finding contractor who are willing to work on the project and these results lower quality of work.

→ Lack of proper contractor follow-up which results delay from the completion time of the project, poor quality and overrun from the planned budget.

→ Peace of the country which results in shortage of material, inflation, delay and cost overrun.

To summarize the respondents' ideas, they suggested several approaches to overcome the challenges of project planning and scheduling faced in the company. The suggestions are as follows: -

→ Communicate with contractor to solve and give decision for the problems related to the contractor.

→ Give opportunities for different contractor.

→ Early order of imported materials.

→ Using optional material purchasing system to overcome the challenges of inflation which means during discount period purchase the material and stock it.

→ Managing projects with effective and professional man power.

→ Additional income generating mechanism in order to overcome the inflation.

→ Changing the top management.

→ Laying effective communication mechanism from head office to the site.

In summary, the fourth concern raised was regarding the influence of stakeholder participation within the organization, based on the ideas presented by the respondents: -

→ List of the stakeholders of the company are company owner, board member, shareholder, human resource, client, sales team, consultant, contractor, project manager, project team, engineer, architect, supplier, design and quality management, supply and chain management, purchaser, contract admin, governmental institution, house buyer, renter and so on.

→ The effect of involvement of stakeholder has both negative and positive impact as described by the respondents. The positive impacts are as follows: -

- ✓ When owners give attention, it would have a good progress for successful completion time of the project otherwise delays will occur.
- ✓ In order to have full information regarding about the projects and to have better outcome for the project.
- ✓ To reduce the occurrence of risks by mitigating risks early.

Whereas the negative impacts are as follows: -

- ✓ Project team members are not able to work on their assigned tasks freely due to the intervention of stakeholders. As a result, they lose their freedom to make decisions and take actions independently, and their work may be influenced or directed by the stakeholders' preferences or requirements. This can lead to difficulties in achieving the project goals and may cause frustration among team members who feel they are not able to work to their full potential.

Chapter 5: - SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS AND AREAS OF FURTHER RESEARCH

5.1 Summary of Findings and Conclusions

The purpose of this study was to assess the methods used and difficulties encountered in project planning and scheduling at Noah real estate project and head office.

From the 40 questionnaires which were distributed to 40 employees, 40were collected. An indication of how valued female employees are at Noah Real Estate Company is the fact that out of the total participants, 40% of the workforces were male employees and 60% were female. 65 percent of the total respondents have been employed by the company for two to five years, while 30 percent have been there for five to seven years. As a result, they were able to provide accurate information about the difficulties and procedures associated with project planning and scheduling within the company. The majority of respondents (72%) had bachelor's degrees, indicating that employees are familiar with the methods for implementing planning and scheduling. The general job categories of the respondents showed that 22.5 percent worked in managerial positions, while 77.5 percent held non-managerial positions, indicating that all employee levels were involved in the study.

The research's findings clearly demonstrate how various factors affect project planning and scheduling effectiveness. The government, the client, the contractor, and the project company itself are all involved in these factors. The majority of survey responses from the staff and all other participants in the study who participated in project planning and scheduling agreed that this challenge has a significant impact on the project's performance.

The summary of the findings is: -

→ It can be concluded that the planning phase was successful in defining the project scope and identifying the key features to be included. Majority of the respondents suggests that the project had a clear direction and objectives from the beginning, which can contribute to its success in meeting stakeholders' requirements and expectations. However, it is important to keep in mind that respondent’s idea does not necessarily mean satisfaction, and continuous communication and collaboration with stakeholders throughout the project

lifecycle are essential for ensuring that their needs are met. And significant proportion of the respondents feel that the time allocated for project design and quantity preparation was inadequate. It suggests that there might have been insufficient time available for planning and preparation. This may cause delays, errors, or other problems during the execution of the project.

→ Majority of the respondents about resource requirement in project planning believe that the project has been properly planned and organized. This suggests that there is a high level of confidence in the project team's ability to successfully complete the project with the available resource.

→ Almost half of the respondents agreed that the project cost is well estimated and there is a contingency funding in the project. Overall, the data suggests that there is a difference of opinion among the surveyed population regarding the estimation of the project cost and contingency funding in the project. While a significant percentage of people are of the opinion that the cost is well-estimated, a notable fraction disagrees.

→ Majority of people surveyed are in agreement that a certain person should be responsible for managing the project budget; the project cost is division in to labor, material and equipment and consideration of additional cost for the design and scope change, while a smaller number of people disagree with this idea.

→ Majority of people surveyed disagree on the project completion within the planned budget therefore, there is a higher chance that the project may exceed or go over the planned budget.

→ Majority of the people involved in the inspection and testing process believe that the procedure is reliable, effective, and satisfactory. But the respondent’s reply could indicate that they have doubts about the reliability, accuracy, or effectiveness of the procedure. This could be due to their experience with using the procedure, their perception of the quality of the project, or other factors that influence their perspective on the issue.

→ According to the respondent’s reaction since they have different levels of agreement on stakeholders' understandability of the quality objective and an evaluation about the effectiveness of the quality management, this suggests varying levels of understanding and opinions on the topic.

→ Majority of the respondents are in favor of conducting project risk analysis and implementing mitigation strategies, while a significant minority disagrees with this approach.

→ There is a significant level of disagreement among the participants regarding the identification of project risks and risk management mechanisms in the planning stage. This shows us there might be concerns regarding the effectiveness or adequacy of the risk management strategies employed in the project planning process.

→ The survey suggests that the use of work breakdown structure and duration determination in project planning is widely accepted and considered important.

→ Most of the respondent observes that it was appropriately identified the construction period and continuously monitor and assess the schedule's progress to ensure successful completion of the project.

→ The majority of people surveyed hold a positive view regarding the identified aspects of schedule management, meeting the deadline, and developing project schedules using software.

→ Majority of the respondent suggests that the scarcity of material plays a role in affecting completion time.

→ According to this estimation, the majority of respondents think that factors like currency/exchange rate, contractor involvement, design changes, and payment delays affect how quickly a project is completed. The fact that a sizable portion of respondents are neutral or disagree suggests that the respondents may have differing opinions on these subjects.

→ The reporting mechanism and follow-up strategy play a crucial role in ensuring that the customer requirements are implemented correctly throughout the project of the real estate. By tracking the progress of the project, reporting any issues encountered and following up with stakeholders regularly, the project team can ensure that the customer requirement is fulfilled to the satisfaction of all parties involved.

→ It can be concluded that a majority of the respondents believed that the delivered product met the specifications planned, while a small percentage of respondents disagreed.

5.2 Rcommendation

→ It is essential to listen to the feedback and take appropriate action to ensure that enough time is allocated for project planning and quantity preparation to achieve better project outcomes. This might involve adjusting project timelines, staffing levels, resource allocation, or other measures that can help ensure that there is adequate time for planning and preparation.

→ Based on the feedback received, adjustments may need to be made to the cost estimation process to ensure that it is more accurate and inclusive of all relevant factors. Additionally, open communication and transparency about the cost estimation process can help build trust and understanding among stakeholders who may have different opinions.

→ Due to the respondent disagreement on the project completion with in planned budget it is recommended that the revision of the project budget and identify areas where costs can be reduced without affecting the project objectives and quality, negotiating with suppliers to lower their prices or provide better payment terms and alternative material, search for the stakeholder and management support in finding solutions to keep the project within budget, Implement a risk management plan to identify the possible cost overrun issues and take actions to mitigate them.

→ Since respondent's reply indicate that they have doubts about the reliability, accuracy, or effectiveness by following procedure standard procedures and employing qualified professionals, we can minimize the potential for inaccurate results and ensure the reliability and effectiveness of the inspection and testing process.

→ Since there is varying levels of understanding and opinions on the stakeholders' understandability of the quality objective and an evaluation about the effectiveness of the quality management the organization may need to communicate more effectively and provide additional support to stakeholders who have difficulty understanding the quality objective or the effectiveness of the quality management plan.

→ Since the respondents reply that the scarcity of material affects completion time it is important to communicate with all stakeholders involved in the project and explore alternative solutions, such as sourcing materials from different suppliers or adjusting the

project timeline accordingly. Effective project management and proactive communication can help mitigate the impact of material scarcity on project completion times.

→ There is some room for improvement, as there were some respondents who remained neutral or did not express a clear opinion on meeting the planed specification of the delivered product. Further analysis would be required to determine the specific areas for improvement.

5.3 Areas of Further Research

Taking into account the limitation, the investigation proposes that further examination must be conducted to evaluate: -

→ The current state of project planning and scheduling methods used in various real estate sectors located in Addis Ababa and rural cities needs to be evaluated.

→ In order to measure the reliability of project plans and schedules of the company, it is important to assess the coordination of planned capacity with the available capacity (such as resources, capital, technology, etc.), in addition to the response of the respondents.

→ Since project planning and scheduling is a broad issue other researcher can be conducted to other construction sectors such as road, dam and bridge and non-construction companies in order to assess the implementation mechanism of planning and scheduling in every aspect of occupation.

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Appendix 1 - Questionnaire

Addis Ababa University

School of Commerce

Master of Project Management Program

Questionnaire to be filled by respondents

A survey on the practice and challenges of project planning & scheduling in real estate projects: in the case of Noah real estate

Dear Respondent

The research questionnaire's objective is to gather data regarding the application and difficulties of project planning and scheduling as a requirement for the MA in Project Management at the School of Commerce at Addis Ababa University.

There are three parts to the questionnaire. First, there is a section with respondents' private information. The second part evaluated how strongly respondents agreed, declined to comment, or disagreed with the statements. The final section of the question is made up of open-ended surveys that must have in-depth responses in order to gather additional data that was not covered in the second section. You are kindly requested to tick (√) the range to which you agree with the statements given in the table below.

All the data included on this questionnaire will be used only for academic research purpose and will be kept confidential.

I already want to express my gratitude for your valuable support and time. Please contact me at the number listed below if any clarification is required.

Betelhem Abadi

Cellphone: - 0919154910

Part I: General Information

1. Gender

   Male ☐

   Female ☐

2. Your work experiences

   From 1-5 years ☐

   From 6-10 years ☐

   Above 10 years ☐

3. Your educational background

   Master's Degree ☐

   Bachelor's Degree ☐

   Diploma ☐

   Others ☐

4. Your current working position in the company

   Project Manager ☐

   Project Coordinator ☐

   Site Engineer ☐

   Office Engineer ☐

   Others ☐

Part I I: Assessment on degree of effect

Please thick (√) where appropriate in the space provided for each question.

No.	Description	Scale				
		Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
Project scope in project planning						
1	The project scope was well defined in the planning phase					
2	There was sufficient time for project design and quantity preparation					
3	The features that will be included in the project were mentioned.					
Resource requirement in project planning						
4	The resource required (human and physical) for the projects were well prepared					
5	Project team members is allocated					
Project cost estimation in project planning						
6	Project cost is well estimated					
7	Additional cost for the design and scope change is considered					
8	The project cost is divided in to labor, material and equipment.					
9	There is a contingency funding in the project					
10	The project completed within the planned budget					
11	There is a responsible person for managing the project budget					

Project quality in project planning						
12	Quality management plan and assurance was defined					
13	All stakeholders understand the quality objective					
14	There is an inspection and testing procedure to verify the project quality					
15	There is an evaluation about the effectiveness of the quality management					
Project risk management in project planning						
16	Project risks were identified and risk management mechanisms were included in the planning stage					
17	Project risk analysis was conducted					
18	There is mitigation strategy for the identified risks					
Project scheduling						
19	Schedule management plan was defined					
20	The total construction period is identified					
21	Duration of activities were determined in the planning phase					
22	Work break down structure is used while planning					
23	There is a deadline that needs to be met					
24	The progress of the schedule is monitored and evaluated					
25	Software is used to develop the project schedule					

Current status of the company						
26	The project is dependent on imported materials					
27	The delivered product met all specification in the planning stage					
28	The currency/ exchange rate affects the completion time of the project					
29	The number of contractors being participated affects the schedule of the project					
30	Design change affects the completion time of the project					
31	The scarcity of material affects the completion time					
32	Payment delays for supplier and subcontractor affects the completion time					
33	Key stakeholders are participated in the planning stage					
34	Roles of stakeholders are identified in the planning stage					
35	Customer requirement considered in the planning stage of the project					
36	The reporting mechanism and the follow-up strategy is practiced					

Part I I I: - Please give an answer for the open-ended question

37. Briefly explain how the project planning and scheduling process is performed in your company?

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38. What are the common challenges faced in the company when planning and scheduling projects?

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39. What are the approaches that can be applied overcome the challenges faced in the company during project planning and scheduling process?

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40. Who are the stakeholders that involve in the project planning and scheduling process of the company? Does the stakeholder involvement have a negative or a positive impact on your company?

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