



ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
SCHOOL OF COMMERCE
DEPARTMENT OF PROJECT MANAGEMENT

**Assessing factors of Schedule Delay in IT Projects; the case of
Commercial Bank of Ethiopia**

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Addis Ababa, Ethiopia

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Declaration

I, the undersigned, declare that the study entitled “Assessing factors of Schedule Delay in IT Projects; the case of Commercial Bank of Ethiopia” is the result of my own effort and study that all sources of materials used for the study have been acknowledged. I have conducted the study independently with the guidance and comments of the research advisor.

This study has not been submitted for any degree in any university. It is conducted for the partial fulfillment of the requirement for the Degree of Master of Arts in Project Management.

Bisrat Tamire

Date

Letter of Certification

This is to certify that this project work is prepared by Bisrat Tamire, entitled; “Assessing factors of Schedule Delay in IT Projects; the case of Commercial Bank of Ethiopia” and submitted in partial fulfillment of the requirements for MA Degree in Project management with the regulations of the university and meets the accepted standard with respect to originality and quality.

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Acknowledgment

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Abstract

Schedule delays in IT projects can have detrimental effects on project performance and stakeholder satisfaction. This study examines the causes of schedule delay in IT projects conducted by the Commercial Bank of Ethiopia (CBE) and provides recommendations to improve project planning and execution. Using a quantitative data collection and analysis techniques, valuable insights are gained into managing IT projects within time constraints. The specific objectives of this research were to Identify the key factors causing schedule delays in IT projects within the CBE, Determine the frequency of occurrence for each schedule delay factor, Assess the severity of each schedule delay factor, and investigate the interaction between the frequency and severity of the identified factors. Considering the frequency of delays, the top five factors with the highest Relative Importance Index (RII) are determined. These factors include delay in mobilization (RII= 0.858), lack of project documentation (RII= 0.820), technical difficulties (RII=0.8), project team motivation (RII= 0.796), and the size and complexity of IT projects (RII= 0.788). Addressing these factors with targeted strategies can improve project efficiency and reduce delays. Similarly, the severity of delays is assessed, identifying the top five factors with the highest RII. These factors include poor project planning (RII=0.874), lack of experience of project managers (RII=0.862), project leadership (RII=0.835), lack of effective communication (RII=0.808), and poor communication and coordination with other parties (RII=0.800). Proactive measures addressing these factors can minimize negative consequences and mitigate delays effectively. Through composite index scores, the top ten causes of schedule delays in IT projects are identified. Key findings reveal that project team motivation (Composite index=7.86) is the primary factor influencing delays, emphasizing the need to address motivational issues within the team. Other significant factors include organizational culture and structure (Composite index =7.8), project size and complexity(Composite index=7.76), delay in decision making (Composite index=7.67), technical difficulties (Composite index=7.65), lack of project documentation (Composite index=7.61), project team experience (Composite index=7.59), inadequate experience(Composite index=7.51), slow response to project manager inquiries (Composite index=7.41), and lack of change management (Composite index = 7.39). These insights help project managers prioritize efforts to mitigate influential causes of schedule delays. The findings of this study offer practical implications for project managers at CBE and other organizations, providing insights into the challenges and best practices of managing IT projects within time constraints. By implementing the recommended strategies, such as enhancing project team motivation, addressing organizational culture and structure, improving project planning, and strengthening communication and coordination, project managers can enhance project performance, stakeholder satisfaction, and timely delivery of IT projects at CBE and beyond.

Keywords: schedule delay, IT projects, Commercial Bank of Ethiopia (CBE), causes, impact, project performance, stakeholder satisfaction, RII, composite index scores.

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CHAPTER ONE: INTRODUCTION

1.1 Background of the study

IT projects in Ethiopia have seen significant growth in recent years, with the country's government and private sector investing in technology to improve various sectors (Mulugeta & Tilahun, 2021). However, the IT sector in Ethiopia still faces challenges such as limited resources, inadequate infrastructure, and a shortage of skilled personnel (Ncube, 2019). The country's telecommunications infrastructure has also been a limiting factor in the development of the IT industry (Tadesse, 2019). Despite these challenges, the Ethiopian government has implemented policies and initiatives aimed at promoting the growth of the IT industry, such as the establishment of the Ethiopian Information and Communications Technology Development Agency (EICTDA, 2021) and the Ethiopia National Data Center (MoIT, 2021). Additionally, various private sector players have entered the market to provide innovative IT solutions to address the unique challenges faced by the country. The growth of the IT industry in Ethiopia has the potential to transform the country's economy and improve the quality of life for its citizens (Mulugeta & Tilahun, 2021).

Information technology (IT) projects are essential for the development and competitiveness of organizations in the digital era. However, managing IT projects is not an easy task, as it involves many challenges and risks such as scope creep, budget overruns, resource constraints, and changing technology landscapes. These challenges can significantly impact the success and outcomes of IT projects, leading to delays, cost escalations, and suboptimal results.

Scope creep is one of the major challenges faced in IT project management. It refers to the uncontrolled expansion of project requirements and deliverables beyond the initial scope. This often occurs due to inadequate project planning, poor requirement management, or lack of stakeholder engagement. As a result, the project team may struggle to meet deadlines and deliver the expected outcomes within the allocated resources, leading to project delays and budget overruns (Harrison & Lock, 2017).

Budget overruns pose a significant risk to IT projects. Due to the complexity and evolving nature of technology, accurately estimating the costs associated with an IT project can be challenging. Factors such as unexpected technical issues, changing business requirements, or inefficient resource allocation can lead to cost escalations. These budget overruns can strain the financial resources of organizations and may even result in project failure if not addressed effectively (Kerzner & Kerzner, 2017).

Resource constraints also pose a considerable challenge in IT project management. Limited availability of skilled personnel, hardware, software, and infrastructure can hinder the progress and execution of IT projects. Without adequate resources, project teams may struggle to meet project milestones and deliverables, leading to project delays and compromised quality (Pinto, 2016).

Furthermore, the ever-changing technology landscape adds complexity to IT project management. Technology advancements, evolving industry standards, and emerging trends require IT projects to adapt and integrate new technologies to stay competitive. However, this rapid pace of change can introduce risks, such as compatibility issues, security vulnerabilities, and the need for continuous learning and upskilling of project teams (Schwalbe, 2019).

To overcome these challenges, effective project management practices are crucial. Employing robust project planning and monitoring techniques, such as defining clear project objectives, establishing a comprehensive scope, and regularly tracking progress against milestones, can help mitigate scope creep and ensure project success. Additionally, adopting agile project management methodologies, which promote flexibility, collaboration, and iterative development, can help address uncertainties and enable quick adaptation to changing requirements (Sutherland & Altman, 2019).

Proactive risk management is essential to address budget overruns. By identifying potential risks early in the project lifecycle, establishing risk mitigation strategies, and continuously monitoring and addressing risks throughout the project, organizations can minimize the financial impact of unforeseen events (Heldman, 2018).

To address resource constraints, organizations can invest in talent acquisition and development, ensuring that the project team possesses the necessary skills and expertise. Additionally, leveraging cloud-based technologies and outsourcing certain aspects of the project can help alleviate resource limitations (Gido & Clements, 2014).

And furthermore, staying abreast of the latest technology trends and engaging in continuous learning and upskilling can help project teams navigate the rapidly changing technology landscape. Regular training, knowledge sharing sessions, and collaborations with industry experts can equip project teams with the necessary skills and knowledge to adapt to technological advancements (Charette, 2014).

IT project management poses numerous challenges and risks that organizations must address to ensure successful project outcomes. Scope creep, budget overruns, resource constraints, and the changing technology landscape are among the key challenges faced in managing IT projects. By employing effective project management practices, organizations can mitigate these challenges and increase the likelihood of achieving project objectives.

History of IT projects in Ethiopia

Ethiopia is one of the fastest-growing economies in Africa, and the demand for IT projects has been steadily increasing in recent years (Kidanu, 2018). However, the history of IT projects in Ethiopia has been marked by a number of challenges, including poor project management practices, inadequate technical expertise, and limited financial resources (Assefa, 2015).

One of the major challenges facing IT projects in Ethiopia is the lack of skilled human resources in the IT sector. Despite the growing demand for IT professionals, there is a shortage of qualified and experienced personnel in the country (Kidanu, 2018). This has led to difficulties in recruiting and retaining talented individuals for IT projects, and has also resulted in a lack of technical expertise in many IT organizations.

Another challenge facing IT projects in Ethiopia is the limited financial resources available for project implementation. The government has identified the development of the IT sector as a priority, but funding for IT projects remains limited, particularly for large-scale projects (Assefa, 2015). This has resulted in delays and cost overruns for many IT projects in the country.

Despite these challenges, there have been some successful IT projects in Ethiopia, particularly in the areas of e-government and mobile banking (Kidanu, 2018). These projects have demonstrated the potential for IT to drive economic development and improve the lives of Ethiopian citizens. As the country continues to invest in the IT sector and address the challenges facing IT projects, it is likely that more successful projects were realized in the future.

Organization Profile

The Commercial Bank of Ethiopia (CBE) is the largest and oldest commercial bank in Ethiopia. It was established in 1942 as a state-owned bank with the mandate to provide banking services to the Ethiopian government and people. CBE was legally established as a share company in 1963. Today, CBE has over 1.3 trillion birr in assets and serves more than 37.9 million customers through its network of over 1842 branches and 4,000 ATMs across the country and the number of Mobile and Internet Banking users also reached more than 6.6 million and 37k. Active ATM card holders reached more than 8.3 million and 17 million CBE Birr users. CBE offers a wide range of products and services, including interest-free banking, trade finance, digital banking, remittance services, loans, deposits, insurance and more. CBE is also a pioneer in implementing innovative technologies and solutions to enhance its operations and customer satisfaction. CBE is committed to excellence, innovation and social responsibility in fulfilling its vision of becoming a world-class bank by 2025.

As part of its strategic vision, CBE has embarked on several IT projects to modernize its banking services, enhance its operational efficiency, and improve its customer experience. These projects include upgrading its core banking system, implementing a digital banking platform, expanding its ATM and POS network, and adopting cloud computing and data analytics solutions. Through these initiatives, CBE aims to provide faster, safer, and more convenient banking services to its customers, while also reducing its operational costs and risks. CBE believes that investing in IT is essential for its long-term growth and competitiveness in the dynamic and evolving banking industry.

1.2 Statement of the problem

IT projects play a crucial role in the success of organizations by enabling efficient operations and effective decision-making processes. However, the timely completion of IT projects continues to be a challenge, leading to significant schedule delays (Smith, 2018). The Commercial Bank of Ethiopia (CBE), being one of the largest financial institutions in the country, heavily relies on IT projects to enhance its operations and maintain a competitive edge. Therefore, it is imperative to investigate the factors that contribute to schedule delays in IT projects within the context of the Commercial Bank of Ethiopia. By identifying and understanding these factors, effective mitigation strategies can be developed to minimize schedule delays and ensure successful project implementation (Jones, 2020).

Despite the significance of IT projects in the banking sector, schedule delays continue to plague the successful delivery of such projects. Several Banks has experienced instances of schedule delays in its IT projects, leading to financial losses, decreased customer satisfaction, and missed business opportunities (Brown, 2019). The Commercial Bank of Ethiopia (CBE) is not immune to this problem. This raises concerns about the bank's ability to effectively plan, execute, and manage IT projects within the expected timeframe. It is, therefore, essential to identify and assess the factors that contribute to schedule delays in IT projects within the Commercial Bank of Ethiopia. This research aims to fill this knowledge gap and provide insights into the causes of schedule delays, enabling the development of effective strategies to mitigate and prevent such delays in future IT projects (Johnson, 2021).

The study on assessing factors of schedule delay in IT projects within the Commercial Bank of Ethiopia holds significant importance for several reasons. Firstly, schedule delays in IT projects have adverse effects on the bank's financial performance, as the allocation of resources, budgeting, and revenue generation are all dependent on the timely completion of these projects (Smith, 2018). By understanding the factors contributing to schedule delays, the bank can implement effective project management practices to ensure the successful completion of future IT projects, thereby safeguarding its financial stability.

Secondly, schedule delays negatively impact customer satisfaction and trust in the bank's services (Brown, 2019). IT projects are often aimed at enhancing customer experience, introducing new banking products, and improving service quality. Delays in implementing these initiatives not only hinder customers' access to enhanced services but also erode their trust in the bank's ability to deliver on its promises. By identifying the factors that contribute to schedule delays, the bank can take proactive measures to enhance its project management processes, ensuring timely delivery and thereby improving customer satisfaction.

Lastly, this study contributes to the existing body of knowledge by providing insights into the specific factors that lead to schedule delays in IT projects within the banking sector, particularly within the context of the Commercial Bank of Ethiopia. The findings and recommendations of this

research can serve as a valuable resource for other financial institutions facing similar challenges, helping them identify and address the root causes of schedule delays.

1.3 Research questions

The research questions that guide the study are:

- What are the key factors contributing to schedule delays in IT projects within the Commercial Bank of Ethiopia?
- What is the frequency of occurrence of each factor contributing to schedule delays in IT projects within the Commercial Bank of Ethiopia?
- What is the severity of each factor contributing to schedule delays in IT projects within the Commercial Bank of Ethiopia?
- How do the frequency and severity of the identified factors interact?

1.4 Research Objective

1.4.1 General objective

To investigate the key factors contributing to schedule delays in IT projects within the Commercial Bank of Ethiopia and analyze their frequency and severity and the interaction between the frequency and severity.

1.4.2 Specific objective

Specific objectives for this paper are:

- Identify the key factors causing schedule delays in IT projects within the Commercial Bank of Ethiopia.
- Determine the frequency of occurrence for each schedule delay factor.
- Assess the severity of each schedule delay factor.
- Investigate the interaction between the frequency and severity of the identified factors.

1.5 Significance of the study

The study "Assessing factors of Schedule Delay in IT Projects; the case of Commercial Bank of Ethiopia" aims to identify the major factors that contribute to schedule delay in IT projects, specifically in the context of a developing country and a large financial institution. The study's findings provide insights and recommendations for improving project management practices and processes within the Commercial Bank of Ethiopia and other similar organizations. This helped enhance the project management practices of these organizations and minimize delays in the future.

The study contributes to the existing literature on IT project management and schedule delay by applying a quantitative-methods approach and a comprehensive framework of delay causes. This framework includes independent variables such as technical factors, project management factors, and organizational factors, as well as mediating variables like project complexity and team competency, and moderating variables such as project size and project type. The application of this framework enhanced the understanding of the causes and consequences of schedule delay, and the possible mitigation strategies.

The findings of the study were of great significance to stakeholders involved in IT projects, including project managers, team members, clients, sponsors, and senior management. By providing a comprehensive understanding of the causes of schedule delay, the study helps stakeholders make informed decisions and adopt appropriate mitigation strategies. Furthermore, the study supports the strategic goals and objectives of the Commercial Bank of Ethiopia in terms of digital transformation, customer satisfaction, operational efficiency, and competitive advantage.

1.6 Scope of the study

The scope of this study is to identify and analyze the main causes of schedule delay in IT projects undertaken by the Commercial Bank of Ethiopia (CBE). The study focused on the projects that were started, completed or terminated between 2015 and 2022, and used quantitative methods to collect and analyze data from various sources, such as project documents, surveys, and observations. The study also compared the findings with the existing literature on IT project management and schedule delay factors, and provided recommendations for improving the planning and execution of IT projects in CBE.

1.7 Limitation of the study

One of the limitations of the study is that it is only focused on the perspectives of the project managers and the IT staff, without considering the views of the other stakeholders such as the customers, the suppliers, and the senior management.

Another limitation is that the study was conducted in a single organization, which may limit its generalizability and applicability to other contexts and settings. Therefore, future research may address these limitations by involving more diverse stakeholders, using different research methods, and comparing different types of IT projects across different organizations.

1.8 Organization of the research report

The study was organized in five chapters,

Chapter one contains introduction, Background, Statement of the problem, Objective of the study, Significance of the study, Scope and limitations

Chapter two contain literature review, theoretical review, empirical review and conceptual framework

Chapter three contain Research Methodology, Research Design, Data Type and Source, Research strategy, Sampling procedure, Strategies for data collection, Data collection method and tools, Data presentation.

Chapter four presents the overall finding of the study which prevails about the most important and frequently occurring causes of delay

Chapter five encompasses the conclusion and recommendation part of the study. Conclusions are be made from the previous chapter so that we can make some recommendations.

Chapter Two: Review of Related Literature

2.1 Introduction

In chapter two, the review of related literatures is presented, covering various topics related to project management in the IT industry. The chapter starts with an introduction and an overview of the project and project management, discussing what IT projects are and the things to consider before implementing them in the banking industry. The ten knowledge areas of project management are also presented, along with the challenges faced by IT project managers. The chapter also explores the concept of project schedule and project success, with a focus on schedule delay and its impact on IT project performance and success. Empirical studies of schedule delay in IT projects are also reviewed, as well as the causes, types, effects/consequences, and methods of minimization of delay. Finally, a conceptual framework is presented to summarize the key findings and provide a framework for future research.

2.2 Overview of project and project management

2.2.1 Project

A project is a temporary and unique endeavor that involves a group of people working together to achieve a specific objective within a defined timeframe and budget. It is different from routine business operations, which are ongoing and repetitive. Projects can vary in scope, complexity, and duration, and can involve different stakeholders, such as customers, sponsors, vendors, and team members.

According to the Project Management Body of Knowledge (PMBOK, 2017), a project is a "temporary endeavor undertaken to create a unique product, service, or result." It is temporary because it has a defined beginning and end, and is not a permanent or ongoing activity. It is also unique because it creates something that did not exist before, and requires a specific set of resources, processes, and techniques to accomplish.

According to Wysocki (2014), a project is characterized by its collaborative nature, wherein a team of individuals collaborates to accomplish a shared objective. Effective communication, coordination, and teamwork are essential components of project success, ensuring alignment and unified effort towards the desired outcome. Wysocki further highlights that projects are subject to multiple constraints, including time, cost, quality, scope, and risk (Wysocki, 2014).

In the study conducted by Heerkens (2003), a project is defined as a well-structured and deliberate endeavor aimed at achieving a distinct and singular objective, which may encompass the creation of a product, provision of a service, or attainment of a desired outcome. The significance of effective project management is underscored by Heerkens, as it plays a crucial role in ensuring timely completion, adherence to budgetary constraints, and attainment of predetermined quality benchmarks. Additionally, Heerkens acknowledges that projects typically involve several distinct phases, including initiation, planning, execution, monitoring, and closure (Heerkens, 2003).

In their research, Rory and Steve (2007) describe a project as a transient undertaking aimed at producing a distinctive product, service, or outcome. Emphasizing the significance of a well-defined objective and a precise scope, they underscore the necessity for a comprehensive plan that outlines the requisite activities, resources, and milestones crucial to accomplishing the project's goal. The researchers also acknowledge that projects may confront diverse challenges, including scope creep, budget overruns, and schedule delays, thus highlighting the indispensability of effective project management in mitigating these issues and guaranteeing project success (Rory & Steve, 2007). In summary, a project is a temporary and unique endeavor that involves a group of people working together to achieve a specific objective within a defined timeframe and budget. It requires careful planning, management, and execution to ensure the successful delivery of the desired outcome. Effective project management is essential to overcome challenges and constraints, and to ensure that the project is completed on time, within budget, and to the desired quality standards.

Rory and Steve (2007) have outlined some key features of a project, which include:

- **Defined objectives:** Projects should have clear and specific objectives that are aligned with the overall goals of the organization.
- **Deliverables:** Projects should produce tangible deliverables that can be used by the organization or its customers.
- **Time-bound:** Projects should have a defined start and end date, with intermediate milestones and deadlines.
- **Budget:** Projects should have a defined budget, including all costs associated with the project.
- **Resources:** Projects should have access to the necessary resources, including personnel, equipment, and materials.
- **Risk management:** Projects should have a risk management plan in place to identify and mitigate potential risks.
- **Communication:** Projects should have a clear communication plan in place to ensure that all stakeholders are kept informed about project progress and any issues or changes that arise.
- **Stakeholder management:** Projects should identify all stakeholders and have a plan in place to manage their expectations and involvement in the project.
- **Quality management:** Projects should have a plan in place to ensure that all deliverables meet the required quality standards.

These features are important for ensuring that a project is successful and achieves its objectives. By having clear objectives, defined deliverables, a specific timeline and budget, access to resources, and plans for managing risk, communication, stakeholders, and quality, project managers can ensure that their projects are completed on time, within budget, and to the satisfaction of all stakeholders involved.

2.2.1.1 What are IT projects?

IT projects are initiatives that involve the use of information technology (IT) to achieve a specific goal or outcome. IT projects can range from developing a new software application, to upgrading a network infrastructure, to implementing a cybersecurity strategy, to migrating data to the cloud. IT projects can be undertaken by various types of organizations, such as businesses, governments, nonprofits, or educational institutions.

IT projects typically follow a project management methodology that consists of several phases, such as initiation, planning, execution, monitoring and control, and closure. Each phase involves defining the scope, schedule, budget, quality, and risks of the project, as well as assigning roles and responsibilities to the project team members. IT projects also require effective communication and collaboration among the stakeholders, such as the project sponsor, the project manager, the project team, the end users, and the vendors.

According to a report by the Project Management Institute (PMI), IT projects face unique challenges due to the rapidly changing nature of technology and the need to balance innovation with risk management. Effective project management is critical to ensuring that IT projects are completed on time, within budget, and with the desired quality. By applying best practices in project management, IT professionals can help ensure the success of their projects (PMI, 2013).

IT projects can have various benefits for an organization, such as improving efficiency, productivity, customer satisfaction, innovation, or competitiveness. However, IT projects also face many challenges and risks, such as changing requirements, technical issues, resource constraints, stakeholder conflicts, or security threats. Therefore, IT projects need to be carefully planned, executed, monitored and controlled to ensure their success and alignment with the organization's strategic objectives.

2.2.2 Project Management

Project management refers to the planning, execution, and monitoring of projects to achieve specific goals and objectives within a set timeframe and budget. It involves a wide range of skills and knowledge, including project planning, risk management, stakeholder management, communication, and team management. According to the Project Management Institute (PMI), effective project management is essential for achieving project success, and it is a key driver of business results.

Project management is a critical discipline that plays a pivotal role in the successful execution of projects across various industries. It encompasses a set of principles, tools, and techniques aimed at planning, organizing, and controlling resources to achieve specific project objectives. Effective project management ensures the efficient allocation of resources, timely completion of tasks, and attainment of desired outcomes. Key elements of project management include defining project scope, identifying deliverables, creating work breakdown structures, establishing realistic

timelines, allocating budgets, and managing risks. By employing robust project management practices, organizations can enhance productivity, reduce costs, mitigate risks, and improve overall project performance. Research indicates that the adoption of project management methodologies, such as Agile and Waterfall, leads to higher project success rates and increased stakeholder satisfaction (Smith & Duggan, 2019; Kerzner, 2017). Therefore, project management serves as a crucial discipline in facilitating the achievement of organizational goals and ensuring project success.

Effective project management requires strong communication and stakeholder management skills. Project managers must be able to communicate project goals, objectives, and progress to stakeholders effectively, including sponsors, clients, team members, and other relevant parties. They must also be able to manage stakeholder expectations and resolve conflicts effectively. By establishing clear lines of communication and effectively managing stakeholder relationships, project managers can ensure that all parties are aligned and working towards a common goal.

Another important aspect of project management is risk management. According to Wysocki (2014), effective risk management is critical for project success, as it enables project managers to identify potential risks and develop strategies to mitigate them. Risk management involves identifying potential risks, assessing their likelihood and impact, developing a risk response plan, and monitoring and controlling risks throughout the project lifecycle. By effectively managing risks, project managers can minimize the impact of unforeseen events on project outcomes and ensure that the project stays on track.

Project management involves a wide range of processes including initiating, planning, executing, monitoring and controlling, and closing. According to the Project Management Institute (PMI), these processes are grouped into five process groups, each with a distinct set of activities and outcomes. These process groups form the core of project management and are critical for ensuring project success (PMI, 2013).

The first process group is the initiating process group, which involves defining the project scope, identifying stakeholders, and developing a business case for the project. During this process group, project managers work with stakeholders to determine project goals, objectives, and deliverables, and establish the overall project vision. By effectively initiating the project, project managers can ensure that the project is aligned with organizational goals and has the necessary resources and support to succeed.

The second process group is the planning process group, which involves developing a comprehensive project plan that outlines project scope, timelines, budgets, and resource requirements. During this process group, project managers work with stakeholders to develop a detailed project plan that guides project execution and ensures that project goals and objectives are met. By effectively planning the project, project managers can ensure that project resources are allocated effectively, risks are identified and mitigated, and project quality is maintained.

The third process group is the executing process group, which involves the actual implementation of the project plan. During this process group, project managers work with project teams to carry out project tasks, monitor progress, and resolve issues as they arise. By effectively executing the project plan, project managers can ensure that project tasks are completed on time and within budget, and that project quality is maintained.

The fourth process group is the monitoring and controlling process group, which involves monitoring project progress, identifying variances from the project plan, and implementing corrective actions as necessary. During this process group, project managers track project performance against project goals, identify potential issues and risks, and implement strategies to mitigate them. By effectively monitoring and controlling the project, project managers can ensure that project goals are achieved, and that project quality, scope, and schedule are maintained.

The fifth and final process group is the closing process group, which involves wrapping up the project, documenting project outcomes, and handing over the project deliverables to stakeholders. During this process group, project managers work with project teams to ensure that all project activities are completed, project goals are achieved, and project deliverables are of acceptable quality. By effectively closing the project, project managers can ensure that project outcomes are documented and communicated to stakeholders, and that project lessons learned are captured and applied to future projects.

One of the most widely used project management frameworks is the Project Management Body of Knowledge (PMBOK) developed by the PMI. The PMBOK provides a standard set of guidelines, terminology, and best practices for managing projects across different industries and sectors. It includes 10 knowledge areas, such as scope management, time management, cost management, and quality management, as well as five process groups, including initiating, planning, executing, monitoring and controlling, and closing. By following the PMBOK guidelines, project managers can ensure that their projects are well-planned, well-executed, and well-controlled.

2.2.2.1 The Ten Knowledge areas of Project Management

Project management is a complex process that involves various knowledge areas. The PMBOK Guide defines the ten knowledge areas of project management are integration management, scope management, time management, cost management, quality management, human resource management, communications management, risk management, procurement management, and stakeholder management. These knowledge areas are interdependent and critical to the success of a project. The purpose of this essay is to provide a brief overview of each knowledge area. (PMI, 2013).

Integration management is the coordination and integration of all the project management knowledge areas. It includes the development of project charters, project plans, and project execution. It is the responsibility of the project manager to ensure that all the components of the project work together to achieve the project goals.

Scope management involves defining, planning, and controlling the project scope. It includes identifying the project requirements, creating a scope statement, and developing a work breakdown structure. The purpose of scope management is to ensure that the project is focused on the right objectives and that the project team is delivering what was agreed upon.

Time management includes the development of project schedules, monitoring progress, and controlling project timelines. It includes the identification of activities, sequencing of activities, estimation of activity duration, and development of a project schedule. Time management is critical to ensure that the project is delivered on time and within budget.

Cost management includes the planning, estimation, and control of project costs. It includes the identification of project costs, the development of a cost baseline, and the monitoring of project costs. Cost management is important to ensure that the project is delivered within the budget constraints.

Quality management is concerned with the identification and management of quality requirements. It includes the development of quality standards, quality control, and quality assurance. Quality management is essential to ensure that the project meets the requirements and expectations of stakeholders.

Human resource management involves the management of project team members. It includes the development of a project organization chart, the identification of team roles and responsibilities, and the management of team performance. Human resource management is critical to ensure that the project team is working efficiently and effectively.

Communications management includes the development of a communications plan and the management of project communications. It includes the identification of project stakeholders, the development of communication requirements, and the management of project communications. Communications management is critical to ensure that all stakeholders are informed about the project status.

Risk management includes the identification, analysis, and management of project risks. It includes the development of risk management plans, risk identification, and risk response planning. Risk management is important to ensure that potential risks are identified and managed to avoid project failures.

Procurement management is concerned with the acquisition of goods and services needed to complete the project. It includes the development of procurement plans, the identification of procurement requirements, and the management of procurement processes. Procurement management is essential to ensure that the project has the necessary resources to complete the project.

Stakeholder management includes the management of project stakeholders. It includes the identification of stakeholders, the development of a stakeholder management plan, and the management of stakeholder expectations. Stakeholder management is important to ensure that all stakeholders are engaged and involved in the project.

2.2.2.2 What are the challenges faced by IT project managers?

In today's fast-paced and technology-driven business environment, IT project managers play a crucial role in ensuring the successful execution of projects. However, they encounter various challenges throughout the project lifecycle that can hinder project progress and impact its overall success. This research aims to highlight and analyze some of the key challenges faced by IT project managers, providing insights into the complexities they face and the strategies they employ to overcome these obstacles.

Scope Management: Effective scope management is a critical challenge faced by IT project managers. As technology evolves rapidly and requirements change, defining and controlling project scope becomes increasingly complex. Poor scope management can lead to scope creep, where additional requirements are introduced during the project, resulting in project delays, budget overruns, and compromised quality. IT project managers must employ robust techniques, such as conducting thorough stakeholder analysis, clearly defining project scope, and implementing change control processes to mitigate this challenge (Smith, 2018).

Resource Allocation: IT projects often require diverse skill sets and expertise from cross-functional teams. However, securing and managing appropriate resources is a significant challenge faced by project managers. Limited availability of skilled resources, conflicts in resource allocation, and competing priorities across projects can lead to resource shortages or mismatches. To address this challenge, project managers must employ effective resource planning, identify potential bottlenecks, and collaborate closely with stakeholders to secure necessary resources (Lewis, 2020).

Communication and Collaboration: Successful project delivery relies on effective communication and collaboration among team members, stakeholders, and project sponsors. However, IT project managers often face challenges in ensuring clear and timely communication across dispersed teams, dealing with conflicting interests, managing diverse stakeholder expectations, and maintaining alignment with project objectives. Implementing robust communication plans, utilizing appropriate collaboration tools, and fostering a culture of open and transparent communication are essential strategies to overcome these challenges (Turner & Müller, 2021).

Risk Management: IT projects are inherently exposed to various risks, including technological uncertainties, vendor dependencies, security threats, and regulatory compliance issues. Identifying, assessing, and mitigating these risks pose significant challenges to project managers. Implementing a proactive risk management approach that includes risk identification, analysis, mitigation, and contingency planning is crucial for successful risk management. IT project

managers must stay updated with industry best practices and leverage risk management frameworks to effectively handle these challenges (Kendrick, 2015).

IT project managers face a myriad of challenges that require them to possess a diverse skill set and employ effective strategies to ensure project success. By addressing challenges such as scope management, resource allocation, communication and collaboration, and risk management, project managers can navigate the complexities of IT projects and drive them towards their desired outcomes. Understanding these challenges and implementing appropriate mitigation strategies can empower project managers to lead successful IT projects in an ever-evolving technological landscape.

2.3 Project Schedule

A project schedule is a critical tool in project management that outlines the timeline for project activities and identifies the dependencies and critical path. According to the Project Management Institute's (PMI) A Guide to the Project Management Body of Knowledge (PMBOK Guide), a project schedule includes activities, durations, dependencies, constraints, and other relevant information. The project schedule is an essential part of the project management plan, and it should be developed with input from all stakeholders and updated regularly to reflect any changes in the project's scope or timeline.

Developing a reliable project schedule requires careful planning and consideration of various factors, including resource availability, risk, and uncertainty. A well-developed project schedule enables project managers to proactively identify and address potential delays or conflicts, as well as efficiently manage project resources. project schedule holds significant importance in project planning and management, underscoring the need to monitor and track progress against the schedule throughout the project lifecycle (Cleland and Ireland, 2006). By adhering to industry best practices and making the most of available resources, project managers can ensure the timely completion of projects within the allocated timeline and budget, while simultaneously meeting the project's objectives and stakeholders' expectations (Wysocki, 2014).

2.4 Empirical studies of Schedule Delay in IT Projects

Empirical studies have shown that schedule delays are a common problem in IT projects because of different factors like inadequate planning and estimation, scope creep, and deficient comprehension of the project's scope. In fact, a study by Standish Group International found that only 29% of IT projects were completed on time and within budget (Standish Group International, 2015). This is a significant concern for project managers, as delays can result in additional costs, missed deadlines, and decreased customer satisfaction.

One of the main contributors to schedule delays in IT projects is inadequate planning and estimation. When project managers fail to accurately assess the time and resources needed for each task, there is a heightened risk of falling behind schedule. Moreover, a deficient comprehension of

the project's scope can worsen the situation by allowing scope creep and introducing additional work that was not initially considered. According to Meredith and Mantel (2012), inadequate planning, project definition, scope definition, and deliverable definition often result in inaccurate estimates of project schedules and costs. To address these challenges effectively and ensure timely and budget-friendly completion of IT projects, it is crucial to prioritize proper planning and estimation (Meredith & Mantel, 2012).

Furthermore, there is substantial empirical evidence indicating that the implementation of agile methodologies can effectively address schedule delays encountered in IT projects. Agile methodologies encompass iterative and incremental development processes, thereby fostering enhanced flexibility and adaptability in project planning and execution. In a comprehensive study conducted by Ambler and Lines (2015), it was revealed that agile projects consistently achieved higher rates of success compared to traditional projects, displaying a significant reduction in schedule delays and cost overruns. Consequently, it is strongly recommended that project managers seriously contemplate the integration of agile methodologies into their practices to enhance overall project outcomes (Ambler & Lines, 2015).

In conclusion, empirical studies have identified several factors that contribute to schedule delays in IT projects, including poor planning and estimation, scope creep, and traditional project management methodologies. Project managers can mitigate these issues by investing more time and effort in project planning, implementing effective change control processes, and considering the use of agile methodologies. By addressing these issues, project managers can increase the likelihood of completing IT projects on time and within budget.

2.5 Project Delay

Project delay is a common issue in project management that can occur due to various reasons, including poor planning, inaccurate estimation, unexpected risks, scope creep, resource constraints, and communication failures. According to Project Management Institute (PMI), Project delays can result in missed deadlines, increased costs, and decreased stakeholder satisfaction. Therefore, project managers must identify potential delays early on, develop a contingency plan, and communicate with stakeholders to ensure that the project stays on track.

Project delays in IT projects are a matter of great concern, primarily due to the dynamic nature of the technology industry. This industry is constantly evolving, necessitating agile project management approaches. Furthermore, IT projects tend to be highly complex, demanding a substantial investment of time and resources. According to Schwalbe (2015) delays are particularly common in IT projects due to the high level of technological complexity and the ever-changing technology environments. Therefore, project managers must adopt an iterative and flexible approach that enables them to adjust the project plan as necessary and promptly address emerging challenges. To prevent project delays, effective communication with stakeholders and team members is crucial. This ensures that everyone is well-informed and can collaborate efficiently to mitigate potential setbacks (Schwalbe, 2015).

2.5.1 Types of delay

Project delays can occur for various reasons, and it is essential to understand the different types of project delays to mitigate their impact. some common types of project delays:

External Delays: External delays occur when factors outside the control of the project team affect the project's progress. These factors may include delays in obtaining permits, changes in regulations, natural disasters, and external market conditions. These delays can be challenging to manage, and project managers must have contingency plans in place to mitigate their impact.

Internal Delays: Internal delays are caused by factors within the control of the project team, such as poor planning, lack of resources, and miscommunication. These delays can be prevented through effective project management, proper resource allocation, and clear communication among project team members.

Technical Delays: Technical delays occur when the project team encounters technical issues that hinder progress. These issues may include hardware or software failures, problems with equipment or tools, or unexpected design changes. Technical delays can be mitigated through careful planning, proper testing, and contingency plans in place for technical issues.

Financial Delays: Financial delays occur when the project team faces budgetary constraints or unexpected expenses that impact the project's progress. These delays can be prevented through effective financial planning and management, including accurate cost estimation, regular budget monitoring, and contingency planning for unforeseen expenses.

Another method of classifying project delays can be excusable or non-excusable. It is crucial to understand the factors that contribute to these delays and determine whether they can be considered excusable or non-excusable. According to Smith (2019), excusable delays are typically caused by unforeseen circumstances beyond the control of the project team, such as extreme weather events or labor strikes. In contrast, non-excusable delays arise from factors within the control of the project team, such as poor planning, inadequate resource allocation, or ineffective communication (Jones, 2020). Identifying and categorizing project delays as excusable or non-excusable is essential for organizations to effectively manage risks, allocate resources, and mitigate potential negative impacts on project outcomes.

Excusable Delays: Excusable delays are events or conditions that are beyond the control of the contractor and, therefore, do not result in penalties or liability. Examples of excusable delays:

- **Force Majeure:** Natural disasters, acts of terrorism, or other events beyond the control of the contractor.
- **Delays caused by the Owner:** Delays due to changes in requirements or scope of work initiated by the owner.

- **Unforeseeable Delays:** Delays caused by unforeseen events, such as labor disputes or regulatory changes.

Non-Excusable Delays: Non-excusable delays are events or conditions that result from the contractor's actions or inactions and can result in penalties or liability. Examples of non-excusable delays:

- **Inadequate Planning:** Delays resulting from poor project planning, including inadequate resource allocation or failure to identify risks.
- **Poor Communication:** Delays caused by poor communication among project team members or with stakeholders.
- **Delays in Procurement:** Delays resulting from problems with procurement, including delays in obtaining necessary equipment, hardware or software.

Understanding the different types of project delays can help project managers prepare for and mitigate their impact. By identifying the cause of delays, project managers can develop appropriate strategies to keep projects on track and achieve project goals within the set timeline.

2.5.2 Causes of delay

There are several causes of project delays that can impact project schedule, cost, and quality. One common cause of project delay is poor project planning and estimation. This can include inadequate planning, a lack of understanding of project requirements, poor scope definition, and insufficient resource allocation. Inadequate planning can lead to a lack of clear direction and objectives, which can result in scope creep, cost overruns, and schedule delays. According Larson and Gray (2021), The most common reason for schedule overruns is poor project planning and estimation. Understanding the causes of project delay is crucial for effective project management, as it enables project managers to develop proactive strategies to prevent delays from occurring.

Another cause of project delay is resource constraints. This can include a lack of available personnel, inadequate equipment or materials, or insufficient financial resources. Resource constraints can lead to delays in project execution, increased costs, and decreased quality. According to Oberlender (2014), A lack of resources, such as labor or materials, can cause delays or even stop a project in its tracks. Addressing resource constraints requires effective resource management, proactive planning, and effective communication between project stakeholders.

Other causes of project delay can include changes in project scope, unforeseen events, stakeholder conflicts, and legal or regulatory requirements. Unforeseen events, such as natural disasters or unexpected market changes, can have a significant impact on project schedules and costs. Changes in project scope can result in additional work and resources required, which can lead to delays and increased costs. Conflicts among project stakeholders can also cause delays, as it can result in

disagreements about project objectives and priorities. Understanding the various causes of project delay is critical for effective project management, as it enables project managers to develop proactive strategies to mitigate the impact of delays on project outcomes.

2.5.3 Effects/consequences of delay

Delays in project execution can have significant consequences, impacting project schedule, cost, and quality. One of the primary effects of project delay is increased costs. According to Kerzner (2017), Delays can result in increased costs due to inflation, escalating labor costs, and increased material costs. Delayed projects can result in the need for additional resources, such as overtime pay and additional materials, leading to increased project costs. This can have a significant impact on project profitability and the overall success of the project.

Another consequence of project delay is decreased quality. Delays can result in rushed project execution, inadequate testing, and rushed debugging, leading to reduced project quality. According to Oberlender (2014), Project delays can result in rushed work, inadequate testing, and inadequate debugging, leading to poor quality work and unsatisfied customers. This can result in additional costs to fix defects and rework, which can further impact project schedule and cost.

Project delays can also result in schedule slippages, leading to missed deadlines and missed opportunities. According to Meredith and Mantel Jr. (2012), Schedule slippages can cause a missed market opportunity, loss of customer confidence, or even project cancellation. This can result in significant financial losses and damage to the reputation of the project team or organization.

Addressing the consequences of project delay requires effective project management, proactive risk management, and effective communication and collaboration between project stakeholders. It is crucial for project managers to identify the potential consequences of project delay and develop proactive strategies to mitigate their impact on project outcomes.

2.5.4 Methods of minimization of delay

Minimizing project delay is crucial to ensure project success and profitability. There are several methods that can be used to minimize project delay. One effective method is to use an agile project management approach. According to Ken (2013), Agile project management allows for flexibility and adaptability, enabling teams to quickly respond to changes in project requirements and minimize delays. By using an iterative approach, teams can continuously evaluate and adjust project scope and requirements, reducing the risk of delay.

Another method to minimize project delay is to implement effective risk management strategies. According to Conrow (2019), Effective risk management involves identifying potential risks, developing proactive strategies to mitigate them, and monitoring risks throughout the project lifecycle. By identifying potential risks and developing proactive strategies to address them, project teams can minimize the impact of risks on project schedule and cost.

Effective communication and collaboration between project stakeholders can also help minimize project delay. According to Wysocki (2013), Effective communication and collaboration between project stakeholders can help ensure project requirements are clearly defined and understood, reducing the risk of delays due to miscommunication or misunderstandings. By establishing clear lines of communication and ensuring all stakeholders have a shared understanding of project goals and requirements, teams can minimize the risk of delay.

Other methods of minimizing project delay include effective project planning and scheduling, managing project resources effectively, and providing adequate training and support to project team members. By using a combination of these methods, project teams can effectively minimize the risk of project delay and ensure project success.

2.6 Conceptual framework

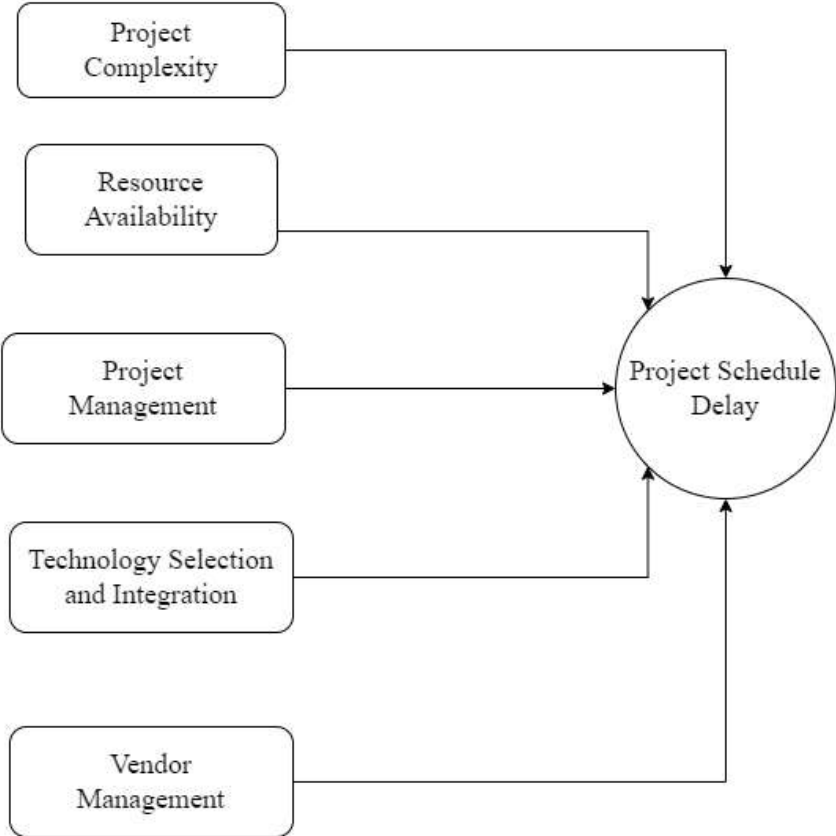
Independent Variables: The independent variables in this conceptual framework are factors that contribute to the delay of IT projects' schedule. These variables include:

- **Project Complexity:** The complexity of an IT project can influence the schedule delay. Factors such as the scope of the project, the number of stakeholders involved, and the level of technological innovation can contribute to project complexity.
- **Resource Availability:** Adequate availability of resources, including skilled IT professionals, equipment, and budget, plays a vital role in project execution. Resource constraints or shortages can lead to schedule delays.
- **Project Management:** Effective project management practices, including project planning, scheduling, and monitoring, are crucial for timely project completion. Factors such as project leadership, communication, risk management, and stakeholder engagement can impact project schedules.
- **Technology Selection and Integration:** The selection and integration of appropriate technologies and systems in IT projects can influence the project timeline. Compatibility issues, technical challenges, and integration complexities can cause delays.
- **Vendor Management:** The management of external vendors and suppliers involved in IT projects can affect project timelines. Issues related to vendor selection, contract management, and coordination with vendors may lead to schedule delays.

Dependent Variable: The dependent variable in this conceptual framework is Schedule Delay. It refers to the amount of time by which the project schedule is delayed beyond the planned completion date.

Overall, this conceptual framework helps to identify the factors that contribute to schedule delay in IT projects. By understanding these factors, it becomes possible to develop effective strategies to mitigate schedule delays and ensure the successful completion of IT projects.

Fig 2.1 Conceptual framework



CHAPTER THREE: Research Methodology

The study adopted a quantitative research approach. The quantitative data was obtained from a survey questionnaire administered to a sample of IT project managers and team members at Commercial Bank of Ethiopia. The survey measured the frequency and severity of schedule delay factors, as well as the perceived impact of these factors on project success. The questioner had few open-ended questions at the last portion.

3.1 Research Design

The research design used a quantitative research method. The study was aimed to identify the causes of schedule delays in IT projects in the Commercial Bank of Ethiopia and propose practical solutions to mitigate these causes. To achieve this, the study used a some of data collection methods, including surveys, and document analysis.

The first step in the research design was to develop a survey instrument to collect quantitative data from a sample of IT project managers and team members. The survey included questions on the causes of schedule delays, the frequency and duration of delays, and the impact of delays on project outcomes. Additionally, the study reviewed project reports, schedules, and other relevant documents to gather additional quantitative data on schedule delays. By using this quantitative research approach, the study aimed to provide a comprehensive understanding of the causes of schedule delays in IT projects in the Commercial Bank of Ethiopia and proposed practical solutions to mitigate these causes.

3.2 Data Type and Source

The research used a quantitative research approach, Quantitative data was collected through surveys or questionnaires administered to project managers, team leaders, and other stakeholders involved in IT projects at the Commercial Bank of Ethiopia. The survey data can include information such as project timelines, budgets, and the extent of schedule delays experienced in past IT projects.

The primary data source for this research was the Commercial Bank of Ethiopia, specifically the IT department and the stakeholders involved in IT projects. Additionally, relevant documents and reports related to IT projects at the bank served as secondary sources of data for the study.

3.4 Sampling procedure

To select participants for the study, the following steps was taken:

Defining the sampling frame: This involves identifying the population of interest, which in this case is the project managers, team leaders, and other stakeholders involved in IT projects at the Commercial Bank of Ethiopia.

Identifying the criteria for participant selection: This involves defining the characteristics that participants must have to be eligible for the study. For example, participants may need to have experience managing or working on IT projects at the bank.

Identifying potential participants: This involves identifying individuals who meet the criteria for participant selection. This can be done through internal communication within the bank or by consulting with relevant stakeholders.

Inviting participants to participate in the study: Once potential participants have been identified, they can be invited to participate in the study through email, phone calls, or other means of communication.

Obtaining informed consent: Before participants can participate in the study, they must provide informed consent. This involves explaining the purpose and nature of the study, as well as the potential risks and benefits of participation.

3.5 Strategies for data collection

Surveys: Develop a survey instrument to collect quantitative data from a sample of IT project managers and team members in the Commercial Bank of Ethiopia. The survey includes questions on the causes of schedule delays, the frequency and duration of delays, and the impact of delays on project outcomes. The survey could be administered online or in-person, depending on the preferences of the participants.

Document analysis: Review project reports, schedules, and other relevant documents to gather additional quantitative data on schedule delays. This included analyzing the frequency and duration of delays, the causes of delays identified in project reports, and any other relevant information that could shed light on the causes of schedule delays.

3.6 Data collection method and tools

The data collection methods include:

A questionnaire survey was distributed to 50 project managers and team members involved in IT projects at Commercial Bank of Ethiopia. The questionnaire consists of closed-ended questions that measure the frequency and severity of various factors that contribute to schedule delay, such as scope changes, resource constraints, communication issues, technical problems, etc. The questionnaire also collects demographic information such as age, gender, education level, and years of experience in IT projects.

3.7 Data Analysis and Presentation

According to Walliman (2011), there are clear differences in how to handle quantitative and qualitative data. While statistics can easily analyze quantitative data using various tests, there is

no such precise science developed for analyzing qualitative data due to the more ambiguous nature of the data. In the analysis of project implementation delay causes and assessing the effectiveness of project management, techniques such as percentage composition, Mean and Standard deviation, and Relative Importance Index was utilized

3.8 Ethical Considerations

Ethical considerations such as informed consent, confidentiality, and anonymity was taken into account when conducting this study. Participants was informed about the purpose of the study, and their consent was sought before their participation. The data collected was kept confidential, and participants' identities is not be disclosed in the study report.

3.9 Expected outcomes

The expected outcomes of this study are:

- A comprehensive understanding of the causes of schedule delay in IT projects at Commercial Bank of Ethiopia
- A critical evaluation of how schedule delay affects project performance and stakeholder expectations
- A set of practical recommendations for improving project management practices and reducing schedule risks

The significance of this study is that it provides valuable insights into one of the most common and challenging problems faced by IT project managers in developing countries. It also contributed to the existing literature on IT project management by providing empirical evidence from a specific organizational context. Furthermore, it benefits Commercial Bank of Ethiopia by offering suggestions for enhancing its IT project delivery capability and competitiveness.

The research methodology of this study is based on a quantitative research approach. The main purpose of this study is to assess the causes of schedule delay in IT projects, using the case of Commercial Bank of Ethiopia as an example.

CHAPTER FOUR: RESULT AND DISCUSSION

This chapter focuses on the presentation of the data obtained from the respondents through a questionnaire and document review. The data was collected from a random sample of individuals working in IT projects, with the aim of gathering relevant information. The questionnaire used in this study consisted of thirty-five sets of questions that were specifically designed to explore the potential causes of delays in IT projects. The questions were carefully crafted to cover various aspects and factors that could contribute to project delays, providing a comprehensive understanding of the issue at hand. By utilizing this questionnaire, the study sought to gather valuable insights into the underlying causes of delays in IT projects and shed light on the factors that may impact project timelines.

4.1. Respondents Characteristics

The demographic information collected in this study encompasses various factors such as the respondents' gender, age, education level, years of experience in IT projects, and position within their respective organizations. Based on this, demographic characteristics are presented in the following sections.

Gender Distribution among Study Participants

In the study conducted, a total of 51 participants were included. Out of these, 37 individuals, accounting for 72.5% of the sample, were male. The remaining 14 participants, making up 27.5% of the sample, were female. This information is summarized in Table 4.1.

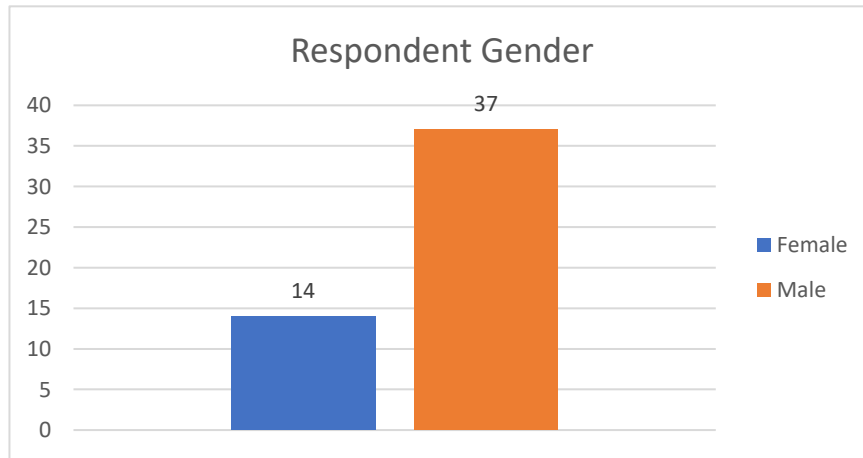
Analyzing the overall gender distribution among the participants, it is evident that there is a higher representation of males, comprising 72.5% of the total participants. In contrast, females constitute 27.5% of the participants in this study. These findings highlight the gender imbalance within the sample.

Table 4.1 Respondents Gender Characteristics

Respondent Gender	Count of Respondent Gender	Respondent Gender in percentage
Female	14	27.5%
Male	37	72.5%
Total	51	100%

Source: Own survey, 2023.

Fig 4.1 Respondents Gender Characteristics



Source: Own survey, 2023.

Age Distribution among Study Participants

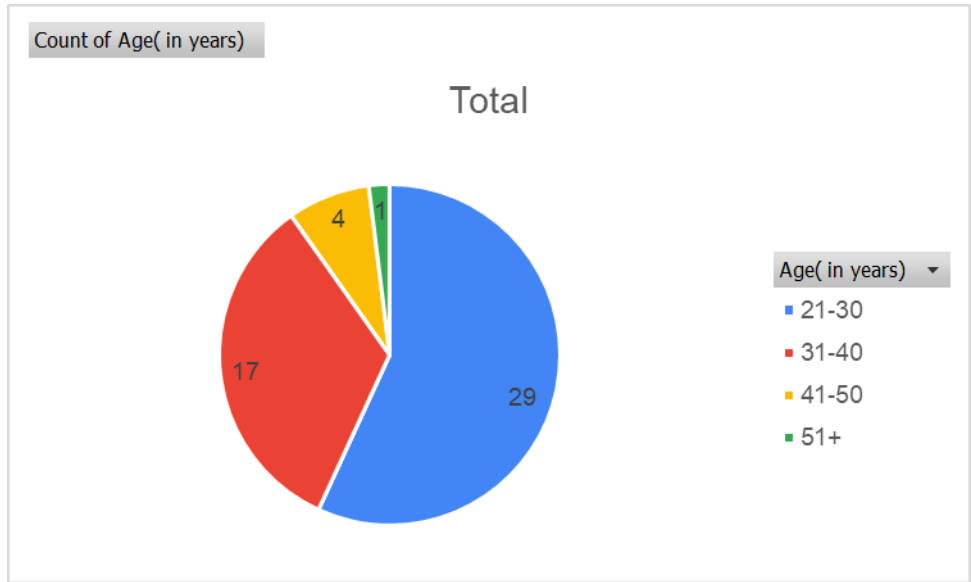
As depicted in table 4.2 the age distribution in this study indicates that the majority of participants (56.86%) are between the ages of 20-30. The age group of 31-40 constitutes a significant portion (33.3%) of the sample. And the age range of 41-50 is represented by a smaller number of participants (7.84%). Lastly, the age range of 50+ is represented by a smaller number of participants (1.96%).

Table 4.2 Age of Respondents

Age (in years)	Count of Age (in years)	percentage
21-30	29	56.86%
31-40	17	33.33%
41-50	4	7.84%
51+	1	1.96%
Total	51	

Source: Own survey, 2023.

Fig 4.2 Age of Respondents using pie chart



Source: Own survey, 2023.

Educational Background among Study Participants

According to Table 4.3, a significant majority of the participants, accounting for 72.55% of the total, hold a Bachelor's degree (BA/BSC). This suggests that the majority of respondents have completed undergraduate education in their respective fields. On the other hand, a smaller proportion of participants, specifically 27.45%, have attained a Master's degree. It is worth noting that none of the participants in the study reported having a Doctorate (PhD) degree or a Technical and Vocational Education and Training (TVET) qualification. These results shed light on the educational background of the participants and provide insight into the distribution of different degree levels among them.

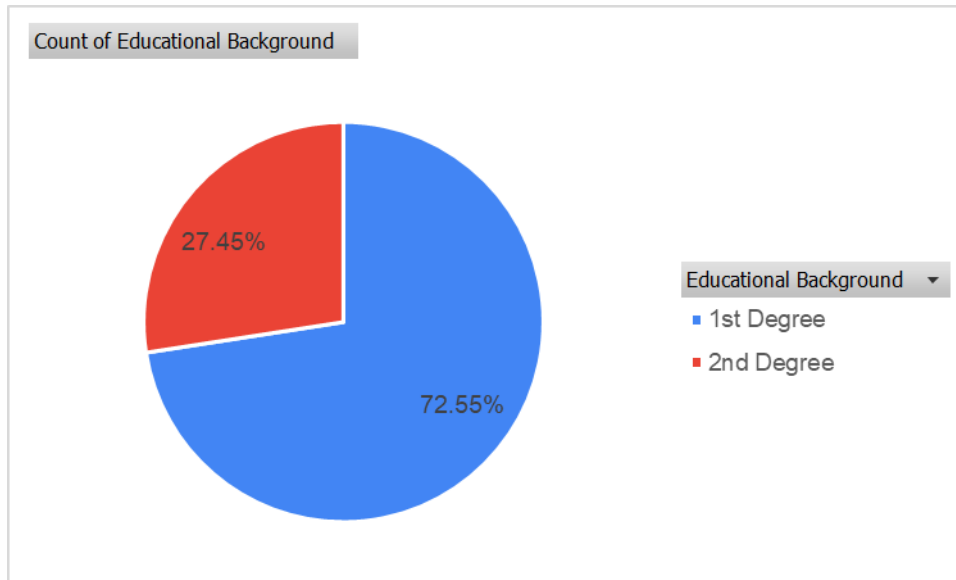
Table 4.3 Educational Background of Respondents

Educational Background	Count of Educational Background	percentage
TVET/ Diploma	0	0
1st Degree	37	72.55%
2nd Degree	14	27.45%

PHD	0	0
Total	51	

Source: Own survey, 2023.

Fig 4.3 Educational Background of Respondents using pie chart



Source: Own survey, 2023.

Experience in IT field among Study Participants

Table 4.4 presents the distribution of respondents based on their years of experience in the field of IT. A notable finding is that the largest proportion of participants, accounting for 54.9%, reported having worked in IT for a period ranging from 1 to 5 years. This suggests that a significant portion of the respondents are relatively in this range.

Furthermore, 31.37% of the participants indicated having 6 to 10 years of experience in IT, indicating a moderately experienced group. It is worth noting that this segment represents a substantial portion of the sample.

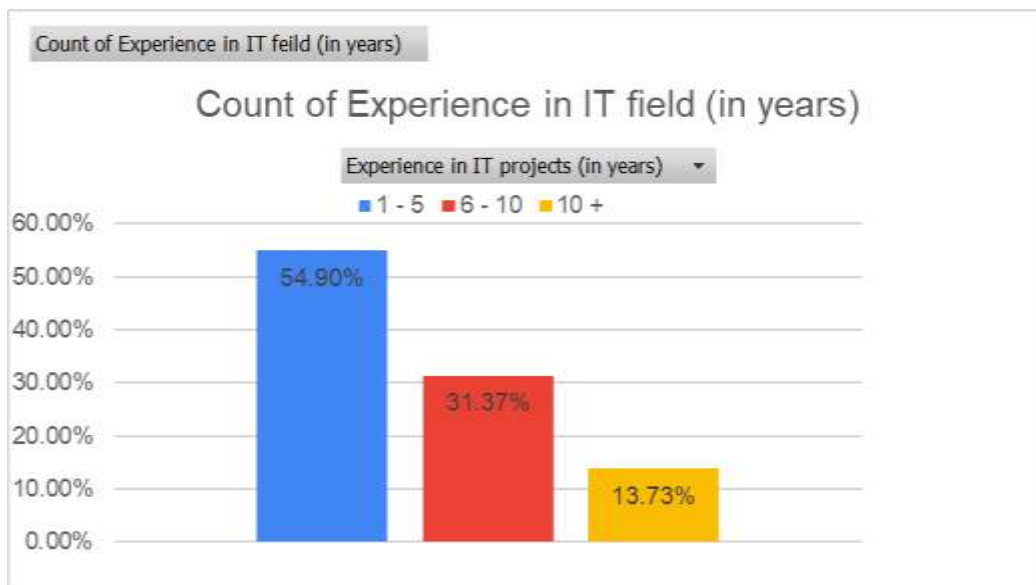
Lastly, 13.73% of the respondents reported having more than 10 years of experience in the IT industry. This subset represents a smaller proportion of the sample, indicating a relatively experienced group of participants.

Table 4.4 Experience in IT field of Respondents

Experience in IT field (in years)	Count of participants	Percentage
1 - 5	28	54.90%
6 - 10	16	31.37%
10 +	7	13.73%
Total	51	

Source: Own survey, 2023.

Fig 4.4 Experience in IT field among Study Participants using bar chart



Source: Own survey, 2023.

Job position among Study Participants

The distribution of participants' positions within the organization is illustrated in Table 4.5. The largest group among the participants is comprised of individuals working as IS Officers, accounting for 52.94% of the total sample. Following closely behind are the system analysts, representing 22.8% of the participants. The team leader position holds a significant portion of the sample, constituting 9.8% of the participants. Supervisors make up 7.84% of the sample, while the remaining portion of the participants, 6.9%, holds the position of Project Manager. These findings

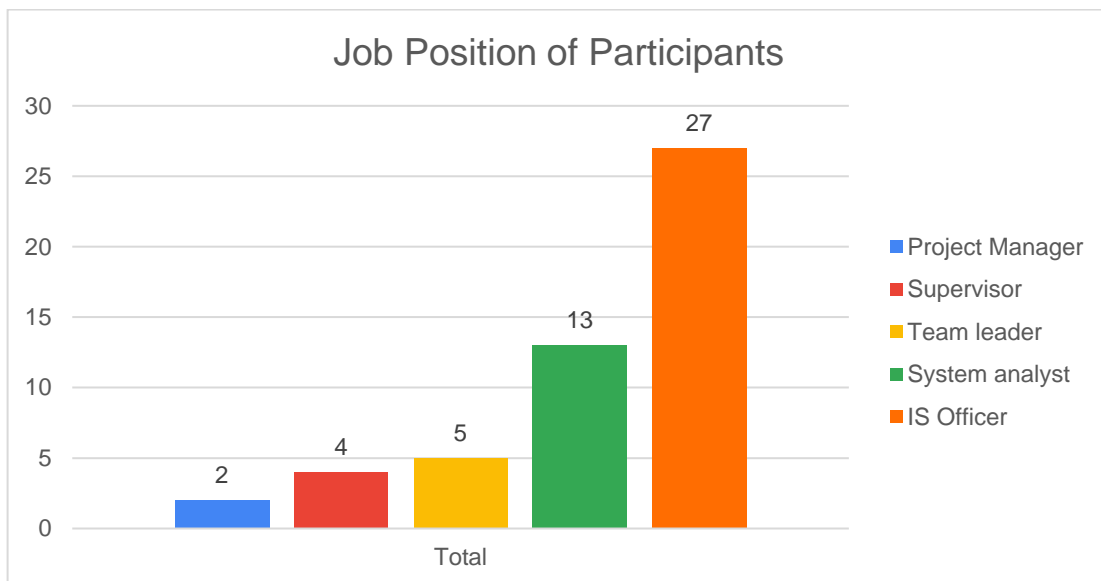
highlight the varied roles and responsibilities within the organization among the study participants, providing insight into the distribution of different positions and the composition of the sample.

Table 4.5 Job position of Study Participants

Job Designation	Job position of participant in number	Job position of participant percentage
Project Manager	2	3.92%
Supervisor	4	7.84%
Team leader	5	9.80%
System analyst	13	25.49%
IS Officer	27	52.94%

Source: Own survey, 2023.

Fig 4.5 Job position of Study Participants in bar chart



Source: Own survey, 2023.

4.2 Organization performance on IT projects

In recent years, the Commercial Bank of Ethiopia (CBE) has undertaken various IT projects to modernize its operations and enhance customer services. However, like many organizations, the bank has encountered delays in the implementation of some of these initiatives. These delays can be attributed to a range of factors, including technical challenges, resource constraints, regulatory compliance requirements, and the complexity of integrating new systems with existing infrastructure. Despite these setbacks, the CBE remains committed to its digital transformation journey and continues to work diligently to overcome obstacles and deliver robust IT solutions to its customers. Some examples are listed on Table 4.7

Table 4.6 sample IT projects that have a delay.

Project	Planned Date	Actual Date	Delay	Progress
CBE Birr Project	2018	2019	1 year	Completed
Core Banking System (CBS) Upgrade	2020	2021	1 year	On track
Digital Banking Platform	2022	2023	1 year	In progress
Mobile Banking App(Infinity)	2023	2024	1 year	On track
Internet Banking Platform	2020	2021	1 year	Completed
IBM Tivoli project	2022	2023	10 months	In progress

Source: CBE PMO, 2023.

4.3 Analysis of Respondent Answer Frequency

The analysis of respondents answer frequency provides valuable insights into their patterns of response. This examination of data allows for a comprehensive understanding of the distribution and frequency of responses provided by the participants. The following table, Table 4.6, presents a detailed overview of the answer frequency, facilitating further exploration and discussion of the findings.

Table 4.7: Distribution of Respondents Answer Frequency

Causes of delay		Frequency of respondent choice				
		Very Low (1)	Low (2)	Moderate (3)	High (4)	Very High (5)
1.Lack of stakeholder involvement	Severity/ Effect	1	4	8	31	7

	Frequency	1	20	21	7	2
2.Poor project planning	Severity/ Effect	0	1	6	17	27
	Frequency	5	19	17	9	1
3.Insufficient resources	Severity/ Effect	0	3	10	34	4
	Frequency	0	12	22	17	0
4.Technical difficulties	Severity/ Effect	0	2	16	31	2
	Frequency	1	2	13	15	20
5.Delay in decision making	Severity/ Effect	0	1	8	35	7
	Frequency	0	3	13	30	5
6.Lack of effective communication	Severity/ Effect	0	2	8	27	14
	Frequency	0	16	23	10	2
7.changes in project scope	Severity/ Effect	0	2	9	35	5
	Frequency	0	15	24	11	1
8.Suspension of work	Severity/ Effect	0	2	9	36	4
	Frequency	3	10	15	23	0
9.Lack of vendor management	Severity/ Effect	0	2	9	35	5
	Frequency	1	26	16	8	0
10.project leadership	Severity/ Effect	0	3	5	23	20
	Frequency	6	21	14	8	2
11.project team experience	Severity/ Effect	0	3	8	33	7
	Frequency	0	7	12	20	12
12.Lack of project governance	Severity/ Effect	0	2	8	35	6

	Effect					
	Frequency	0	13	26	10	2
13.Design changes	Severity/ Effect	0	2	10	36	3
	Frequency	0	18	19	14	0
14.availability of resources	Severity/ Effect	1	4	18	21	7
	Frequency	2	9	19	20	1
15.Lack of change management	Severity/ Effect	0	4	9	32	6
	Frequency	2	4	14	23	8
16.size and complexity of IT projects	Severity/ Effect	0	3	12	27	9
	Frequency	1	4	8	22	16
17.project budgeting	Severity/ Effect	0	3	17	23	8
	Frequency	0	9	22	16	4
18.organisational culture and structure	Severity/ Effect	0	1	9	36	5
	Frequency	0	2	9	31	9
19.Lack of project documentation	Severity/Ef fect	0	4	23	18	6
	Frequency	2	5	6	11	27
20.project team motivation	Severity/ Effect	0	1	9	36	5
	Frequency	0	2	13	20	16
21.Poor communication and coordination with other parties	Severity/ Effect	0	2	5	35	9
	Frequency	1	14	23	11	2
22.Unrealistic enforced contract duration	Severity/ Effect	0	3	11	33	4
	Frequency	1	4	16	27	3

23.Unfavourable contract clauses	Severity/ Effect	0	5	19	25	2
	Frequency	2	24	20	5	0
24.Lack of experience of project managers	Severity/ Effect	0	3	3	20	25
	Frequency	13	23	9	4	2
25.Lack of experience of consultants	Severity/ Effect	0	3	4	38	6
	Frequency	7	28	13	1	2
26.Delay in performing inspection and testing	Severity/ Effect	0	2	11	32	6
	Frequency	1	5	20	22	3
27.Slow response to project manager inquiries	Severity/ Effect	0	2	7	37	5
	Frequency	0	4	18	27	2
28.Delay in mobilization	Severity/ Effect	0	4	21	25	1
	Frequency	0	5	19	27	0
29.Poor management and supervision	Severity/ Effect	0	4	15	26	6
	Frequency	0	16	20	14	1
30.Rework due to errors during adjusting variables/design	Severity/ Effect	0	2	17	26	6
	Frequency	0	9	16	25	1
31.Inadequate experience	Severity/ Effect	0	2	12	32	5
	Frequency	0	6	13	21	11
32.Under estimation of cost of the project	Severity/ Effect	0	6	20	23	2
	Frequency	0	13	25	11	2
33.Under estimation of complexity of the projects	Severity/ Effect	0	6	23	18	4

	Frequency	0	5	20	21	5
34.Delay in procurement and material delivery	Severity/ Effect	0	2	14	30	5
	Frequency	0	4	21	21	5
35.Shortage of equipment	Severity/ Effect	0	2	10	36	3
	Frequency	0	15	25	9	2

Source: Own survey, 2023.

4.4 Assessing the Severity of Causes of Delay in IT Projects: A Relative Importance Index (RII) Analysis of Respondent Answers

This subtopic dives into the analysis of respondent answers regarding the severity or effect of different causes of delay in IT projects. The analysis utilizes the Relative Importance Index (RII) methodology to assess and rank the causes based on their perceived severity or impact as reported by the participants. By employing RII, the study aims to provide a comprehensive understanding of the factors that significantly contribute to project delays and prioritize them accordingly.

The data obtained from the survey used a Likert scale range from 1 (very low) to 5 (very high) and the data analysis is determined to establish the relative importance of various factors that contribute to construction delays. Ranking of the attributes in terms of their criticality as perceived by the respondents was done by use of Relative Importance Index (RII). Bekele, B. (2018) used the RII method to determine the relative importance of the various causes of delays for construction projects. The same method is adopted in this study.

Analysis of data consists of the following:

- 1) Calculating the Relative Importance Index (RII)
- 2) Ranking of factors in each category based on the Relative Importance Index (RII)

$$RII = \frac{\sum W}{A * N}$$

Where,

RII is Relative Importance Index,

W = weight given to each factor by respondents (ranging from 1 to 5),

A = highest weight (i.e. 5),

N = total number of respondents.

The values of RII ranges from 0 to 1 (0 not inclusive); the higher the RII, the more important the cause of delay is. The RII value is ranked and the results are shown using tables and/or graphs. The RII is used to rank different causes. The RII then being classified based on the RII classification table as shown below in table 4.6.

Table 4.8 classification of RII

Scale	Level of Importance	RII
1	Not Important at all	$0.0 < RII \leq 0.2$
2	Slightly Important	$0.2 < RII \leq 0.4$
3	Moderately Important	$0.4 < RII \leq 0.6$
4	Important	$0.6 < RII \leq 0.8$
5	Highly Important	$0.8 < RII \leq 1.0$

Table 4.9: Relative Importance Index (RII) Analysis of Severity/Effect of Schedule Delay Factors in IT Projects

Causes of delay	AVG	Max	Sum	RII	rank
1.Lack of stakeholder involvement	3.76	5	192	0.753	22
2.Poor project planning	4.37	5	223	0.875	1
3.Insufficient resources	3.76	5	192	0.753	23
4.Technical difficulties	3.65	5	186	0.729	29
5.Delay in decision making	3.94	5	201	0.788	6
6.Lack of effective communication	4.04	5	206	0.808	4
7.changes in project scope	3.84	5	196	0.769	13
8.Suspension of work	3.82	5	195	0.765	15
9.Lack of vendor management	3.84	5	196	0.769	14
10.project leadership	4.18	5	213	0.835	3
11.project team experience	3.86	5	197	0.773	12
12.Lack of project governance	3.88	5	198	0.776	8
13.Design changes	3.78	5	193	0.757	18

14.availability of resources	3.57	5	182	0.714	30
15.Lack of change management	3.78	5	193	0.757	19
16.size and complexity of IT projects	3.82	5	195	0.765	16
17.project budgeting	3.71	5	189	0.741	26
18.organisational culture and structure	3.88	5	198	0.776	9
19.Lack of project documentation	3.51	5	179	0.702	31
20.project team motivation	3.88	5	198	0.776	10
21.Poor communication and coordination with other parties	4.00	5	204	0.800	5
22.Unrealistic enforced contract duration	3.75	5	191	0.749	24
23.Unfavourable contract clauses	3.47	5	177	0.694	32
24.Lack of experience of project managers	4.31	5	220	0.863	2
25.Lack of experience of consultants	3.92	5	200	0.784	7
26.Delay in performing inspection and testing	3.82	5	195	0.765	17
27.Slow response to project manager inquiries	3.88	5	198	0.776	11
28.Delay in mobilization	3.45	5	176	0.690	33
29.Poor management and supervision	3.67	5	187	0.733	28
30.Rework due to errors during adjusting variables/design	3.71	5	189	0.741	27
31.Inadequate experience	3.78	5	193	0.757	20
32.Under estimation of cost of the project	3.41	5	174	0.682	34
33.Under estimation of complexity of the projects	3.39	5	173	0.678	35
34.Delay in procurement and material delivery	3.75	5	191	0.749	25
35.Shortage of equipment	3.78	5	193	0.757	21

Source: Own survey, 2023.

As we can see from the table 4.9 the top five schedule delay factors with the highest RII considering the severity of the delay are Poor project planning (RII=0.874), Lack of experience of project managers (RII=0.862), project leadership (RII=0.835), Lack of effective communication (RII=0.808) and the fifth is Poor communication and coordination with other parties (RII=0.800)

4.5 Assessing the Frequency of Causes of Delay in IT Projects: A Relative Importance Index (RII) Analysis of Respondent Answers

Table 4.10: Relative Importance Index (RII) Analysis of Frequency of Schedule Delay Factors in IT Projects

Causes of delay	AVG	Max	Sum	RII	Rank
1.Lack of stakeholder involvement	2.78	5	142	0.557	31
2.Poor project planning	2.65	5	135	0.529	32
3.Insufficient resources	3.10	4	158	0.775	8
4.Technical difficulties	4.00	5	204	0.800	3
5.Delay in decision making	3.73	5	190	0.745	9
6.Lack of effective communication	2.96	5	151	0.592	28
7.changes in project scope	2.96	5	151	0.592	29
8.Suspension of work	3.14	4	160	0.784	6
9.Lack of vendor management	2.61	4	133	0.652	21
10.project leadership	2.59	5	132	0.518	33
11.project team experience	3.73	5	190	0.745	10
12.Lack of project governance	3.02	5	154	0.604	25
13.Design changes	2.92	4	149	0.730	12
14.availability of resources	3.18	5	162	0.635	23
15.Lack of change management	3.61	5	184	0.722	13
16.size and complexity of IT projects	3.94	5	201	0.788	5
17.project budgeting	3.29	5	168	0.659	20
18.organisational culture and structure	3.92	5	200	0.784	7
19.Lack of project documentation	4.10	5	209	0.820	2
20.project team motivation	3.98	5	203	0.796	4
21.Poor communication and coordination with other parties	2.98	5	152	0.596	27
22.Unrealistic enforced contract duration	3.53	5	180	0.706	14
23.Unfavourable contract clauses	2.55	4	130	0.637	22
24.Lack of experience of project managers	2.20	5	112	0.439	35
25.Lack of experience of consultants	2.27	5	116	0.455	34
26.Delay in performing inspection and testing	3.41	5	174	0.682	18
27.Slow response to project manager inquiries	3.53	5	180	0.706	15
28.Delay in mobilization	3.43	4	175	0.858	1
29.Poor management and supervision	3.00	5	153	0.600	26

30.Rework due to errors during adjusting variables/design	3.35	5	171	0.671	19
31.Inadequate experience	3.73	5	190	0.745	11
32.Under estimation of cost of the project	3.04	5	155	0.608	24
33.Under estimation of complexity of the projects	3.51	5	179	0.702	17
34.Delay in procurement and material delivery	3.53	5	180	0.706	16
35.Shortage of equipment	2.96	5	151	0.592	30

Source: Own survey, 2023.

As we can see from the table 4.10 the top five schedule delay factors with the highest RII considering the frequency of the delay are Delay in mobilization (RII= 0.858), Lack of project documentation (RII= 0.820), Technical difficulties (RII=0.8), project team motivation (RII= 0.796) and the fifth is size and complexity of IT projects (RII= 0.788)

4.6. Overall ranking of delay causes using composite index

A composite index is used to rank causes of delay by considering both severity and frequency simultaneously, with equal weights assigned to both factors. In this approach, each cause of delay is assigned a severity rating and a frequency rating. These ratings capture the perceived seriousness or impact of the cause and the frequency of its occurrence, respectively. These ratings are derived from the mean of the gathered response from the respondents.

Table 4.11: Composite index of Schedule Delay Factors in IT Projects

Causes of delay	Severity/Effect Mean	Frequency Mean	Composite index	Rank
1.Lack of stakeholder involvement	3.76	2.78	6.55	30
2.Poor project planning	4.37	2.65	7.02	15
3.Insufficient resources	3.76	3.10	6.86	23
4.Technical difficulties	3.65	4.00	7.65	5
5.Delay in decision making	3.94	3.73	7.67	4
6.Lack of effective communication	4.04	2.96	7.00	16
7.changes in project scope	3.84	2.96	6.80	24
8.Suspension of work	3.82	3.14	6.96	19
9.Lack of vendor management	3.84	2.61	6.45	32
10.project leadership	4.18	2.59	6.76	25
11.project team experience	3.86	3.73	7.59	7
12.Lack of project governance	3.88	3.02	6.90	20
13.Design changes	3.78	2.92	6.71	28

14.availability of resources	3.57	3.18	6.75	26
15.Lack of change management	3.78	3.61	7.39	10
16.size and complexity of IT projects	3.82	3.94	7.76	3
17.project budgeting	3.71	3.29	7.00	17
18.organisational culture and structure	3.88	3.92	7.80	2
19.Lack of project documentation	3.51	4.10	7.61	6
20.project team motivation	3.88	3.98	7.86	1
21.Poor communication and coordination with other parties	4.00	2.98	6.98	18
22.Unrealistic enforced contract duration	3.75	3.53	7.27	11
23.Unfavourable contract clauses	3.47	2.55	6.02	35
24.Lack of experience of project managers	4.31	2.20	6.51	31
25.Lack of experience of consultants	3.92	2.27	6.20	34
26.Delay in performing inspection and testing	3.82	3.41	7.24	13
27.Slow response to project manager inquiries	3.88	3.53	7.41	9
28.Delay in mobilization	3.45	3.43	6.88	22
29.Poor management and supervision	3.67	3.00	6.67	29
30.Rework due to errors during adjusting variables/design	3.71	3.35	7.06	14
31.Inadequate experience	3.78	3.73	7.51	8
32.Under estimation of cost of the project	3.41	3.04	6.45	33
33.Under estimation of complexity of the projects	3.39	3.51	6.90	21
34.Delay in procurement and material delivery	3.75	3.53	7.27	12
35.Shortage of equipment	3.78	2.96	6.75	27

Source: Own survey, 2023.

Based on the composite index scores, the top ten schedule delay causes are as follows:

1. Project team motivation (Composite index = 7.86)
2. Organizational culture and structure (Composite index = 7.8)
3. Size and complexity of IT projects (Composite index = 7.76)

4. Delay in decision making (Composite index = 7.67)
5. Technical difficulties (Composite index = 7.65)
6. Lack of project documentation (Composite index = 7.61)
7. Project team experience (Composite index = 7.59)
8. Inadequate experience (Composite index = 7.51)
9. Slow response to project manager inquiries (Composite index = 7.41)
10. Lack of change management (Composite index = 7.39)

These results highlight the significant causes of schedule delays in IT projects. Project team motivation emerges as the primary factor, indicating that addressing motivational issues within the team is crucial for timely project completion. Organizational culture and structure, along with the size and complexity of IT projects, also play key roles in causing delays. Other notable factors include delay in decision making, technical difficulties, lack of project documentation, project team experience, inadequate experience, slow response to project manager inquiries, and lack of change management. These findings provide valuable insights for project managers to prioritize their efforts and focus on mitigating the most influential causes of schedule delays.

4.6 Discussions

The analysis of the top ten causes of schedule delays in IT projects provides valuable insights into the factors that significantly impact project timelines. Each of these causes presents unique challenges that can hinder project progress and contribute to delays.

Firstly, project team motivation emerges as the primary cause, highlighting the importance of a motivated and engaged team. Lack of motivation can lead to reduced productivity, decreased commitment, and overall project inefficiencies. Addressing this cause requires effective leadership, team-building strategies, and fostering a positive work environment.

Secondly, organizational culture and structure influence project delays, emphasizing the need for a supportive and adaptable organizational environment. Rigid hierarchies, communication gaps, and resistance to change can impede decision-making, collaboration, and timely execution of tasks. Cultivating a culture that values open communication, collaboration, and innovation can help alleviate these delays.

Additionally, the size and complexity of IT projects contribute to delays due to intricate coordination, integration, and management challenges. Large-scale projects involve multiple stakeholders, interdependent tasks, and technical intricacies, which increase the risk of delays.

Adequate planning, resource allocation, and project management techniques specific to large-scale projects are necessary to mitigate these challenges.

Moreover, delays in decision making can have cascading effects on project timelines. Timely decision-making is critical for project progress, and delays in the decision-making process can arise from indecisiveness, lack of information, or bureaucratic hurdles. Streamlining decision-making processes, enhancing communication channels, and empowering decision-makers can help mitigate this cause of delay.

Technical difficulties also significantly impact project schedules in IT projects. Complex technical components and dependencies can result in software bugs, hardware malfunctions, or integration challenges. Effective risk management, technical expertise, and contingency plans are vital for addressing and minimizing these technical delays.

Inadequate project documentation is another cause of delay, as it can lead to misunderstandings, miscommunications, and rework. Clear and comprehensive project documentation, including requirements, specifications, and change management procedures, is essential for facilitating smooth project execution and reducing the risk of delays.

The experience and competence of project team members play a crucial role in project outcomes. Insufficient experience or skills gaps within the team can lead to inefficiencies, errors, and delays. Ensuring a well-rounded team with the necessary expertise and providing training opportunities can help mitigate this cause of delay.

Inadequate experience on the part of project managers or key stakeholders can hinder decision-making, risk assessment, and overall project execution. Developing the expertise of project managers and providing adequate support and mentorship can contribute to better project outcomes and reduced delays.

Slow response to project manager inquiries also contributes to project delays. Delays in obtaining timely responses from stakeholders or higher-level management can impede project progress. Quick and efficient communication channels, clear lines of responsibility, and establishing protocols for prompt response to inquiries are crucial in minimizing delays arising from slow response times.

Lastly, lack of change management can lead to scope creep, rework, and delays. IT projects often involve changes in requirements, scope, or technology. Implementing robust change management processes, including impact analysis, stakeholder engagement, and effective communication, can help mitigate the negative effects of changes on project schedules.

Addressing these causes of delay requires a holistic approach encompassing project management best practices, effective communication, stakeholder engagement, and proactive risk management. By identifying and understanding these factors, project managers can develop strategies to mitigate

delays, enhance project performance, and increase the chances of successful project completion within the defined timelines.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Summary of findings

This research was conducted to investigate and examine the Assessing factors of Schedule Delay in IT Projects; the case of Commercial Bank of Ethiopia. By studying these causes, valuable insights was gained to enhance project management practices and mitigate delays in IT projects within CBE.

In this study, a sample of 51 participants was included to gather data on the causes of schedule delay in IT projects. The gender distribution among the participants revealed that 72.5% were male, while the remaining 27.5% were female. The majority of participants fell within the age range of 20-30, accounting for 56.86% of the sample, followed by the age group of 31-40, which represented 33.3% of participants. When considering education level, 72.55% of respondents held a Bachelor's degree, while 27.45% had a Master's degree. Notably, no participants reported having a Doctorate or a Technical and Vocational Education and Training qualification. Regarding years of experience in IT, the largest proportion of participants, 54.9%, had 1-5 years of experience. Additionally, the distribution of positions within the organization showed that the largest group consisted of IS Officers (52.94%), followed by system analysts (22.8%).

Overall, the sample consisted of diverse participants in terms of gender, age, education level, experience, and organizational positions. These findings provide a foundation for understanding the demographic characteristics of the respondents and ensure a comprehensive representation of perspectives in the study.

Based on the composite index scores, the top ten schedule delay causes in IT projects have been identified. The findings reveal that project team motivation is the primary factor influencing delays, emphasizing the importance of addressing motivational issues within the team. Organizational culture and structure, as well as the size and complexity of IT projects, also play significant roles in causing delays. Other notable factors include delay in decision making, technical difficulties, lack of project documentation, project team experience, inadequate experience, slow response to project manager inquiries, and lack of change management. These findings provide valuable insights for project managers to prioritize their efforts in mitigating the most influential causes of schedule delays.

Additionally, when considering the frequency of delays, the top five factors with the highest Relative Importance Index (RII) are identified. These factors include delay in mobilization, lack of project documentation, technical difficulties, project team motivation, and the size and complexity of IT projects. These findings highlight the specific factors that occur more frequently and have a significant impact on project timelines. Addressing these factors with targeted strategies can help improve project efficiency and reduce delays.

Similarly, when considering the severity of delays, the top five factors with the highest RII have been determined. These factors include poor project planning, lack of experience of project

managers, project leadership, lack of effective communication, and poor communication and coordination with other parties. These findings shed light on the critical factors that contribute to severe delays in IT projects. By addressing these factors proactively, project managers can minimize the negative consequences and mitigate delays more effectively.

Overall, the analysis of the composite index scores, frequency, and severity of delay factors provides a comprehensive understanding of the causes influencing schedule delays in IT projects. These findings offer valuable insights for project managers to prioritize their efforts, allocate resources effectively, and implement targeted strategies to address the most influential causes of delays, ultimately improving project outcomes and ensuring timely project completion.

5.2 Conclusion

The main objective of this study was to assess the causes of schedule delay in IT projects undertaken by the Commercial Bank of Ethiopia (CBE). The study aimed to identify the factors that contribute to schedule overrun, evaluate the impact of schedule delay on project performance and stakeholder satisfaction, and propose recommendations to improve project planning and execution.

In conclusion, this study aimed to assess the causes of schedule delay in IT projects undertaken by the Commercial Bank of Ethiopia (CBE) and provide recommendations to improve project planning and execution. Through a quantitative approach, the study identified the main factors contributing to schedule overrun, evaluated the impact of schedule delay on project performance and stakeholder satisfaction, and examined the effectiveness of current project management practices and tools at CBE.

The findings of this study have shed light on the key causes of schedule delay in IT projects at CBE. Project team motivation emerged as the primary factor influencing delays, emphasizing the need to address motivational issues within the team. Organizational culture and structure, project size and complexity, delay in decision making, technical difficulties, lack of project documentation, and project team experience were also identified as significant contributors to schedule delays.

By considering both the frequency and severity of delays, the study provided further insights into the factors that occur more frequently and have a significant impact on project timelines. Delay in mobilization, lack of project documentation, technical difficulties, project team motivation, and the size and complexity of IT projects were identified as the top factors affecting project schedules.

In terms of severity, poor project planning, lack of experience of project managers, project leadership, lack of effective communication, and poor communication and coordination with other parties were found to be the most severe factors leading to delays in IT projects.

These findings have practical implications for project managers at CBE and other organizations. By prioritizing efforts to address the most influential causes of schedule delays, such as project team motivation, organizational culture, and decision-making processes, project managers can mitigate delays and improve project efficiency. Moreover, targeting the specific factors that occur more frequently, like delay in mobilization and lack of project documentation, can lead to effective strategies to reduce delays.

In conclusion, this study provides valuable insights into the challenges and best practices of managing IT projects within time constraints. By implementing the recommendations proposed in this study, project managers can enhance their project planning and execution processes, leading to improved project performance, stakeholder satisfaction, and timely delivery of IT projects at the Commercial Bank of Ethiopia and beyond.

5.3 Recommendation

Based on the findings of this study regarding the causes of schedule delay in IT projects at the Commercial Bank of Ethiopia (CBE), the following recommendations are proposed to improve project planning and execution:

1. Enhance project team motivation: Recognize the importance of team motivation in project success and establish strategies to boost motivation levels. This can include fostering a positive work environment, providing opportunities for professional growth and development, and recognizing and rewarding team achievements.
2. Address organizational culture and structure: Evaluate the existing organizational culture and structure to identify any aspects that may hinder project schedules. Foster a culture that values timeliness, collaboration, and effective communication. Consider streamlining decision-making processes and promoting cross-functional collaboration to expedite project progress.
3. Enhance project documentation: Place emphasis on thorough and accurate project documentation. This includes clear and well-defined project requirements, scope, and deliverables. Ensure that project documentation is regularly updated throughout the project lifecycle to reflect any changes or modifications.
4. Strengthen project leadership: Provide project managers with the necessary training and support to enhance their leadership skills. Effective project leadership involves proactive communication, stakeholder management, and the ability to motivate and guide the project team towards timely project completion.
5. Foster effective communication and coordination: Emphasize the importance of communication and coordination within project teams and across relevant stakeholders. Implement robust communication channels, establish regular progress updates, and encourage open and transparent communication to minimize misunderstandings and delays.

6. Enhance change management practices: Develop a structured change management process to effectively handle changes in project scope, requirements, or timelines. This includes establishing clear change control procedures, assessing the impact of changes on the project schedule, and obtaining necessary approvals before implementing changes.

By implementing these recommendations, the Commercial Bank of Ethiopia (CBE) and other organizations can improve their project planning and execution processes, leading to more successful and timely delivery of IT projects.

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APPENDIX

Appendix 1: Research Schedule

Month 1:

- Week 1: Finalize research proposal
- Week 2: Conduct literature review and develop conceptual framework
- Week 3: Develop research methodology and data collection tools
- Week 4: Pretest data collection tools and refine research methodology

Month 2:

- Week 1: Obtain ethical clearance and institutional approval
- Week 2: Collect primary data from participants
- Week 3: Analyze and interpret collected data
- Week 4: Draft research report and prepare presentation

Month 3:

- Week 1: Refine research report based on feedback from supervisor
- Week 2: Prepare final research report and submit for review
- Week 3: Present findings to stakeholders and relevant audiences
- Week 4: Complete final revisions and submit final research report

Appendix 2: Research Budget

Required Components and activities	Measurement	Amount	Unit price(birr)	Total(birr)
A4 paper	page	500	400	400
Pen	Number	15	10	150
Pretest questionnaires print and photo copy	Page number		2	60
Final questionnaire printing and photo copy	Page	5-8	2	120
Final paper draft printing	Page			300-500
Final paper printing	Page			500-1500
Payment for data connection	GB	20 GB	75	1500
Training and entertainment cost	-----	Days		2000
Other miscellaneous expenses	-----	Days		1500

Total cost				7000-8000
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Appendix 3: survey questions

1. General Information

Please check which most accurately describes:

All information, including all results and personal information from participating individuals was kept strictly confidential and be used only for research purposes.

Respondent gender

- Male
- Female

Age

- 21-30 years
- 31-40 years
- 41-50 years
- >51 years

Educational Background

- TVET/ Diploma
- 1st Degree
- 2nd Degree
- PhD

Experience in IT projects (in years)

- 1-5
- 6-10
- 10+

Job Designation

- Project Manager
- Supervisor
- Team leader
- IS Officer
- System analyst

2. Ranking Causes of Delay

Importance (the delay impact on construction project) and; Frequency (How often the attribute is implemented or considered) on a rating scale of 1 - 5 as shown below:

Rating Scale	Very Low	Low	Moderate	High	Very High
	1	2	3	4	5

For an example, for the first Cause of Delay factors “*Delay in decision making*”, the respondent was asked to evaluate the:

- Importance: What is the Severity/effect of “*Delay in decision making*” on the projects?
- Frequency: How often is “*Delay in decision making*” considered or does it occur in projects?

Causes of delay		Very Low (1)	Low (2)	Moderate (3)	High (4)	Very High (5)
1.Lack of stakeholder involvement	Severity/ Effect					
	Frequency					
2.Poor project planning	Severity/ Effect					
	Frequency					
3.Insufficient resources	Severity/ Effect					
	Frequency					
4.Technical difficulties	Severity/ Effect					
	Frequency					
5.Delay in decision making	Severity/ Effect					
	Frequency					
6.Lack of effective communication	Severity/					

	Effect					
	Frequency					
7.changes in project scope	Severity/ Effect					
	Frequency					
8.Suspension of work	Severity/ Effect					
	Frequency					
9.Lack of vendor management	Severity/ Effect					
	Frequency					
10.project leadership	Severity/ Effect					
	Frequency					
11.project team experience	Severity/ Effect					
	Frequency					
12.Lack of project governance	Severity/ Effect					
	Frequency					
13.Design changes	Severity/ Effect					
	Frequency					
14.availability of resources	Severity/ Effect					
	Frequency					
15.Lack of change management	Severity/ Effect					
	Frequency					
16.size and complexity of IT projects	Severity/ Effect					
	Frequency					

17.project budgeting	Severity/ Effect					
	Frequency					
18.organisational culture and structure	Severity/ Effect					
	Frequency					
19.Lack of project documentation	Severity/Ef fect					
	Frequency					
20.project team motivation	Severity/ Effect					
	Frequency					
21.Poor communication and coordination with other parties	Severity/ Effect					
	Frequency					
22.Unrealistic enforced contract duration	Severity/ Effect					
	Frequency					
23.Unfavourable contract clauses	Severity/ Effect					
	Frequency					
24.Lack of experience of project managers	Severity/ Effect					
	Frequency					
25.Lack of experience of consultants	Severity/ Effect					
	Frequency					
26.Delay in performing inspection and testing	Severity/ Effect					
	Frequency					
27.Slow response to project manager inquiries	Severity/ Effect					

	Frequency					
28.Delay in mobilization	Severity/ Effect					
	Frequency					
29.Poor management and supervision	Severity/ Effect					
	Frequency					
30.Rework due to errors during adjusting variables/design	Severity/ Effect					
	Frequency					
31.Inadequate experience	Severity/ Effect					
	Frequency					
32.Under estimation of cost of the project	Severity/ Effect					
	Frequency					
33.Under estimation of complexity of the projects	Severity/ Effect					
	Frequency					
34.Delay in procurement and material delivery	Severity/ Effect					
	Frequency					
35.Shortage of equipment	Severity/ Effect					
	Frequency					

3. Other (please specify)

Please mention rates of Severity and Frequency next to each cause of delay

4. Mitigation Measures

Please suggest your recommendation to minimize project delay. What you recommend for clients, consultants, and contractors in order to minimize or control causes of delay to projects.

1. What are expected from clients to minimize project delay?
2. What are expected from every team member to minimize project delay?
3. What are expected from consultants?
4. What should project manager do to minimize project delay?

