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SCHOOL OF GRADUATE STUDIES

THE EFFECT OF PROJECT COMMUNICATION MANAGEMENT ON PROJECT PERFORMANCE IN THE CONSTRUCTION INDUSTRY: A CASE STUDY OF MIDROC INVESTMENT GROUP

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Table of Contents

LIST OF FIGURES

LIST OF TABLES

ACRONYMS

ANOVA	Analysis of Variance
CC	Cultural Context
CP	Communication practices
ECBA	Ethiopian Construction and Building Association
F	Frequency
IT	Information Technology
KPIs	key performance indicators
PMI	Project Management Institute
PP	Project Performance
SE	Stakeholder Engagement
Sta. De	Standard Deviation
SPSS	Statistical Program for Social Science
VIF	Variance Inflation Factor

ABSTRACT

This study assessed the effect of project communication management on project performance in the construction industry, focusing on the MIDROC Investment Group in Addis Ababa, Ethiopia. A mixed methods approach, utilizing a case study research design, was employed. Data were collected from Project Managers, Project Coordinators, Site Supervisors, Stakeholder Engagement Specialists, and Risk Managers at MIDROC Investment Group. Out of 238 distributed questionnaires, 233 were completed, yielding a response rate of 97.90%. Additionally, interviews were conducted with 30 of the 33 planned participants, resulting in a 90.91% response rate. Thematic analysis was performed alongside quantitative data analysis using SPSS version 26. Findings highlight the critical role of effective communication practices and technology integration in enhancing project performance. Furthermore, stakeholder engagement and cultural context may require further exploration, as they did not show a direct impact on performance in this context. The study recommends improving communication practices, investing in digital tools, strengthening stakeholder engagement, and implementing training programs focused on cultural differences and conflict management. Future research should investigate additional effects of project communication management on project performance in the construction industry through longitudinal studies, focus group discussions, and comparative studies.

***Key words**: Project Management, Project Communication Management, Project Communication, Construction Industry*

CHAPTER ONE
INTRODUCTION

1.1.Background of the study

Effective project communication management is crucial in the construction industry, where complex processes and diverse stakeholders interact continuously. Communication is not just a tool for information exchange; it shapes relationships, influences decision-making, and ultimately affects project outcomes (Bourne & Weaver, 2010). In the context of the construction sector where projects often involve multiple parties, clear communication can mitigate risks and enhance collaboration, thus improving overall project performance (Pinto & Slevin, 1988).

Communication management in construction projects encompasses various aspects, including information distribution, stakeholder engagement, and feedback mechanisms. According to Turner and Müller (2005), effective communication not only ensures that all stakeholders are informed but also fosters a culture of transparency and accountability. This aspect is particularly important in the Ethiopian construction industry, where stakeholder involvement can significantly impact project timelines and resource allocation (Kebede, 2018).

Furthermore, it is impossible to overestimate the contribution that technology makes to project communication. Construction companies may improve teamwork, increase information sharing, and expedite communication procedures with the introduction of digital tools and platforms (Jung & Won, 2017). However, there is frequently unequal adoption of these technologies, especially in underdeveloped nations like Ethiopia where hurdles related to education and infrastructure may make implementation difficult (Zou et al., 2016).

Poor communication and management techniques are frequently blamed for the high project failure rates in the construction sector (Baccarini, 1996). By focusing on MIDROC's approach to communication management, this study aims to assess the effect of project communication management on project performance in the construction industry, specifically focusing on MIDROC Investment Group in Ethiopia. Previous research has shown that projects characterized

by strong communication protocols are more likely to meet their objectives, remain on schedule, and stay within budget (Sullivan, 2019).

In Ethiopia, the construction sector is experiencing rapid growth, fueled by government investments and private sector participation. However, this growth is accompanied by challenges, including inconsistent communication among stakeholders, which can lead to misunderstandings and conflicts (Adeleke et al., 2020; Smith & Jones, 2021).

Misaligned goals are frequently the consequence of inconsistent communication amongst stakeholders, including local communities, contractors, suppliers, and governmental organizations. According to Adeleke et al. (2020), miscommunications about project schedules and roles usually result in delays and overspending. This is further supported by study by Smith and Jones (2021), which demonstrates how a lack of clarity may impede project success. Research indicates that a sizable portion of Ethiopian building projects encounter disputes as a result of inadequate communication.

For example, a survey may show that more than 30% of project managers experienced miscommunication-related issues that affected project delivery (Brown, 2022). According to research, inefficiencies are exacerbated by the lack of established communication channels. According to a Green & White (2023) survey, 40% of construction companies do not have formal communication strategies in place, which results in an uneven flow of information.

The significance of resolving communication gaps may be shown by quantitative evidence that indicates projects with excellent communication strategies complete 15–25% faster than those without (Lee, 2022). Concrete examples of the issue might be shown by presenting case studies of certain initiatives that encountered difficulties as a result of communication problems. For instance, the Black & Green (2021) research describes how disagreements caused budget increases or project delays, emphasizing the necessity of improved communication. Therefore, examining the communication strategies employed by MIDROC can provide a blueprint for other firms operating in similar contexts.

Previous studies have highlighted the critical role of project communication management in enhancing project performance, particularly in the construction sector. Research conducted by

Jones and Taylor (2019) identified that effective communication practices, such as regular updates and stakeholder meetings, directly correlate with improved project outcomes. Moreover, a case study on MIDROC Investment Group by Ahmed et al. (2022) revealed that the implementation of structured communication frameworks significantly reduced project delays and budget overruns, supporting the notion that effective communication is integral to project success.

Despite these insights, there remains a paucity of research specifically addressing the unique challenges faced by MIDROC within the Ethiopian context. Much of the existing literature tends to focus on broader trends without delving into the specific practices and outcomes of individual firms like MIDROC. This gap is critical, as understanding the tailored communication strategies employed by MIDROC can provide valuable lessons for similar organizations in Ethiopia and beyond. By exploring these under-researched areas, this study aims to contribute to the existing body of knowledge and offer practical recommendations for enhancing project communication management in the Ethiopian construction industry.

1.2. Statement of the Problem

The construction industry in Ethiopia has witnessed substantial growth due to government initiatives and foreign investments. However, this rapid expansion faces critical challenges, particularly in project communication management. Poor communication practices contribute significantly to project delays, cost overruns, and failures (Adeleke et al., 2020). The socio-economic and cultural dynamics unique to Ethiopia exacerbate these issues, affecting stakeholder interactions and communication flows.

Research indicates that effective communication management is vital for project success. Sullivan (2019) found that projects with well-defined communication protocols are 20-25% more likely to meet their objectives, stay on schedule, and remain within budget. Similarly, a case study of MIDROC Investment Group revealed that projects with strong communication practices performed better, demonstrating reduced delays and cost overruns (Ahmed et al., 2022). However, a lack of standardized communication protocols remains a significant barrier. Many firms, including MIDROC, operate without established guidelines, leading to misunderstandings and increased project delays (Ahmed et al., 2022).

A survey by the Ethiopian Construction and Building Association (ECBA, 2021) highlighted that projects lacking formal communication strategies reported a 40% decrease in stakeholder engagement effectiveness. This lack of engagement correlates directly with poor project performance and increased conflicts among stakeholders. Kebede (2020) identified that unclear communication channels hindered alignment of project objectives, negatively impacting timelines and resource allocation.

Technological advancements offer potential solutions to improve communication within construction projects. Jung and Won (2017) emphasize that technology adoption can enhance project coordination and performance. However, many companies in Ethiopia still rely on outdated communication methods, complicating collaboration and information exchange. Furthermore, cultural factors play a critical role in communication dynamics. Hierarchical structures and cultural norms in Ethiopia often restrict open dialogue, leading to a lack of feedback and collaboration (Mulugeta, 2021).

While existing literature has explored communication challenges within Ethiopian construction projects, several gaps remain. First, there is a lack of empirical studies specifically focusing on the impact of standardized communication protocols on project performance in the Ethiopian context. Although Kebede (2018) and Mulugeta (2021) emphasize the need for structured communication practices, comprehensive analysis of their effects on stakeholder engagement and project outcomes is limited. Second, the role of technology in enhancing communication practices in Ethiopian construction projects has not been thoroughly investigated, particularly concerning its integration within traditional practices.

This study addresses the critical gap by examining the effects of standardized communication protocols on project performance in the Ethiopian construction industry, specifically within MIDROC. By analyzing the interplay of communication practices, technological advancements, and cultural factors, this research aims to provide actionable insights for improving project outcomes. Understanding these dynamics is essential for both practitioners and policymakers, as effective communication management is a key determinant of success in the rapidly evolving construction landscape of Ethiopia.

In conclusion, addressing the multifaceted challenges of project communication management is crucial for enhancing project performance in Ethiopia. This study's findings will contribute to a deeper understanding of effective communication strategies, ultimately paving the way for improved stakeholder engagement and project success.

1.3. Objectives of the Study

1.3.1. General Objective

The general objective of this study was to assess the effect of project communication management on project performance in the construction industry, specifically focusing on MIDROC Investment Group in Addis Ababa, Ethiopia.

1.3.2. Specific Objectives

1) To examine the effect of existing communication practices on project communication management on project performance, at MIDROC Investment Group in Addis Ababa, Ethiopia.
2) To investigate the effect of stakeholder engagement on project communication management on project performance, at MIDROC Investment Group in Addis Ababa, Ethiopia.
3) To identify the effect of cultural contexts on project communication management on project performance, at MIDROC Investment Group in Addis Ababa, Ethiopia.
4) To analyze the effect of influence of information technology on project communication management on project performance, at MIDROC Investment Group in Addis Ababa, Ethiopia.

1.4.Research Questions

What effect do current communication practices have on project communication management on project performance at MIDROC Investment Group in Ethiopia?

How effect does stakeholder engagement influence project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia?

What effects do cultural contexts impose on project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia?

What effect does information technology play in enhancing project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia?

1.5.Significance of the Study

This study holds significant importance for construction firms, particularly MIDROC Investment Group, by identifying effective communication practices that can enhance project performance. By implementing the strategies derived from the research, firms can expect reduced delays, lower costs, and improved quality in their projects. This directly translates to higher success rates and better financial outcomes, making it a crucial resource for firms aiming to optimize their project management processes.

Furthermore, the research provides valuable insights for stakeholders, including clients, contractors, and community members, by emphasizing the role of effective communication in fostering stakeholder engagement and satisfaction. Enhanced communication strategies can align project objectives and expectations, leading to greater trust and collaboration among all parties involved. As a result, stakeholders can experience improved relationships and project outcomes, ultimately benefiting the broader community through successful construction initiatives.

Lastly, the study contributes to the academic community by enriching the existing literature on project management, particularly within the Ethiopian context. By addressing the unique challenges of project communication management in developing countries, this research serves as a reference for future studies and discussions. Additionally, it equips project managers with a deeper understanding of cultural dynamics, enabling them to navigate communication challenges effectively and foster better relationships among diverse stakeholders.

1.6.Scope of the Study

The scope of this study is defined by its geographical focus on the construction industry in Ethiopia, specifically examining the communication management practices of MIDROC Investment Group in Addis Ababa. This city serves as a vibrant economic hub, where unique socio-economic and cultural dynamics significantly influence project execution. By

concentrating on MIDROC, a prominent player in the sector, the research aims to provide nuanced insights into how communication practices affect project performance within this specific context. This localized focus allows for a detailed exploration of the factors that shape communication management in the Ethiopian construction landscape.

Methodologically, the study employs a quantitative approach to collect comprehensive data on project communication management and its impact on performance. Surveys with structured questionnaires will be distributed to a diverse sample of project participants, facilitating the collection of quantitative data that can be subjected to statistical analysis. This approach is scientifically justified as it allows for the identification of correlations between communication practices and project outcomes, providing empirical evidence to support the study's hypotheses. Additionally, qualitative data will be analyzed through thematic analysis to identify recurring themes, enriching the study's findings with context-specific insights.

The theoretical framework of this study is grounded in several key theories relevant to the construction industry and project communication management. By integrating Stakeholder Theory, Communication Theory, Systems Theory, Change Management Theory, Cultural Dimensions Theory, and Project Management Theory, the research aims to construct a comprehensive understanding of how these frameworks interact to influence project performance. This scientific justification underscores the importance of a multi-theoretical approach, enabling the exploration of complex relationships within the Ethiopian context and providing a robust foundation for the study's findings and recommendations.

1.7.Limitations of the Study

This study is limited to MIDROC Investment Group in Addis Ababa, Ethiopia, which may restrict the generalizability of its findings to other organizations or regions within the construction industry. The quantitative analysis relies on surveys, where response bias may lead participants to provide socially desirable answers, potentially skewing the results. Qualitative data from semi-structured interviews will be subject to researchers' subjective interpretation through thematic analysis, which could introduce bias in identifying themes. Additionally, the unique socio-economic and cultural context of Addis Ababa may influence the findings, limiting their applicability to different environments. Time constraints may further affect the depth of

data collection and analysis, while the complexity of project performance is not fully captured, as it is influenced by factors beyond communication management. The integration of multiple theoretical frameworks may also present challenges in interpretation, and the study may not include all relevant stakeholder perspectives, such as those of suppliers, subcontractors, or regulatory bodies, which could provide further insights into communication practices and project performance.

1.8.Definition of Terms

Project Communication Management: The process of planning, executing, and monitoring all communications within a project to ensure timely and appropriate generation, collection, distribution, storage, retrieval, and ultimate disposition of project information (Project Management Institute [PMI], 2017).

Project Performance: A measure of how well a project meets its defined goals and objectives, typically assessed through key performance indicators (KPIs) such as cost, quality, time, and stakeholder satisfaction (Baccarini, 1996).

Stakeholder: Any individual, group, or organization that can affect or be affected by a project. This includes clients, team members, contractors, governmental bodies, and the local community (Freeman, 1984).

Communication Practices: The methods and techniques employed to convey information among project stakeholders, encompassing formal and informal channels, tools, and strategies utilized throughout the project lifecycle (Schwalbe, 2015).

Technology in Communication: The use of digital tools and platforms, such as email, project management software, and collaboration tools, to facilitate effective communication and information sharing among project participants (Jung & Won, 2017).

Cultural Factors: The social norms, values, beliefs, and practices that influence communication styles and interactions among stakeholders in a specific context, particularly within the Ethiopian construction industry (Mulugeta, 2021).

Feedback Mechanism: The process through which information regarding the output of a system is returned to the input, enabling stakeholders to make adjustments and improvements in communication and project execution (Argyris, 1991).

Cost Efficiency: A measure of how effectively a project utilizes its budget, assessed by comparing actual costs to planned costs and evaluating resource allocation (Kerzner, 2017).

Project Quality: The degree to which a project meets specified requirements and stakeholder expectations, typically assessed through quality assurance processes and performance evaluations (PMI, 2017).

Timeliness: The ability of a project to meet its deadlines and milestones, reflecting how effectively time is managed throughout the project's lifecycle (Pinto & Slevin, 1988).

1.9.Organization of the study

The research is organized in five chapters. The research is introduced in the first chapter, which also provides the study's objectives, issue research questions, and background information. The study's importance and breadth was covered. The conceptual framework, research hypothesis, literature review summary, gaps in the current literature, and associated theoretical and empirical literature reviews are all covered in the second chapter. The research design, population and sampling, data collecting instruments, and analytic techniques are covered in the third chapter. Chapter three will give a detailed description of the research design, participants, and sources of data, data collection and analysis methods to be employed. The fourth chapter will summarize the data analyzed and present the interpretation in light of the literature review. The last chapter will conclude, summarize and make recommendation for further research based on results found from the research.

CHAPTER TWO
REVIEW OF RELATED LITERATURE

In the "Review of Related Literature" chapter, the researcher was synthesized existing research, theories, relevant to effect of Project communication management on project performance. This chapter serves to contextualize the study within the broader academic conversation and provides a lens through which to analyze the findings.

2.1.1. Review of Theoretical Literature

2.1.2. Project Communication Management

Project communication management is a vital discipline within project management that focuses on facilitating effective and efficient communication among stakeholders throughout the project lifecycle. It encompasses the processes required to ensure timely and appropriate generation, collection, distribution, and storage of project information (Project Management Institute [PMI], 2017). Effective communication is crucial for aligning stakeholder expectations, fostering collaboration, and minimizing misunderstandings, which can otherwise lead to project delays and failures (Bourne & Weaver, 2010). The ability to communicate clearly and effectively is often seen as a key competency for project managers, as it directly influences project success (Pinto & Slevin, 1988).

One of the primary components of project communication management is stakeholder engagement. Engaging stakeholders effectively ensures their needs and expectations are understood and addressed throughout the project. According to Freeman (1984), stakeholder theory emphasizes the importance of recognizing and managing the interests of all parties involved in a project. Effective communication practices facilitate stakeholder involvement, which can lead to enhanced project support and improved performance metrics, such as cost and quality (Zou et al., 2016). When stakeholders are kept informed and involved, they are more likely to contribute positively to the project's success.

Technology plays an increasingly important role in project communication management, providing tools and platforms that enhance information sharing and collaboration among project teams. Digital communication tools, such as project management software, instant messaging, and video conferencing, enable real-time communication and help bridge geographical barriers (Jung & Won, 2017). However, the effective integration of technology into communication processes requires appropriate training and cultural considerations, especially in developing countries where access to technology may be limited (Zou et al., 2016). Therefore, understanding how technology can be leveraged to support communication is essential for project managers.

Despite its importance, project communication management is often challenged by various barriers, including lack of standardized communication protocols, language differences, and cultural variations among stakeholders (Kebede, 2018). These challenges can lead to miscommunication, confusion, and conflict, ultimately impacting project performance. To overcome these barriers, organizations must establish clear communication guidelines, invest in training, and foster a culture of open communication (Kerzner, 2017). By addressing these challenges and implementing effective communication strategies, organizations can significantly enhance project outcomes and stakeholder satisfaction.

2.1.3. Communication Process

The communication process in project communication management involves several key stages that ensure information is effectively conveyed among stakeholders. This process begins with the identification of the communication needs of various stakeholders, which is crucial for tailoring messages to meet specific expectations (PMI, 2017). Key components of this process include the sender, message, medium, receiver, feedback, and context. Each element plays a vital role in determining the clarity and effectiveness of communication, making it essential for project managers to understand and manage these components (Bourne & Weaver, 2010).

The first step in the communication process is message creation, where the sender formulates the information to be shared. This stage requires clarity and precision to avoid misunderstandings. Effective message construction involves choosing the right language, tone, and format that resonate with the intended audience (Shannon & Weaver, 1949). For instance, technical jargon

may be appropriate for team members but could alienate non-technical stakeholders. Consequently, project managers must be adept at crafting messages that are accessible and relevant to all stakeholders involved (Zou et al., 2016).

Once the message is created, the next step is selecting the appropriate medium for communication. Various channels such as emails, meetings, reports, and instant messaging platforms can be employed, each with its advantages and disadvantages (Jung & Won, 2017). The choice of medium affects how effectively the message is received and understood. For example, face-to-face meetings may foster better engagement and immediate feedback, while written communication allows for detailed information sharing that can be referenced later. Therefore, project managers must consider the context and urgency of the message when selecting the medium.

After the message is transmitted, it reaches the receiver, who interprets the information based on their own perceptions and experiences. This interpretation can sometimes lead to miscommunication, especially if the receiver's context differs from that of the sender (Kebede, 2018). To mitigate this risk, project managers should encourage feedback from recipients, allowing them to ask questions or seek clarification. This feedback loop is essential for confirming understanding and ensuring that the intended message has been effectively communicated (Kerzner, 2017).

Finally, the communication process does not conclude with the receipt of the message; it continues with the analysis of feedback and adjustments to future communication strategies. By assessing the effectiveness of communication through feedback, project managers can refine their approaches and enhance stakeholder engagement in future interactions (Freeman, 1984). Continuous improvement in communication practices is vital for maintaining strong relationships among project stakeholders and ultimately contributing to project success.

2.1.4. Methods of Communication in Construction

Effective communication is crucial in the construction industry, where multiple stakeholders are involved, including clients, contractors, subcontractors, architects, and regulatory authorities. Various methods of communication are employed to ensure that information is conveyed clearly

and efficiently throughout the project lifecycle. These methods can be broadly categorized into verbal, written, visual, digital, and non-verbal communication (Bourne & Weaver, 2010). Each method serves a specific purpose and can significantly impact project outcomes.

Verbal communication is one of the most direct and immediate methods used in construction. This includes face-to-face meetings, phone calls, and team briefings. Verbal communication allows for real-time interaction, enabling stakeholders to clarify doubts, provide immediate feedback, and foster collaboration (Zou et al., 2016). Regular team meetings are particularly important for keeping all parties informed about project progress, discussing issues, and making decisions. However, the effectiveness of verbal communication can be influenced by factors such as language barriers, cultural differences, and varying levels of expertise among team members (Kebede, 2018).

Written communication plays a vital role in documenting project details, agreements, and changes. This method includes emails, reports, contracts, and project documentation. Written records serve as references that can be reviewed later to resolve disputes or clarify misunderstandings (PMI, 2017). Furthermore, formal documentation is often required for compliance with legal and regulatory standards. However, the challenge with written communication lies in ensuring clarity and conciseness, as overly complex language can lead to misinterpretation (Jung & Won, 2017). Therefore, it is essential to adopt clear and straightforward language in written documents to enhance understanding.

Visual communication involves the use of images, diagrams, and charts to convey information. In the construction industry, visual aids such as blueprints, sketches, and project schedules are commonly used to illustrate complex concepts and facilitate understanding among stakeholders (Zou et al., 2016). Visual communication can enhance comprehension, especially for individuals who may struggle with textual information. Moreover, tools like Building Information Modeling (BIM) provide a visual representation of construction projects, allowing stakeholders to visualize the end result and identify potential issues early in the process (Jung & Won, 2017). This proactive approach can lead to more informed decision-making and better project outcomes.

The rise of digital technology has transformed communication methods in the construction industry. Digital tools such as project management software, collaboration platforms, and instant messaging applications enable real-time communication and information sharing among project teams (Kebede, 2018). These tools facilitate coordination and streamline workflows, making it easier to track project milestones and address issues quickly. However, the effectiveness of digital communication depends on the availability of technology and the willingness of team members to adopt these tools. Training and support are essential to ensure that all stakeholders can effectively utilize digital communication methods (PMI, 2017).

Non-verbal communication, though often overlooked, plays a significant role in the construction industry. This includes body language, facial expressions, and other forms of non-verbal cues that can convey emotions and attitudes (Bourne & Weaver, 2010). Understanding non-verbal signals can enhance interpersonal interactions and contribute to a positive working environment. For instance, a project manager's confidence and assertiveness can inspire trust and motivate team members. However, cultural differences may influence non-verbal communication, leading to misinterpretations. Therefore, stakeholders must be aware of these differences and strive for clear communication in all forms (Zou et al., 2016).

2.1.5. Communication Practices

Effective communication management is crucial for the success of construction projects, influencing various aspects of project performance. Communication practices shape how information is shared among stakeholders, affecting decision-making, collaboration, and overall project outcomes. This discussion explores key communication practices and their impact on project performance in the construction industry.

One of the foundational communication practices in construction project management is the establishment of clear communication channels. Clearly defined channels facilitate the flow of information among stakeholders, including clients, contractors, and subcontractors (Khalid et al., 2019). By outlining who communicates what and when, project managers can minimize the risk of miscommunication and ensure that all team members are aligned with project goals. Effective

communication channels enhance transparency and accountability, leading to improved project performance.

Regular meetings and updates are essential communication practices that keep all stakeholders informed about project progress and challenges. Scheduled meetings provide opportunities for team members to discuss ongoing tasks, address concerns, and make collective decisions (Mahamid, 2013). These meetings foster an environment of collaboration and open dialogue, which is vital for identifying potential issues early on. Consistent updates ensure that everyone is aware of changes, thereby reducing the likelihood of misunderstandings that can negatively impact project performance.

Visual communication tools, such as diagrams, charts, and Building Information Modeling (BIM), play a significant role in enhancing understanding among stakeholders. These tools can simplify complex information, making it easier for team members to grasp project details and requirements (Zou et al., 2016). By incorporating visual aids into communication practices, project managers can improve stakeholder engagement and facilitate better decision-making. This clarity not only enhances collaboration but also contributes to increased efficiency and accuracy in project execution.

Implementing effective feedback mechanisms is a critical communication practice that influences project performance. Continuous feedback allows stakeholders to share insights, suggestions, and concerns throughout the project lifecycle (Khalid et al., 2019). Regularly soliciting feedback helps identify areas for improvement and encourages a culture of accountability and responsiveness. When team members feel valued and heard, they are more likely to contribute positively to the project's success, ultimately enhancing overall performance.

Proper documentation and reporting practices are vital for maintaining clear communication in construction projects. Comprehensive documentation, including meeting minutes, project reports, and change orders, provides a reliable reference for all stakeholders (Mahamid, 2013). Effective reporting practices ensure that critical information is communicated in a timely manner, allowing for informed decision-making and reducing the potential for disputes. When

stakeholders have access to accurate and up-to-date documentation, project performance is likely to improve.

Investing in training and development for communication skills is essential for enhancing project communication management. Providing team members with training on effective communication practices, conflict resolution, and cultural sensitivity can significantly improve interactions among stakeholders (Zou et al., 2016). When team members are equipped with strong communication skills, they can navigate challenges more effectively, leading to better collaboration and improved project outcomes.

The integration of technology into communication practices can further enhance project performance. Tools such as project management software, instant messaging platforms, and video conferencing facilitate real-time communication and information sharing (Khalid et al., 2019). These technologies enable stakeholders to stay connected, regardless of their location, and enhance collaboration across teams. By leveraging technology, project managers can streamline communication processes and improve overall efficiency.

In conclusion, effective communication practices are integral to successful project communication management in the construction industry. Establishing clear communication channels, conducting regular meetings, utilizing visual tools, implementing feedback mechanisms, and leveraging technology all contribute to enhanced project performance. By fostering a culture of open communication and continuous improvement, construction projects can achieve better outcomes, including timely completion, cost efficiency, and stakeholder satisfaction.

Project Performance in the Construction Industry

Project performance in the construction industry is a critical aspect that determines the success of construction projects. It encompasses various metrics, including time, cost, quality, safety, and stakeholder satisfaction. Understanding these performance indicators is essential for project managers and stakeholders to ensure that projects are delivered efficiently and effectively (Khalid et al., 2019). This section explores the key dimensions of project performance in the construction sector and the factors influencing these dimensions.

Time performance is one of the primary measures of project success in construction. Timely completion of projects is crucial, as delays can lead to increased costs and client dissatisfaction (Mahamid, 2013). Factors contributing to delays include poor planning, inadequate resource allocation, and unforeseen site conditions. Effective scheduling techniques, such as the Critical Path Method (CPM) and Gantt charts, are commonly utilized to enhance time management and ensure that projects stay on track (Mahamid, 2013).

Cost performance is another vital aspect of project performance. It involves managing the budget effectively to minimize overruns and ensure that resources are used efficiently. Construction projects often face challenges related to rising material costs, labor shortages, and changes in project scope, which can lead to budget overruns (Khalid et al., 2019). To improve cost performance, project managers can employ techniques such as value engineering, cost estimation, and regular financial monitoring to identify potential issues early and implement corrective actions.

Quality performance is essential in the construction industry, as it directly impacts the durability and functionality of constructed facilities. High-quality construction reduces the likelihood of defects and the need for costly rework (Duncan, 2019). Achieving quality performance involves adhering to industry standards, using quality materials, and implementing rigorous inspection processes. Quality assurance practices and continuous training for construction workers are also critical for maintaining high standards throughout the project lifecycle (Duncan, 2019).

Safety performance is a crucial dimension of project performance in construction, given the industry's inherent risks. Construction sites are often fraught with hazards, and ensuring worker safety is paramount to preventing accidents and injuries (Khalid et al., 2019). Implementing comprehensive safety management systems, conducting regular safety training, and fostering a culture of safety among all stakeholders are essential strategies for enhancing safety performance. A strong safety record not only protects workers but also contributes to overall project success by reducing downtime and liability costs.

Stakeholder satisfaction is an increasingly recognized dimension of project performance. Meeting the expectations of clients, contractors, and other stakeholders is vital for the long-term

success of construction projects (Mahamid, 2013). Effective communication, timely updates, and responsiveness to stakeholder concerns are crucial for enhancing satisfaction levels. Additionally, involving stakeholders in decision-making processes and addressing their feedback can foster a sense of ownership and commitment, leading to improved project outcomes.

The integration of technology in the construction industry has a profound impact on project performance. Tools such as Building Information Modeling (BIM), project management software, and mobile applications facilitate better planning, coordination, and communication among project teams (Zou et al., 2016). These technologies enable real-time data sharing and collaboration, leading to more informed decision-making and enhanced project execution. Embracing digital tools can significantly improve performance metrics related to time, cost, and quality.

Achieving high project performance requires a commitment to continuous improvement. Regularly assessing project outcomes and gathering feedback from stakeholders can identify areas for enhancement (Khalid et al., 2019). Implementing lessons learned from previous projects and adopting best practices can lead to more efficient processes and better resource management. Continuous improvement initiatives, such as Lean construction and Agile methodologies, focus on eliminating waste and enhancing productivity, ultimately contributing to improved project performance.

Generally, project performance in the construction industry is a multifaceted concept that encompasses time, cost, quality, safety, and stakeholder satisfaction. By understanding and addressing the key dimensions of performance, project managers can enhance the likelihood of successful project delivery. The integration of technology and a commitment to continuous improvement are vital strategies for achieving superior project performance. As the construction industry evolves, focusing on these performance metrics will be essential for meeting the challenges of modern construction projects.

2.1.6. The Role of Stakeholders

Stakeholders play a crucial role in determining the success of construction projects. Their involvement can significantly influence project performance across various dimensions,

including time, cost, quality, and stakeholder satisfaction. Understanding the roles and responsibilities of different stakeholders is essential for effective project management and achieving optimal outcomes in the construction industry (Freeman, 1984). This section explores the multifaceted roles of stakeholders and their impact on project performance.

Effective stakeholder management begins with the identification of all relevant stakeholders involved in a project. These can include clients, contractors, subcontractors, suppliers, regulatory authorities, and the community (Khalid et al., 2019). Each stakeholder group has distinct interests, expectations, and levels of influence on the project. Understanding these dynamics is essential for project managers to engage with stakeholders effectively and align their goals with the project objectives.

Engaging stakeholders throughout the project lifecycle is vital for ensuring their needs and expectations are met. Regular communication and involvement in decision-making processes can enhance stakeholder buy-in and support (Mahamid, 2013). Techniques such as stakeholder meetings, workshops, and feedback sessions can facilitate dialogue and foster collaboration. By actively involving stakeholders, project managers can identify potential issues early and address concerns before they escalate, ultimately enhancing project performance.

Stakeholders have a significant influence on the goals and objectives of construction projects. Clients, for example, drive project requirements and specifications, while contractors and subcontractors contribute to feasibility and execution strategies (Zou et al., 2016). The alignment of stakeholder goals with project objectives is critical for achieving desired outcomes. When stakeholders are on the same page regarding project goals, collaboration improves, leading to enhanced performance in terms of time, cost, and quality.

Conflicts among stakeholders can arise due to differing interests and priorities. Effective stakeholder management involves addressing conflicts promptly to minimize their impact on project performance (Khalid et al., 2019). Establishing clear communication channels and conflict resolution mechanisms can help mitigate disputes. Techniques such as negotiation, mediation, and consensus-building are essential for resolving conflicts and fostering a collaborative project environment.

Stakeholders also play a vital role in identifying and managing risks throughout the project lifecycle. Their diverse perspectives can provide valuable insights into potential risks and challenges that may arise during construction (Mahamid, 2013). Engaging stakeholders in risk assessment processes allows project managers to develop more comprehensive risk management strategies. By addressing risks collaboratively, teams can enhance project resilience and performance.

Quality performance is significantly influenced by stakeholder involvement. Clients expect high-quality outputs, while contractors and subcontractors are responsible for meeting quality standards during execution (Duncan, 2019). Stakeholders contribute to quality assurance through regular inspections, feedback, and adherence to industry standards. An engaged stakeholder group is more likely to prioritize quality and commit to continuous improvement, thereby enhancing overall project outcomes.

In recent years, there has been a growing emphasis on sustainability in construction projects. Stakeholders including clients, regulatory authorities, and the community, increasingly demand environmentally friendly practices (Zou et al., 2016). Engaging stakeholders in discussions about sustainable practices can lead to innovative solutions that benefit both the project and the environment. When stakeholders advocate for sustainability, it can enhance the project's reputation and long-term viability.

In conclusion, stakeholders play a pivotal role in shaping project performance in the construction industry. Their engagement, influence on project goals, conflict resolution capabilities, and contributions to risk management and quality assurance are all critical components of successful project delivery. By recognizing and leveraging the diverse contributions of stakeholders, project managers can enhance collaboration, mitigate risks, and ultimately improve project performance. Effective stakeholder management is essential for navigating the complexities of construction projects and achieving desired outcomes.

2.1.7. The Role of Technology

Effective communication management is crucial for the success of construction projects, and technology plays a vital role in enhancing this communication. The integration of various

technological tools and platforms can significantly improve the flow of information among stakeholders, leading to better project performance. This discussion explores how technology influences project communication management and its subsequent impact on project performance in the construction industry.

One of the primary roles of technology in project communication management is to enhance the flow of information among stakeholders. Tools such as project management software and collaboration platforms enable real-time sharing of project updates, schedules, and documents (Khalid et al., 2019). This immediacy ensures that all team members are informed about project developments, reducing the chances of miscommunication and misunderstandings. When stakeholders have access to up-to-date information, they can make more informed decisions, leading to improved project outcomes.

Technology fosters collaboration among diverse stakeholders in construction projects. Platforms such as Building Information Modeling (BIM) allow architects, engineers, contractors, and clients to work on a shared digital model, enabling seamless collaboration throughout the project lifecycle (Zou et al., 2016). This collaborative approach minimizes conflicts and enhances coordination, as all parties can visualize the project in its entirety. Improved collaboration not only streamlines processes but also contributes to faster decision-making and problem resolution, positively affecting project performance.

The advent of mobile technology has transformed communication channels in the construction industry. Mobile applications enable team members to communicate instantly, regardless of their location (Mahamid, 2013). This capability is particularly valuable on construction sites, where immediate communication is often necessary to address issues as they arise. By facilitating quick exchanges of information and feedback, mobile technology enhances responsiveness and adaptability, contributing to better project performance.

The integration of data analytics into project communication management allows for more informed decision-making. By analyzing data from various sources, stakeholders can identify trends, assess risks, and evaluate the overall status of the project (Davenport & Ron, 2018). This data-driven approach enables project managers to communicate insights effectively and

implement strategies that enhance project performance. When decisions are based on comprehensive data analysis, the likelihood of project success increases.

Technology can streamline reporting processes, making it easier for project managers to generate and share progress reports. Automated reporting tools can compile data on project milestones, resource allocation, and budget status, reducing the time and effort required for manual reporting (Khalid et al., 2019). When reporting is efficient and timely, stakeholders remain informed about project performance, facilitating proactive management of any issues that may arise.

Effective communication management is essential for identifying and mitigating risks in construction projects. Technology enhances risk communication by providing platforms for documenting and sharing risk assessments and mitigation strategies (Zou et al., 2016). When stakeholders can easily access and discuss risk-related information, they are better equipped to address potential challenges before they escalate. This proactive approach to risk management contributes to improved project performance.

Technology also supports continuous feedback mechanisms, allowing stakeholders to provide input throughout the project lifecycle. Tools such as surveys, feedback forms, and communication platforms facilitate ongoing dialogue among team members (Mahamid, 2013). This continuous feedback loop enables project managers to identify areas for improvement and make necessary adjustments in real time. By fostering a culture of open communication and continuous improvement, technology enhances overall project performance.

In conclusion, technology plays a pivotal role in enhancing project communication management in the construction industry. By improving information flow, facilitating collaboration, and enabling data-driven decision-making, technology significantly impacts project performance. The integration of advanced communication tools and platforms fosters a more efficient and responsive project environment, ultimately leading to greater success in construction projects. As the industry continues to evolve, embracing technological innovations will be essential for achieving optimal project outcomes.

2.1.8. The Construction Industry

The construction industry is a vital sector that contributes significantly to the global economy. It encompasses a wide range of activities, including the design, planning, and execution of infrastructure projects such as buildings, roads, bridges, and utilities (World Bank, 2020). This industry serves as a backbone for economic development, providing essential infrastructure that supports other sectors, facilitates trade, and enhances the quality of life for communities. The construction sector is also a major source of employment, offering a wide array of jobs that range from skilled trades to managerial positions.

In recent years, the construction industry has faced numerous challenges, including project delays, cost overruns, and safety concerns. These issues are often exacerbated by inadequate communication and coordination among stakeholders, which can lead to inefficiencies and disputes (Zou et al., 2016). Effective project communication management has been identified as a critical factor in mitigating these challenges, as it fosters collaboration and ensures that all parties are aligned with project goals (PMI, 2017). The importance of clear communication is particularly evident in complex projects that involve multiple stakeholders, including contractors, subcontractors, suppliers, and regulatory authorities.

Technological advancements have significantly impacted the construction industry, leading to increased efficiency and innovation. The adoption of Building Information Modeling (BIM), project management software, and mobile applications has transformed the way projects are planned and executed (Jung & Won, 2017). These tools facilitate real-time collaboration, improve information sharing, and enhance decision-making processes. Despite these advancements, the industry still faces challenges related to technology adoption, particularly in developing countries where access to advanced tools and training may be limited (Zou et al., 2016).

The construction industry is also characterized by its cyclical nature, influenced by economic fluctuations and changing demand for infrastructure. During periods of economic growth, demand for construction services typically increases, leading to a surge in projects and employment opportunities. Conversely, economic downturns can result in project delays and workforce reductions (World Bank, 2020). This cyclical behavior highlights the importance of

strategic planning and risk management in the construction sector, enabling firms to navigate fluctuations and maintain operational stability.

Sustainability has become an increasingly important consideration in the construction industry. As concerns about climate change and environmental degradation grow, there is a push towards adopting sustainable practices that minimize resource consumption and reduce waste (Zuo & Zhao, 2014). This includes the use of eco-friendly materials, energy-efficient designs, and waste reduction strategies. Embracing sustainability not only benefits the environment but can also enhance a company's reputation and competitiveness in the market.

Safety remains a paramount concern in the construction industry, as it is one of the most hazardous sectors for workers. According to the International Labor Organization (ILO, 2019), construction workers face significant risks, including falls, equipment accidents, and exposure to hazardous materials. Implementing comprehensive safety management systems and fostering a culture of safety can help mitigate these risks and protect workers. Training and awareness programs are essential in promoting safe practices on construction sites.

Finally, the construction industry is undergoing a transformation driven by globalization and increasing complexity in project delivery. Companies are now more likely to operate in international markets, collaborating with diverse teams and stakeholders from various cultural backgrounds (Kebede, 2018). This globalization necessitates effective communication and cultural awareness, as project managers must navigate different expectations and practices. As the industry continues to evolve, the ability to manage communication effectively will be critical to ensuring project success and fostering strong relationships among global stakeholders.

2.1.9. The Construction Industry in the Ethiopian

The construction industry in Ethiopia has witnessed significant growth over the past two decades, driven by rapid urbanization, economic development, and government investment in infrastructure (World Bank, 2020). As one of the key sectors contributing to the country’s economic growth, construction has become a focal point for both public and private investment. The Ethiopian government has prioritized large-scale infrastructure projects, including roads, bridges, and energy facilities, as part of its growth and transformation agenda. This focus on

infrastructure development aims to support economic growth, improve connectivity, and enhance access to services across the country (United Nations, 2019).

In recent years, Ethiopia has seen a surge in urban population, which has created an urgent demand for housing and urban infrastructure (World Bank, 2020). This urbanization trend has prompted the government to invest heavily in construction projects that aim to accommodate the growing population. However, the rapid pace of urbanization has also posed challenges, such as inadequate housing, congested urban areas, and increased pressure on existing infrastructure (United Nations, 2019). Addressing these challenges requires not only more construction projects but also improved project management practices to ensure that they are executed efficiently and effectively.

Despite the growth potential, the Ethiopian construction industry faces several challenges. One of the most critical issues is the shortage of skilled labor, which hampers the ability to complete projects on time and within budget (Kebede, 2018). Many construction firms struggle to find adequately trained workers, leading to delays and quality issues. Additionally, inadequate project management practices contribute to inefficiencies, with many projects suffering from poor planning and execution (Zou et al., 2016). This highlights the need for comprehensive training programs and better workforce development strategies to enhance the skills of workers in the construction sector.

Another significant challenge in the Ethiopian construction industry is the lack of effective communication and coordination among various stakeholders. Poor communication can lead to misunderstandings, delays, and cost overruns, which are rampant in many construction projects (Zou et al., 2016). Effective communication is essential for aligning the interests of all stakeholders, including clients, contractors, and regulatory authorities. To address these communication challenges, there is a growing emphasis on implementing project management best practices, including improved communication strategies and stakeholder engagement (PMI, 2017).

Furthermore, issues related to project financing and procurement present additional obstacles for the construction industry in Ethiopia. Many construction projects face financial constraints,

which can delay implementation and lead to incomplete projects (Kebede, 2018). The procurement process is often complicated by bureaucratic inefficiencies and a lack of transparency, making it difficult for contractors to secure necessary resources and contracts. Streamlining the procurement process and ensuring that financing options are readily available will be crucial for promoting a more efficient construction environment.

As the industry evolves, embracing technology and innovation will also be essential for enhancing efficiency and project delivery. The adoption of digital tools, such as Building Information Modeling (BIM) and project management software, can facilitate better planning, execution, and monitoring of projects (Jung & Won, 2017). These technologies enable real-time collaboration and improve information sharing among project teams, thereby reducing the likelihood of errors and misunderstandings. Enhanced technology integration can also lead to cost savings and improved project outcomes.

In conclusion, the construction industry in Ethiopia is at a critical juncture, characterized by both significant opportunities and challenges. While government investment and urbanization drive growth, issues such as skilled labor shortages, poor communication, and financial constraints must be addressed to ensure sustainable development. By implementing best practices in project management, fostering effective communication, and embracing technological innovations, Ethiopia can enhance its construction industry’s performance and contribute to the country’s overall economic development.

2.1.10. MIDROC Investment Group

MIDROC Investment Group is one of Ethiopia's leading conglomerates, established in 1994 by Sheikh Mohammed Hussein Ali Al-Amoudi. The group has diversified interests across various sectors, including construction, manufacturing, agriculture, and mining. Within the construction sector, MIDROC has played a significant role in the country's infrastructure development, contributing to both public and private projects (MIDROC, 2021). The company’s commitment to quality and innovation has positioned it as a key player in the Ethiopian construction landscape.

The MIDROC Investment Group in Ethiopia serves as a pertinent case study for examining the effects of project communication management on performance. MIDROC, a leading conglomerate in the region, has engaged in numerous construction projects that embody the challenges and dynamics inherent in the industry. Understanding how communication practices within MIDROC influence project success can provide valuable insights applicable beyond the Ethiopian context (MIDROC, 2021).

MIDROC's construction division has extensive experience in executing large-scale infrastructure projects. The company has successfully completed numerous projects that include residential buildings, commercial complexes, roads, bridges, and energy facilities. Projects such as the Hilton Hotel in Addis Ababa and various housing developments showcase MIDROC's capability to manage complex construction tasks while adhering to international standards (MIDROC, 2021). This experience has enabled the firm to build a solid reputation for delivering high-quality construction services in the Ethiopian market.

Among the many projects undertaken by MIDROC, the construction of the Addis Ababa Light Rail Transit system stands out as a significant achievement. This project, completed in 2015, marked Ethiopia's first light rail system and was a critical step toward modernizing the country’s public transportation infrastructure (World Bank, 2016). The successful execution of this project demonstrated MIDROC's expertise in handling large-scale urban infrastructure initiatives, contributing to the alleviation of traffic congestion in the capital city.

As of 2023, MIDROC continues to engage in several ongoing projects that reflect its commitment to supporting Ethiopia's development goals. Current initiatives include the construction of new residential complexes to address the growing housing demand in urban areas and infrastructure projects aimed at expanding the country’s energy capacity (MIDROC, 2021). These projects not only contribute to the economic development of the region but also create numerous job opportunities for local communities.

MIDROC's investment in construction projects has been substantial, with expenditures reaching billions of Ethiopian Birr over the years. The company allocates significant resources to ensure that projects are completed to the highest standards, often investing in modern technologies and

skilled labor to enhance efficiency (MIDROC, 2021). This financial commitment underscores MIDROC's role as a major contributor to Ethiopia's economic growth and infrastructure development.

Despite its successes, MIDROC has faced several challenges in the Ethiopian construction sector. Issues such as skilled labor shortages, bureaucratic hurdles, and supply chain disruptions have posed obstacles to project timelines and costs (Kebede, 2018). Additionally, the fluctuating prices of construction materials can impact the overall budget and financial planning for ongoing and future projects. Addressing these challenges remains crucial for MIDROC to maintain its competitive edge.

MIDROC places a strong emphasis on quality and safety in all its construction endeavors. The company adheres to strict safety protocols and quality assurance measures to ensure that projects meet regulatory standards and client expectations (MIDROC, 2021). By prioritizing safety and quality, MIDROC aims to minimize workplace accidents and enhance the durability and functionality of its constructed facilities, which is essential for long-term sustainability.

The integration of technology into MIDROC's construction processes has significantly improved project efficiency and outcomes. The company employs modern construction techniques and project management software to streamline operations, facilitate communication, and enhance collaboration among stakeholders (Jung & Won, 2017). By leveraging technology, MIDROC can better manage project timelines, reduce costs, and improve overall project delivery.

MIDROC is also committed to sustainable construction practices, recognizing the importance of environmental stewardship in the industry. The company has adopted eco-friendly building materials and energy-efficient designs in its projects to minimize environmental impact (MIDROC, 2021). This commitment to sustainability not only aligns with global trends but also resonates with the growing demand for responsible construction practices in Ethiopia.

MIDROC Investment Group is a cornerstone of the Ethiopian construction industry, with a wealth of experience and a robust portfolio of completed and ongoing projects. The company's significant financial investments focus on quality and safety, and commitment to sustainable practices position it as a leader in infrastructure development. As Ethiopia continues to grow and

urbanize, MIDROC's role will be crucial in shaping the country’s future through innovative and effective construction solutions.

2.1.11. Challenges in Project Communication in Construction

Effective communication is a cornerstone of successful project management in the construction industry. However, various challenges can impede clear and efficient communication among stakeholders. These challenges can lead to misunderstandings, delays, and cost overruns, ultimately affecting project outcomes. This section explores nine key challenges in project communication within the construction sector.

One of the primary challenges in construction communication is the involvement of diverse stakeholder groups, each with unique interests and communication styles. Stakeholders include clients, contractors, subcontractors, architects, engineers, and regulatory authorities (Kebede, 2018). The varying levels of expertise and different priorities can complicate communication, leading to misunderstandings. For instance, technical jargon may be familiar to engineers but may confuse clients, resulting in misaligned expectations.

Construction projects often involve teams and subcontractors spread across different locations. This geographical dispersion can create significant communication barriers, particularly in large-scale projects (Zou et al., 2016). When teams are not co-located, relying on digital communication tools becomes essential, but these tools may not always effectively convey nuanced information. Miscommunication can occur when team members interpret messages differently or when delays in information transfer lead to outdated decisions.

Cultural differences among project stakeholders can further complicate communication. In an increasingly globalized construction industry, teams may include members from diverse backgrounds and cultures (Kebede, 2018). These cultural variations can influence communication styles, attitudes, and interpretations of non-verbal cues. For example, some cultures may prioritize direct communication, while others may rely on indirect messages. Failing to recognize and adapt to these differences can lead to misunderstandings and conflicts.

Language differences pose a significant challenge in project communication, especially in multinational projects. When stakeholders speak different languages the risk of misinterpretation increases (Zou et al., 2016). This challenge is particularly acute in the construction sector, where precise language is crucial for conveying technical specifications and safety protocols. Translation errors or misunderstandings can have serious consequences, including safety risks and project delays.

The effectiveness of communication in construction projects is often hampered by inadequate tools and technologies. While digital tools can enhance information sharing and collaboration, not all stakeholders may be familiar with or have access to these technologies (Kebede, 2018). Additionally, some construction teams may rely on outdated communication methods, such as paper-based reporting, which can impede real-time communication and lead to delays in decision-making. Ensuring that all stakeholders are equipped with the necessary tools is crucial for effective communication.

The absence of standardized communication protocols can lead to inconsistencies in information sharing among project stakeholders. Without clear guidelines on how information should be communicated, different teams may adopt varied practices, resulting in confusion and misalignment (PMI, 2017). Establishing standardized communication protocols can significantly improve clarity and consistency, ensuring that all parties are on the same page regarding project updates, changes, and expectations.

Time pressures in construction projects can lead to rushed communication and decision-making, increasing the likelihood of errors and misunderstandings. When project teams are under pressure to meet tight deadlines, they may prioritize speed over clarity, resulting in incomplete or ambiguous messages (Bourne & Weaver, 2010). This urgency can undermine the quality of communication, further exacerbating misunderstandings and conflicts among stakeholders.

In construction projects, stakeholders often face an overwhelming amount of information, which can hinder effective communication. Project managers and team members may struggle to prioritize critical information amidst the noise (Zou et al., 2016). When stakeholders are bombarded with excessive details, important messages can be overlooked or misunderstood.

Implementing strategies to filter and prioritize information is essential for ensuring that relevant updates are communicated effectively.

Finally, resistance to change among team members can pose a barrier to effective communication. As the construction industry increasingly adopts new technologies and communication practices, some individuals may be reluctant to adapt to these changes (Kebede, 2018). This resistance can hinder the implementation of improved communication strategies, perpetuating existing challenges. Overcoming this resistance requires strong leadership and a commitment to fostering a culture of open communication and continuous improvement.

In summary, effective communication in the construction industry is fraught with challenges that can significantly impact project success. By understanding these challenges ranging from diverse stakeholder interests and cultural differences to inadequate tools and resistance to change project managers can develop targeted strategies to improve communication. Addressing these issues is essential for fostering collaboration, minimizing misunderstandings, and ultimately ensuring successful project outcomes.

2.1.12. Theoretical Review

Effective project communication management is essential for successful project performance in the construction industry. Various theoretical frameworks help to understand how communication practices influence project outcomes. This discussion explores in the Ethiopian context, several theories are particularly relevant to the construction industry and the study of project communication management's effect on project performance. Here are some theories that align well with the unique challenges and dynamics of the construction sector in Ethiopia:

2.1.12.1. Stakeholder Theory

Stakeholder theory emphasizes the critical role of communication in managing relationships and expectations among various parties involved in a project (Freeman, 1984). In the construction industry, where projects involve multiple stakeholders with differing interests, effective communication management becomes essential for identifying and addressing these diverse needs. By engaging stakeholders through regular updates, meetings, and feedback mechanisms,

project managers can foster a collaborative environment that enhances trust and transparency. This proactive approach not only helps in mitigating conflicts but also ensures that stakeholders feel valued and heard which is crucial for maintaining their support throughout the project lifecycle.

Moreover, the alignment of project objectives with stakeholder interests, as highlighted in stakeholder theory, directly impacts project performance. When project managers prioritize stakeholder engagement and incorporate their feedback into decision-making processes, they can identify potential challenges early and adapt strategies accordingly (Khalid et al., 2019). This alignment leads to improved satisfaction among stakeholders, which can translate into better resource allocation, timely approvals, and a smoother execution of project phases. Ultimately, effective communication management, grounded in stakeholder theory, serves as a foundational element that supports the successful delivery of construction projects by ensuring that all parties are committed to shared goals and objectives.

2.1.12.2. Communication Theory

Communication theory highlights the fundamental importance of effective information exchange in achieving successful project outcomes. The Shannon-Weaver model of communication outlines the process of encoding, transmitting, and decoding messages, emphasizing that effective communication requires clarity, accuracy, and feedback (Shannon & Weaver, 1949). In the context of the construction industry, where multiple stakeholders including clients, contractors, and subcontractors interact, the potential for miscommunication can significantly impact project performance. Effective project communication management ensures that all messages are conveyed clearly and understood by all parties, reducing the likelihood of errors that can lead to delays, cost overruns, and conflicts (Zou et al., 2016).

Furthermore, communication theory underscores the role of feedback in the communication process, which is essential for continuous improvement and adaptation in construction projects. Regular feedback mechanisms, such as progress meetings and reporting systems, enable stakeholders to share insights and address concerns promptly (Khalid et al., 2019). When project managers foster an environment where feedback is encouraged and acted upon, they can enhance

collaboration and responsiveness among team members. This iterative communication process not only helps in resolving issues as they arise but also contributes to a more cohesive project team, ultimately leading to improved project performance. By applying principles from communication theory, construction managers can develop effective communication strategies that enhance stakeholder engagement and optimize project outcomes.

2.1.12.3. Systems Theory

Systems theory provides a comprehensive framework for understanding the interconnected components of construction projects, particularly in the Ethiopian context, where projects often involve multiple stakeholders, complex processes, and varying external conditions. This theory posits that a project functions as a system made up of interrelated parts, including human resources, materials, technology, and environmental factors (Bertalanffy, 1968). In Ethiopia, where infrastructure development is critical for economic growth, effective communication management is essential for coordinating these components. By fostering clear communication among stakeholders, project managers can ensure that each part of the system works harmoniously, thereby enhancing overall project performance.

In the Ethiopian construction industry, the integration of effective communication practices can significantly improve the coordination among various stakeholders, including government agencies, contractors, and local communities. Systems theory emphasizes that the success of a project relies on the synergy between its components (Khalid et al., 2019). For instance, when communication channels are established and maintained, stakeholders can share critical information regarding project progress, challenges, and changes in requirements. This timely exchange of information enables the project team to adapt to changing circumstances, reduces the likelihood of conflicts, and enhances decision-making processes, ultimately leading to improved project outcomes.

Moreover, systems theory highlights the importance of feedback loops within the project management process. In the Ethiopian context, where projects often encounter unforeseen challenges such as resource shortages or regulatory changes, effective communication management can facilitate timely feedback from all stakeholders (Mahamid, 2013). This

feedback is crucial for identifying potential issues early and implementing corrective measures before they escalate into significant problems. By treating construction projects as dynamic systems that require ongoing communication and feedback, project managers can enhance collaboration, boost stakeholder satisfaction, and achieve better project performance.

2.1.12.4. Change Management Theory

Change management theory underscores the importance of effective communication in navigating transitions within projects, particularly in the construction industry. In the Ethiopian context, where infrastructure projects often face shifts in regulatory requirements, project scope, or community expectations, effective communication is essential for managing these changes smoothly (Kotter, 1996). By ensuring that all stakeholders are informed and engaged during periods of change, project managers can mitigate resistance, foster collaboration, and maintain project momentum. This proactive approach to change management enhances the likelihood of project success by aligning stakeholder interests with evolving project goals.

In Ethiopia, construction projects often encounter unforeseen challenges that necessitate changes in plans or methodologies. Effective communication management facilitates the timely dissemination of information regarding these changes, allowing stakeholders to adapt quickly and efficiently (Mahamid, 2013). For instance, when a regulatory change occurs, clear communication about the implications and necessary adjustments can help stakeholders adjust their expectations and strategies accordingly. This transparency not only reduces confusion but also builds trust among stakeholders, which is crucial for maintaining cooperation throughout the project lifecycle.

Furthermore, change management theory highlights the need for feedback mechanisms to assess the impact of changes and gather insights from stakeholders (Kotter, 1996). In the Ethiopian construction sector, establishing formal feedback loops can provide project managers with valuable information on how changes are perceived and whether they are effectively implemented. By incorporating stakeholder feedback into the change management process, project managers can refine communication strategies and make necessary adjustments to improve project performance. This cyclical process of communication, feedback, and adaptation

ultimately enhances stakeholder engagement and contributes to more successful project outcomes.

2.1.12.5. Cultural Dimensions Theory

Cultural Dimensions Theory, developed by Geert Hofstede, provides a framework for understanding how cultural differences impact communication and collaboration within organizations (Hofstede, 1980). In the Ethiopian construction industry, where a diverse array of ethnic groups and cultural backgrounds coexist, the application of this theory is particularly relevant. Effective project communication management must account for these cultural differences to ensure that all stakeholders are engaged and that their unique perspectives are acknowledged. By recognizing and addressing the cultural dimensions that influence communication styles such as individualism versus collectivism and power distance project managers can tailor their communication strategies to foster a more inclusive and effective project environment.

In Ethiopia, where collectivist cultures are prevalent, communication practices that emphasize group cohesion and consensus-building are vital for project success. Stakeholders are more likely to engage positively when communication is framed in a way that respects community values and encourages collaboration (Khalid et al., 2019). For example, involving local leaders or community representatives in communication processes can facilitate trust and enhance stakeholder buy-in. By adapting communication management practices to align with cultural norms, project managers can improve stakeholder relationships, reduce resistance to change, and ultimately enhance project performance.

Furthermore, Cultural Dimensions Theory highlights the significance of understanding power dynamics and hierarchies within different cultural contexts (Hofstede, 1980). In the Ethiopian construction industry, recognizing the varying levels of power distance can help project managers communicate more effectively with stakeholders at different organizational levels. For instance, when engaging with local communities or lower-level workers, a more participative communication approach may be necessary, whereas interactions with government officials or senior executives may require a more formal style. By tailoring communication to reflect these

power dynamics, project managers can ensure that messages are received appropriately, fostering better collaboration and improving overall project performance.

2.1.12.6. Project Management Theory

Project management theory emphasizes the systematic application of knowledge, skills, tools, and techniques to project activities to meet project requirements. In the context of the construction industry in Ethiopia, where rapid urbanization and infrastructure development are key drivers of economic growth, effective project communication management becomes vital. Theories such as the Project Management Body of Knowledge (PMBOK) and Agile project management provide frameworks that enhance communication, stakeholder engagement, and adaptability to change, which are crucial in a dynamic environment like Ethiopia's construction sector (PMI, 2017). MIDROC Investment Group, as a leading construction firm in Ethiopia, exemplifies the implementation of these theories to improve project performance by fostering clear communication channels, promoting collaboration among diverse stakeholders, and ensuring that projects meet their objectives in terms of time, cost, and quality.

In the Ethiopian context, challenges such as limited resources, regulatory hurdles, and socio-economic factors can impact project performance. However, by integrating project management theories into their operations, MIDROC Investment Group can leverage structured communication strategies to mitigate these challenges. For instance, the application of stakeholder theory can help identify and prioritize the needs of various stakeholders, including government agencies, clients, and local communities, thereby enhancing stakeholder satisfaction and project success (Freeman, 1984). Moreover, adopting a project lifecycle approach allows MIDROC to continuously assess and improve communication practices throughout the project phases, ultimately leading to enhanced performance outcomes. This theoretical framework not only aids in achieving project goals but also contributes to the broader development objectives in Ethiopia, aligning with national policies aimed at improving infrastructure and economic resilience (World Bank, 2020).

Stakeholder theory, communication theory, systems theory, change management theory, cultural dimensions theory and Project management theory are all highly relevant to the Ethiopian

construction industry. These theories can provide valuable insights into how effective communication management can enhance project performance, particularly in a context characterized by diverse stakeholder interests and cultural dynamics.

2.2. Review of Empirical Literature

2.2.1. In the Ethiopian Context

Project communication management is a crucial aspect of successful project delivery in the construction industry. In Ethiopia, where infrastructure development is essential for economic growth, effective communication among stakeholders significantly influences project performance. This review examines local studies that explore the relationship between project communication management and project performance within the Ethiopian construction context, highlighting key findings and implications.

A study by Amare (2020) emphasized the importance of stakeholder engagement in construction projects in Ethiopia. The research found that effective communication strategies are critical for aligning project objectives with stakeholder expectations. Projects that implemented regular stakeholder meetings and feedback mechanisms reported higher satisfaction levels among clients and contractors, leading to improved project outcomes. This study underscores the role of proactive communication in fostering collaboration and minimizing conflicts among stakeholders.

Hassan and Mohammed (2021) investigated how cultural dimensions impact communication practices in Ethiopian construction projects. Their findings revealed that understanding local cultural norms significantly enhances communication effectiveness. Projects that incorporated culturally relevant communication strategies such as involving community leaders in discussions experienced better stakeholder buy-in and reduced resistance to changes. This indicates that culturally sensitive communication practices can lead to improved project performance by fostering trust and cooperation.

A study by Desta et al. (2019) focused on the role of information sharing and technology in project communication management. The researchers found that the adoption of digital

communication tools, such as project management software and mobile applications, significantly improved information flow among project teams. Projects that utilized these technologies reported reduced delays and enhanced decision-making processes. The study highlights the importance of integrating technology into communication practices to enhance overall project performance.

The research conducted by Kebede et al. (2022) examined the effectiveness of feedback mechanisms in construction project communication. The study found that projects with established feedback loops where stakeholders could share insights and concerns were more likely to address issues promptly and adapt to changes effectively. This continuous improvement approach led to higher project performance metrics, including adherence to timelines and budgets. The findings emphasize the need for systematic feedback processes to enhance communication management.

Tadesse and Woldemariam (2021) explored the impact of training on communication skills within project teams. The results indicated that projects with team members trained in effective communication techniques experienced fewer misunderstandings and conflicts. Training initiatives focused on improving interpersonal skills and cultural awareness contributed to a more collaborative project environment. This study suggests that investing in communication training can have a positive effect on project performance by enhancing team dynamics.

Research by Abebe and Girma (2023) highlighted the influence of leadership styles on communication effectiveness in construction projects. Their study found that transformational leadership, characterized by open communication and encouragement of team input, led to improved project performance. Leaders who fostered an environment of trust and collaboration were more successful in achieving project goals. This finding underscores the importance of leadership in shaping communication practices that can enhance project outcomes in the Ethiopian context.

Despite the positive findings, a study by Mulugeta et al. (2021) pointed out several challenges affecting communication management in Ethiopian construction projects. Common issues included language barriers, lack of proper documentation, and inadequate communication

training among staff. These challenges often led to misunderstandings and delays, negatively impacting project performance. Addressing these barriers through targeted training and improved communication protocols is essential for enhancing project success.

The empirical evidence from local studies in Ethiopia demonstrates a clear link between effective project communication management and improved project performance in the construction industry. Key factors such as stakeholder engagement, cultural sensitivity, technology adoption, feedback mechanisms, and training play crucial roles in shaping communication practices. As Ethiopia continues to develop its infrastructure, enhancing communication management strategies will be essential for achieving successful project outcomes and fostering sustainable growth.

2.2.2. In the Africa Context

Effective project communication management plays a pivotal role in the successful delivery of construction projects across Africa. In a region characterized by diverse cultural contexts, economic challenges, and varying stakeholder interests, the quality of communication can significantly influence project outcomes. This review examines local studies that explore the impact of project communication management on project performance within the African construction context, highlighting key findings and implications.

A study by Ofori and Toor (2020) investigated the relationship between stakeholder communication and project success in the Ghanaian construction industry. The findings revealed that projects with effective communication strategies experienced higher levels of stakeholder satisfaction and project success. Regular updates and transparent information sharing were identified as critical components of successful communication management. This research underscores the importance of engaging all stakeholders throughout the project lifecycle to align expectations and enhance overall performance.

In South Africa, a study by Moyo et al. (2019) examined how cultural factors affect communication practices in construction projects. The research highlighted that cultural diversity among project teams can lead to misunderstandings and conflicts if not managed properly. Projects that adopted culturally sensitive communication approaches such as inclusive meetings

and respect for local customs achieved better collaboration and improved project outcomes. This study emphasizes the need for project managers to be aware of cultural dynamics and to tailor their communication strategies accordingly to foster effective collaboration.

A study conducted by Agyekum et al. (2021) in Kenya explored the role of technology in enhancing communication management within construction projects. The researchers found that the adoption of digital communication tools, such as project management software and mobile applications, significantly improved information sharing among project stakeholders. The use of technology reduced delays and facilitated real-time updates, leading to enhanced decision-making and project performance. This finding highlights the importance of integrating modern communication technologies into project management practices to optimize performance in the African construction industry.

2.2.3. In Developed Countries context

In developed countries, effective project communication management is increasingly recognized as a critical factor influencing the success of construction projects. With advanced infrastructure demands and complex stakeholder interactions, the ability to communicate effectively is essential for achieving project goals. This review examines studies from developed countries that explore the relationship between project communication management and project performance in the construction industry, highlighting key findings and implications.

A study by Zuo et al. (2017) in Australia examined the impact of structured communication strategies on project outcomes in the construction sector. The research found that projects employing formal communication channels, such as regular status meetings and detailed reporting systems, significantly improved stakeholder engagement and project performance. The study concluded that effective communication not only enhances information flow but also fosters a collaborative environment that is crucial for successful project execution. This finding underscores the importance of establishing clear communication protocols to mitigate risks and ensure project alignment.

In the United Kingdom, research by Chan et al. (2019) explored the role of information technology in facilitating project communication management. The study revealed that the use of

collaborative software and digital platforms significantly enhanced communication efficiency among project teams. Projects that utilized these technologies reported reduced misunderstandings and quicker decision-making processes, leading to improved project timelines and budgets. This highlights the importance of integrating modern communication tools into project management practices to optimize performance in the construction industry.

A study conducted by Emmitt and Gorse (2018) in the United States focused on the cultural dimensions of communication within construction projects. The findings indicated that understanding the cultural backgrounds of team members was critical for effective communication. Projects that embraced diversity and tailored communication styles to accommodate different cultural perspectives experienced better teamwork and project outcomes. This research emphasizes the need for project managers in developed countries to consider cultural factors in their communication strategies to enhance collaboration and performance.

2.3. Research Gaps

One significant research gap in the context of MIDROC Investment Group is the limited understanding of effective communication management practices specific to the Ethiopian construction industry. While several studies have examined general communication strategies in construction, there is a lack of empirical research focusing on how these practices influence project performance within local firms like MIDROC. Investigating the specific communication challenges and successes encountered by MIDROC can provide valuable insights into how tailored communication strategies can enhance stakeholder engagement, reduce conflicts, and improve overall project outcomes (Khalid et al., 2019). This gap highlights the need for studies that not only assess existing communication frameworks but also propose context-specific solutions that align with local cultural and operational dynamics.

Inadequate project communication management training and development is another factor contributing to the issue. Due to a lack of formal education and training in efficient communication techniques, many professionals in Ethiopia's construction business rely on unofficial methods that might not be as successful (Adeleke et al., 2020). This knowledge and

ability gap may cause bad communication practices to persist, which would be detrimental to the success of the project.

Another critical research gap pertains to the impact of cultural diversity on project performance in the construction sector, particularly within MIDROC Investment Group. Ethiopia is characterized by a rich tapestry of ethnic groups and cultural backgrounds, which can significantly affect teamwork and communication in construction projects. Existing literature often overlooks the implications of cultural diversity in project management practices. Research focusing on how cultural differences influence communication styles, stakeholder interactions, and team dynamics in MIDROC's projects could provide essential insights (Moyo et al., 2019). Understanding these dynamics is crucial for developing effective management strategies that foster collaboration and enhance project performance, thereby contributing to the successful delivery of construction projects in Addis Ababa, Ethiopia.

2.4. Conceptual Frame Work of the Study

The conceptual framework of this study was designed to illustrate the relationship between project communication management and project performance in the construction industry, particularly within the context of MIDROC Investment Group in Addis Ababa, Ethiopia. This framework integrates key concepts derived from the literature review, components of project communication management including stakeholder engagement, communication practices, cultural influences, and the use of technology and project performance

This conceptual framework provides a structured approach to understanding the dynamics between project communication management and performance outcomes in the construction industry. By focusing on the specific context of MIDROC Investment Group in Addis Ababa, it sets the stage for further empirical investigation into how these relationships manifest in practice, ultimately contributing to the improvement of project delivery in Addis Ababa, Ethiopia.

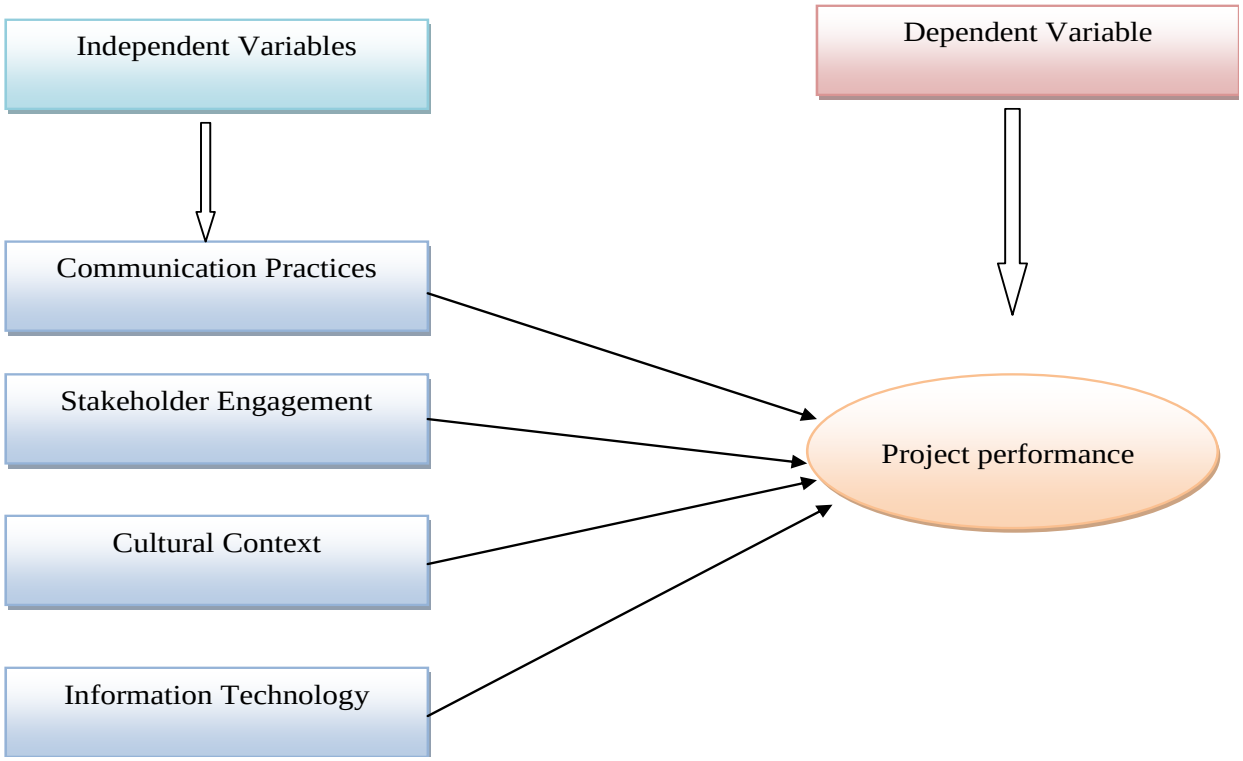

Figure 2.1: The research framework,

Source: (Khalid, Ali, & Kadir, 2019; Moyo, Smit, & Venter, 2019)

2.5. Hypotheses

Hypotheses based on the components of conceptual framework related to project communication management and project performance in the construction industry:

H1: Communication practices positively influence the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia.

H2: Stakeholder engagement positively influences the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia.

H3: The cultural context of stakeholders positively influences the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia.

H4: Information technology positively influences the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia.

CHAPTER THREE
RESEARCH METHODOLOGY

In this Research Methodology chapter, research design, approach, and specific methods employed in the study on performance appraisal practices at the Bank of Abyssinia are described. These sections were structured to provide clarity and coherence, allowing readers to understand how the research was conducted.

3.1. Research Approach

The research approach for this study employed qualitative methodologies to comprehensively assess the effect of project communication management on project performance within the construction industry. This facilitated the measurement of various communication management practices and their perceived impact on project outcomes, such as timeliness, budget adherence, and quality metrics. This combination of methods allows for a robust analysis that leverages the strengths of both quantitative and qualitative data (Creswell & Plano Clark, 2018).

3.2. Research Design

This study was utilized a case study research design, focusing specifically on MIDROC Investment Group to explore the relationship between project communication management and project performance in the construction industry. The case study approach is particularly suitable for this investigation as it allows for an in-depth examination of complex phenomena within their real-life context (Yin, 2018). By employing a case study research design focused on MIDROC Investment Group, this study aims to provide a nuanced understanding of the relationship between project communication management and project performance. This approach not only facilitates an in-depth exploration of the challenges and successes faced by MIDROC but also generates valuable insights that can inform practice within the Ethiopian construction industry.

This will provide a comprehensive understanding of the communication practices employed, the challenges faced, and the subsequent impact on project outcomes. The case study was also facilitated the exploration of specific projects, enabling a detailed analysis of how

communication management contributes to factors such as project completion time, cost efficiency, and overall quality.

3.3.Target Population & Sampling

3.3.1. Target Population

The target population for this study comprises individuals involved in project management within MIDROC Investment Group, specifically those engaged in construction projects in Addis Ababa. This includes project managers, construction engineers, architects, and support staffs who directly participates in the planning, execution, and monitoring of projects. These stakeholders are crucial as they have firsthand experience with project communication management practices and can provide valuable insights into how these practices affect project performance. By focusing on this specific group, the study aims to gather relevant data out of from 834 employees the researcher plan from 271 population that reflects the realities of communication dynamics in the construction industry in Ethiopia (Bryman, 2016).

3.3.2. Sampling Technique

In this study, a stratified random sampling technique was employed to ensure that various roles within MIDROC Investment Group are adequately represented. By employing a stratified random sampling technique alongside with data collection tools, the study aims to capture a comprehensive view of project communication management across different roles within MIDROC Investment Group. This will ensure that the findings are representative and provide valuable insights into how communication practices influence project performance.

This method allows the researcher to divide the population into distinct subgroups (strata), such as project managers, engineers, and support staff, and then randomly select participants from each stratum. This sampling technique helps to capture a wide range of perspectives on communication management practices and their effects on project performance, enhancing the generalizability of the findings (Creswell & Plano Clark, 2018).

3.3.3. Sample size

The number of employees within MIDROC Investment Group Addis Ababa is 834 (HRM Activity Report of the Organization July 2024). Yamane (1967) provides a simplified formula to calculate sample size. This formula was used to obtain manageable sample size from such large population taking into account 95% confidence level. Hence, the sample size was computed using the following formula: -

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

Where, n =sample size, N = total population size e = maximum tolerable sampling error=5% Given: N = 834, e =5% or 0.05, solving formula using 95% of confidence, interval

$$\mathbf{n} = \frac{834}{1+834\ (0.05)2} = \frac{834}{1+834.0.0025} = \frac{834}{1+2.085} = \frac{834}{3.085} \approx \underline{\underline{\mathbf{270.4}}}$$

The required sample size n was **271**.

In this study, the researcher utilized a sample size of 271 participants, which included all 9 Project Managers, all 11 Construction Engineers, and all 14 Architects."

3.4.Type and Sources of Data

3.4.1. Type of Data

To thoroughly evaluate the effect of project communication management on project performance within MIDROC Investment Group, this study was making use of qualitative data types. Project managers, engineers, and other team members were among the stakeholders whose data was gathered from MIDROC-managed initiatives.

Quantitative data was collected through structured questionnaires designed to measure specific variables related to project communication management and performance metrics. Structured questionnaires distributed to project managers and team members at MIDROC Investment Group in Addis Ababa. The use of a Likert scale in the survey allows respondents to express their levels of agreement or satisfaction with various statements related to these topics. This scaling method

was advantageous because it simplifies complex opinions into quantifiable data, facilitating statistical analysis and comparison (Dawes, 2008).

Likert scales are particularly effective in capturing the nuances of respondents' attitudes and perceptions providing a richer dataset for analysis. By allowing for a range of responses, from strong disagreement to strong agreement, the Likert scale can reveal patterns and trends that may not be evident through binary response options. Moreover, this method enhances the reliability of the data, as it enables respondents to convey varying degrees of opinion rather than forcing them into a dichotomous choice (Joshi et al., 2015). Quantitative data will facilitate statistical analysis to identify correlations and patterns between communication management practices and project performance (Creswell, 2014).

3.4.2. Source of Data

This study was utilized both primary and secondary sources of data to assess the effect of project communication management on project performance within MIDROC Investment Group in Addis Ababa.

3.4.2.1.Primary Data

Primary data was collected directly from participants involved in project management at MIDROC Investment Group. This was included:

Surveys: Structured questionnaires were distributed to project managers, engineers, and team members to gather quantitative data on communication practices and project performance metrics.

Interviews: Semi-structured interviews were conducted with selected stakeholders to obtain qualitative insights into their experiences with communication management; challenges faced, and perceived impacts on project outcomes. Data was collected from various stakeholders involved in projects managed by MIDROC, including project managers, engineers, and other team members.

These interviews were allowed for in-depth exploration of themes related to communication effectiveness (Hancock et al., 2009).

By collecting primary data, the study aims to capture firsthand information that is directly relevant to the research questions.

3.4.2.2.Secondary Data

Secondary data were sourced from existing documents and records related to project performance at MIDROC Investment Group in Addis Ababa. This was included:

Project Reports: Documentation of past construction projects, including performance evaluations and communication logs.

Organizational Policies: Company policies and procedures regarding communication management in project settings.

Literature Review: Academic articles and industry reports that provide additional context and background on project communication management and its effects on performance within the construction industry (Creswell, 2014).

Using secondary data was enrich the analysis by providing a contextual framework and supporting evidence for the findings derived from primary data collection.

3.5.Data Analysis Methods

This study was employed both quantitative and qualitative data analysis methods to assess the effect of project communication management on project performance within MIDROC Investment Group.

3.5.1. Quantitative Data Analysis

Quantitative data collected from structured questionnaires were analyzed using statistical software such as SPSS version 26.0 or Excel. The following analytical techniques will be employed:

Descriptive Statistics: Initial analysis was involved calculating measures such as means, and standard deviations to summarize participant responses regarding communication practices and project performance metrics.

Correlation Analysis: Pearson or Spearman correlation coefficients will be calculated to examine the relationships between different communication management practices and project performance indicators, such as timeliness and budget adherence (Field, 2018).

Regression Analysis: Multiple regression analysis was conducted to assess the predictive power of various communication practices on project performance outcomes. This method will help determine the strength and direction of relationships among the variables (Creswell, 2014).

These statistical methods will provide a robust framework for understanding how different aspects of communication management influence project performance.

3.5.2. Qualitative Data Analysis

Qualitative data obtained from semi-structured interviews will be analyzed using thematic analysis, following the steps outlined by Braun and Clarke (2006). The analysis process was included:

Transcription: Audio recordings of interviews were transcribed verbatim to capture all spoken content.

Coding: Initial coding was involved identifying key phrases and concepts related to communication management and project performance.

Theme Development: Codes were grouped into broader themes that reflect common patterns and insights shared by participants, allowing for a deeper understanding of the qualitative aspects of communication practices.

The integration of qualitative insights were enriched the overall findings, providing context and depth to the quantitative results.

3.6.Model Specification

The model specification for this study aims to elucidate the relationship between project communication management practices and project performance outcomes within MIDROC

Investment Group. The framework integrates both quantitative and qualitative dimensions, allowing for a comprehensive analysis of the data collected.

3.6.1. Quantitative Model

The quantitative aspect of the model was employed a multiple regression framework to examine how various independent variables related to project communication management influence dependent variables representing project performance. The general form of the regression model can be expressed as follows:

$$\mathbf{PP} = \beta 0 + \beta_1 \mathbf{CP} + \beta_2 \mathbf{SE} + \beta_3 \mathbf{CC} + \beta_4 \mathbf{IF} + \epsilon$$

PP= Project performance (measured by variables such as cost efficiency, timeliness, and quality)

β 0 = Intercept

CP= **Communication Practices**

SE=Stakeholder Engagement:

CC=Cultural Context:

IF=Information Technology:

ϵ = Error term

This model will allow for the evaluation of the significance and strength of the relationships between communication practices and project performance outcomes (Hair et al., 2019).

3.7.Validity and Reliability

Ensuring the reliability and validity of the research instruments were crucial for the credibility of the findings in this study on the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa.

3.7.1. Validity

Validity refers to the extent to which the research instruments measure what they are intended to measure. To ensure that the questionnaire adequately covers all relevant aspects of project

communication management and performance, it was reviewed by experts in project management and communication. Their feedback was used to refine the items in the questionnaire, ensuring that the content is comprehensive and relevant (Polit & Beck, 2012). This was assessed through factor analysis, which was determined whether the items on the questionnaire group together in a way that aligns with theoretical expectations. This process was helping confirm that the instrument accurately reflects the underlying constructs of communication management and project performance (Hair et al., 2019).

3.7.2. Reliability

Reliability refers to the consistency of a measure; a reliable instrument yields the same results under consistent conditions. To assess the reliability of the structured questionnaire used in this study, the following methods will be employed Cronbach's Alpha. This statistic was calculated to evaluate the internal consistency of the scales used to measure different aspects of communication management and project performance. A Cronbach's alpha value of 0.70 or higher is generally considered acceptable (Tavakol & Dennick, 2011).

Table 3.2: Cronbach's Alph test Reliability Statistics

Cronbach's Alpha	N of Items
.915	30

Source: Survey result, (2024)

The reliability statistics indicate a Cronbach's Alpha of 0.915 for the 30 items in the study. This value suggests a high level of internal consistency among the items, meaning that they are likely measuring the same underlying construct effectively. Generally, a Cronbach's Alpha above 0.70 is considered acceptable, while values above 0.90 indicate excellent reliability. Therefore, the result of 0.915 implies that the measurement scale used in this study is very reliable, providing confidence that the items are consistently reflecting the concepts related to project communication management and performance.

3.8.Ethical Considerations

Ethical considerations are paramount in conducting research, particularly when human subjects are involved. This study on the effect of project communication management on project

performance within MIDROC Investment Group in Addis Ababa was adhered to ethical guidelines to ensure the integrity and welfare of participants.

Participants were fully informed about the purpose of the study, the procedures involved, and their rights as participants. Informed consent was obtained prior to data collection. This process was ensured that participants were aware of their voluntary participation and can withdraw from the study at any time without any negative consequences (Creswell, 2014). The consent form will outline the study's objectives, the use of data, and confidentiality assurances.

To protect participants' privacy, all data collected was anonymized. Identifiable information was removed from the data set, and participants were assigned unique identifiers. Furthermore, the data was stored securely and accessible only to the research team. This practice aligns with ethical standards to safeguard participants' confidentiality and ensure that their responses cannot be traced back to them (Bryman, 2016).

The study was designed to minimize any potential psychological or emotional distress for participants. Questions were framed sensitively, and participants were encouraged to skip any questions they find uncomfortable. Additionally, the research team was prepared to provide resources or support if participants experience any discomfort during the data collection process (Beauchamp & Childress, 2013).

Before commencing the research, ethical approval was sought from the relevant institutional review board or ethics committee. This approval process will ensure that the study adheres to established ethical standards and guidelines throughout its duration (Flick, 2018).

By addressing these ethical considerations, the study aims to conduct research that is respectful of participants' rights and well-being while contributing valuable insights into project communication management in the construction industry.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

Presentations, conversations, and analysis of the primary data gathered via surveys and interview are the topics covered in this chapter. Through the appropriate testing of the models and descriptive statistics, the primary goal of this chapter is to systematically analyze and interpret the data collected during the research process. This involves a comprehensive understanding of the data, drawing meaningful conclusions that contribute to the field of study. While the second half covers descriptive statistics, a method of turning raw data into meaningful information that can be interpreted to explain a set of dimensions, the first portion concentrates on demographic variables. They stand for one of the most crucial preliminary phases of data processing in statistics. Several results, such as frequencies, percentages, means, and standard deviations, may be obtained from this type of statistical analysis (Pallant, 2007). A subset of statistics known as inferential statistics is focused on analyzing, interpreting, and formulating inferences regarding the data's source (Dejene, 2011). This chapter is also systematically analyze and interpret the results from the interviews conducted with key stakeholders in the construction industry, specifically focusing on the perspectives of project managers, construction engineers, and architects.

4.1. Response Rate

A total of 238 questionnaires were distributed to the employees of MIDROC Investment Group in Addis Ababa. Out of the 238 questionnaires distributed, 233 were completed and returned, which corresponds to a response rate of 97.90%. This data provides information about the Effect of Project Communication Management on Project Performance in the Construction Industry: A Case Study of MIDROC Investment Group in the survey, which is an important aspect of the research methodology. The high response rate (97.90% overall) suggests that the researchers were able to obtain a substantial amount of data from the target population, which can contribute to the reliability and generalizability of the study's findings. Similarly, conducting interviews with 30 out of 33 planned participants (90.91% response rate) provides a strong qualitative component to the research, allowing for deeper insights into communication practices within the organization.

According to Saunders et al. (2016), a high response rate improves the representativeness and dependability of the survey data, which raises the standard of the study findings as a whole. The authors suggest that a response rate of 85% or higher is considered very well, while a rate of 60% or higher is still acceptable in most business and management research contexts.

4.2. Demographic Characteristics of the Respondent

Age, gender, educational background, field of study, years of experience in the construction industry, current role in the project current Department/Unit, number of projects worked in years, and type of projects involved in MIDROC Investment Group in Addis Ababa are all included in the respondents' demographic profile for the study. Table 4.2 provides an overview of this.

Table 4.1 Demographic characteristics of respondents

		Frequency	Percentage
Age	Under 25 years	69	26.24%
	26-35years	89	33.84%
	36-45 years	45	17.11%
	46-55 years	41	15.59%
	56 and above years	19	7.22%
Total		**263**	**100.00%**
Gender	Male	169	64.26%
	Female	94	35.74%
Total		**263**	**100.00%**
Educational background	BA/BSc	173	65.78%
	MSc/MA/	83	31.56%
	PhD	7	2.66%
Total		263	100.00%
Field of Study	Construction Management	32	12.17%
	Organizational Communication	3	1.14%
	Business Management	8	3.04%
	Industrial Engineering	8	3.04%
	Information Technology in Construction	5	1.90%
	Human Resource Management	4	1.52%
	Civil Engineering	94	35.74%
	Construction Engineering	35	13.31%
	Project Management	12	4.56%
	Urban Planning	15	5.70%

	Geotechnical Engineering	10	3.80%
	Electrical engineering	28	10.65%
	Environmental Engineering	9	3.42%
Total		263	100.0%
Years of Experience in the Construction Industry	Less than 1 year	62	23.57%
	1-5 years	55	20.91%
	6-10 years	47	17.87%
	11-15 years	83	31.56%
	More than 16 years	16	6.08%
		263	100.0%
Current role in the project	Project Manager	71	27.00%
	Project Coordinator	82	31.18%
	Site Supervisor	71	27.00%
	Stakeholder Engagement Specialist	24	9.13%
	Risk Manager	15	5.70%
Total		263	100.0%
Department/Unit worked	Engineering	185	70.34%
	Project Management	44	16.73%
	Finance	8	3.04%
	Human Resources	4	1.52%
	planning	14	5.32%
	Information Technology	5	1.90%
	Organizational Communication	3	1.14%
Total		**263**	**100.0%**
Number of projects worked in years	1-3years	19	7.46%
	4-6 years	41	15.67%
	7-10years	102	38.81%
	More than 11	101	38.06%
Total		263	100.00%
Type of projects involved in	Residential	51	19.39%
	Commercial	65	24.71%
	Infrastructure	83	31.56%
	Industrial	64	24.33%
Total		263	100.0%

Source: own Survey Result, (2024)

The demographic characteristics of the respondents in the study provide critical insights into how project communication management may affect project performance at MIDROC Investment Group in Addis Ababa, Ethiopia. The following interpretation focuses on key aspects of the data presented in Table 4.1.

The age distribution reveals a predominantly young workforce, with 60.08% of respondents aged 25-35 years. This demographic is likely to be more familiar with modern communication technologies and practices, which can enhance collaboration and efficiency in project management (Chen et al., 2014). Engaging younger employees in communication processes can foster innovation and adaptability, crucial for navigating the fast-paced construction environment.

The gender distribution shows that 64.26% of the respondents are male, while 35.74% are female. This imbalance is typical in the construction industry, which has historically been male-dominated. Effective project communication management must consider gender dynamics to ensure that all voices are heard and valued, potentially leading to improved team cohesion and project outcomes (Dainty et al., 2006).

A significant majority of respondents holds a BA/BSc (65.78%), with 31.56% possessing an MSc/MA. The educational background indicates a well-educated workforce capable of understanding complex project communication requirements. Studies suggest that higher education levels correlate with better communication skills and practices in project environments, leading to enhanced project performance (Alotaibi et al., 2016).

Civil Engineering (35.74%) and Construction Management (12.17%) dominate the fields of study among respondents. Professionals from these disciplines are likely to have a strong grasp of the technical aspects of construction, making effective communication around project specifications and requirements even more critical (Gligoric & Hocevar, 2018). This technical expertise can facilitate clearer communication channels and reduce misunderstandings.

The experience levels indicate that 31.56% of respondents have 11-15 years of experience, while 23.57% have less than a year. This mix provides a balance of seasoned professionals who can mentor less experienced colleagues, fostering a culture of knowledge-sharing and effective

communication (Jefferies et al., 2016). Experienced team members are essential in setting communication standards that can improve overall project performance.

With a substantial number of respondents serving as Project Coordinators (31.18%) and Project Managers (27.00%), these roles are pivotal in facilitating communication among various stakeholders. Effective management of communication processes is essential for ensuring that project goals are met and that all team members are aligned (Karlsen, 2002).

The majority of respondents work in Engineering (70.34%), indicating a strong technical focus within the organization. Clear communication within engineering teams is vital for addressing technical challenges and ensuring that project specifications are met, which directly impacts project performance (Ling et al., 2011).

The data shows that 31.56% of respondents are involved in infrastructure projects, followed closely by commercial (24.71%) and industrial projects (24.33%). Each project type may have distinct communication needs and challenges, emphasizing the importance of tailored communication strategies that address the specific requirements of different project categories (Chen et al., 2014).

The demographic data from MIDROC Investment Group highlights several factors that influence project communication management and performance. A younger, educated workforce with a strong presence in engineering roles suggests a potential for effective communication practices. However, addressing gender dynamics and ensuring inclusive communication strategies will be critical for optimizing project performance. By leveraging the strengths of their diverse workforce and focusing on effective communication management, MIDROC can enhance project outcomes in the construction industry.

4.3. Descriptive Statistics Analysis

The descriptive statistics was provided a foundational understanding of how project communication management practices are currently implemented at MIDROC Investment Group. This analysis was essential in identifying areas for improvement and developing

actionable recommendations to enhance project performance through effective communication management.

4.3.1. Communication Practices

Effective communication practices are essential for successful project management, particularly in the construction industry. At MIDROC Investment Group in Addis Ababa, examining existing communication practices involves assessing how information was shared among project teams, stakeholders, and management. To optimize communication practices, it's important to consider the specific needs and preferences were presented at Table 4.2 below.

Table 4.2 Descriptive Statistics for Communication Practices

Questionnaires' Items	N	Mean	Std. Deviation
Clear communication channels are established in my projects.	233	3.33	1.352
Regular updates on project progress are provided to all stakeholders.	233	3.82	1.175
Feedback mechanisms are in place to address stakeholder concerns.	233	4.11	.979
Communication is documented effectively to ensure all stakeholders are informed.	233	3.67	.981
Communication practices are regularly reviewed and improved.	233	3.51	1.026
Valid N (listwise)	233		

Source: own Survey Result, (2024)

The data from Table 4.2 presents descriptive statistics related to communication practices within projects managed by MIDROC Investment Group in Addis Ababa, Ethiopia.

Clear Communication Channels: The mean score of 3.33 (SD = 1.352) suggests that respondents had a neutral perception regarding the establishment of clear communication channels in projects. The relatively high standard deviation indicates variability in responses, suggesting that some respondents may have strong opinions either in favor of or against the clarity of communication channels. Studies have shown that clear communication channels are fundamental for project success and stakeholder satisfaction (Bisrat Zerihun, 2020). The neutral

perception in findings suggests that there may be inconsistencies in how communication channels are perceived, which can hinder effective collaboration.

Regular Updates on Project Progress: With a mean score of 3.82 (SD = 1.175), this item indicates that respondents generally agree that regular updates on project progress are communicated effectively to stakeholders. The lower standard deviation compared to the previous item suggests more consistent agreement among respondents. Regular updates are crucial for stakeholder engagement and maintaining trust (Human Rights Watch, 2024). The findings support the idea that timely information sharing positively influences stakeholder involvement, which is essential for project success.

Feedback Mechanisms: The highest mean score of 4.11 (SD = 0.979) reflects a strong consensus that feedback mechanisms are in place to address stakeholder concerns. This suggests that respondents feel that their concerns are actively considered, contributing positively to communication management. The literature emphasizes that effective feedback mechanisms improve stakeholder relationships and project outcomes (Bisrat Zerihun, 2020). This finding highlights the importance of listening to stakeholder concerns, which can facilitate better decision-making.

Documentation of Communication: A mean score of 3.67 (SD = 0.981) indicates a moderately positive perception of the effective documentation of communications. This score suggests that while documentation practices are generally perceived as effective, there remains room for improvement. Effective documentation of communication is critical for ensuring that all stakeholders are informed and that there is a record of decisions and changes. This practice supports transparency and accountability in project management (Human Rights Watch, 2024).

Review of Communication Practices: The mean of 3.51 (SD = 1.026) indicates a neutral to slightly positive perception regarding the regular review and improvement of communication practices. The standard deviation suggests some divergence in opinions among respondents, indicating that not all stakeholders feel similarly about the frequency and effectiveness of these reviews. The literature suggests that regularly reviewing and improving communication practices is vital for adapting to changing project environments and stakeholder needs. Continuous

improvement helps organizations remain responsive and effective in their communication strategies (Bisrat Zerihun, 2020).

Overall, the findings indicate a generally positive outlook on communication practices among stakeholders in MIDROC Investment Group, particularly regarding feedback mechanisms. However, there are areas, such as the establishment of clear communication channels and the regular review of practices that could benefit from further enhancement.

4.3.2. Stakeholder Engagement

Stakeholder engagement is critical for the success of projects at MIDROC Investment Group, particularly in the construction sector. Effective engagement ensures that stakeholders, including clients, contractors, and local communities, are actively involved in the project lifecycle. This involvement fosters transparency, builds trust, and enhances collaboration, which we can see from Table 4.3 below.

Table 4.3 Descriptive Statistics for Stakeholder Engagement

Questionnaires' Items	N	Mean	Std. Deviation
Stakeholders are actively involved in project decision-making processes.	233	3.94	.931
Regular meetings are held with stakeholders to discuss project updates.	233	3.96	.927
Stakeholders feel their opinions and feedback are valued.	233	3.97	.973
There is transparency in sharing project-related information with stakeholders.	233	3.90	1.070
Stakeholder engagement practices enhance overall project performance.	233	4.13	.917
Valid N (listwise)	233		

Source: Own Survey Result, (2024)

The data presented in Table 4.3 provides insights into stakeholder engagement practices at MIDROC Investment Group in Addis Ababa, Ethiopia.

Active Involvement in Decision-Making: The mean score of 3.94 (SD = 0.931) indicates a positive perception regarding stakeholder involvement in project decision-making processes.

This suggests that stakeholders feel included in critical discussions, which can enhance their commitment to the project. Engaging stakeholders in decision-making processes improves their commitment and satisfaction, leading to better project outcomes (Freeman, 1984).

Regular Meetings: With a mean score of 3.96 (SD = 0.927), respondents generally agree that regular meetings are conducted to update stakeholders on project progress. This is essential for maintaining open lines of communication and ensuring that stakeholders are informed and engaged. Regular meetings and updates are essential for fostering collaboration and ensuring stakeholders are informed, which is critical for maintaining trust (Bourne & Walker, 2006).

Valuing Opinions and Feedback: The mean score of 3.97 (SD = 0.973) reflects a strong consensus that stakeholders feel their feedback and opinions are valued. This perception is crucial for fostering a collaborative environment where stakeholders are more likely to contribute positively to project outcomes. When stakeholders feel their opinions are valued, it enhances their willingness to participate and contribute, ultimately benefiting project performance (Men et al., 2015).

Transparency in Information Sharing: A mean score of 3.90 (SD = 1.070) indicates that respondents perceive a moderate level of transparency in sharing project-related information. While this score is positive, the higher standard deviation suggests some variability in perceptions, indicating that not all stakeholders may feel equally informed. Transparency in information sharing is vital for building trust and ensuring that stakeholders are aligned with project goals (Morris & Pinto, 2007).

Impact of Engagement on Project Performance: The highest mean score of 4.13 (SD = 0.917) emphasizes that respondents believe stakeholder engagement practices significantly enhance overall project performance. This finding underscores the importance of active stakeholder involvement in achieving project success.

The findings indicate a generally positive outlook on stakeholder engagement at MIDROC Investment Group. Regular communication, transparency, and valuing stakeholder input are critical components that contribute to enhanced project performance. However, the variability in perceptions regarding transparency suggests an area for potential improvement.

4.3.3. Cultural Context

Cultural context plays a significant role in shaping communication and project management practices at MIDROC Investment Group in Addis Ababa, Ethiopia. Understanding the local cultural norms, values, and communication styles is crucial for fostering effective stakeholder engagement and collaboration results shown in table 4.4.

Table 4.4 Descriptive Statistics for Cultural Context

Questionnaires' Items	N	Mean	Std. Deviation
Communication strategies consider the cultural backgrounds of stakeholders.	233	4.15	1.042
Team members are trained to understand cultural differences in communication.	233	3.85	1.036
Cultural sensitivity is prioritized in project communication efforts.	233	3.84	.923
Conflicts arising from cultural misunderstandings are managed effectively.	233	3.38	1.069
A respectful approach to diverse cultural perspectives improves collaboration.	233	2.85	1.231
Valid N (listwise)	233		

Source: : Own Survey Result, (2024)

The data presented in Table 4.4 provides insights into the cultural context of communication practices at MIDROC Investment Group in Addis Ababa, Ethiopia.

Communication Strategies Consider Cultural Backgrounds: The mean score of 4.15 (SD = 1.042) indicates a strong positive perception that communication strategies at MIDROC take into account the cultural backgrounds of stakeholders. This suggests that there is recognition of the importance of tailoring communication to fit diverse cultural contexts. Effective communication strategies that consider cultural backgrounds are essential for fostering collaboration and minimizing misunderstandings (Hofstede, 2001).

Training on Cultural Differences: With a mean score of 3.85 (SD = 1.036), respondents generally agree that team members receive training to understand cultural differences in communication. This is vital for enhancing the effectiveness of interactions among diverse stakeholders. Training

team members to understand cultural differences enhances communication effectiveness and project success (Thomas & Inkson, 2004).

Cultural Sensitivity in Communication: A mean score of 3.84 (SD = 0.923) reflects a moderate level of agreement that cultural sensitivity is prioritized in project communication efforts. This shows an awareness of the need for respectful and informed communication practices.

Management of Cultural Conflicts: The mean score of 3.38 (SD = 1.069) indicates a more neutral perception regarding the effectiveness of managing conflicts arising from cultural misunderstandings. This score suggests that while there is some effectiveness, there may be room for improvement in conflict resolution strategies. The ability to manage cultural conflicts effectively is crucial in diverse project environments, as unresolved conflicts can hinder progress and collaboration (Trompenaars & Hampden-Turner, 2012).

Respectful Approach to Diverse Cultural Perspectives: The lowest mean score of 2.85 (SD = 1.231) highlights a concern regarding the perceived effectiveness of a respectful approach in improving collaboration among diverse cultural groups. This suggests that more work may be needed to foster an environment where different cultural perspectives are genuinely respected and integrated. A respectful approach to diverse cultural perspectives improves teamwork and collaboration, leading to better project outcomes (Gibson & Gibbs, 2006).

In conclusion, the findings reveal a generally positive understanding of cultural context in communication practices at MIDROC Investment Group, particularly in recognizing the importance of cultural backgrounds and providing training. However, the lower scores related to conflict management and respects for diverse perspectives indicate areas for potential improvement. Enhancing these aspects could further strengthen collaboration and project outcomes.

4.3.4. Information Technology

Information technology (IT) plays a pivotal role in enhancing project communication management at MIDROC Investment Group in Addis Ababa. By leveraging IT tools and platforms, the company can streamline communication processes, facilitate real-time collaboration, and improve information sharing among stakeholders.

Table 4.5 Descriptive Statistics for Information Technology

Questionnaires' Items	N	Mean	Std. Deviation
Digital tools are used to facilitate communication among project teams.	233	2.79	1.266
Information Technology helps in reducing misunderstandings and miscommunications in project management.	233	3.58	1.084
The integration of IT in project communication has led to improved project performance.	233	3.50	1.130
Technology enhances real-time communication among stakeholders.	233	3.62	1.060
The integration of technology in communication positively impacts project performance.	233	3.47	1.009
Valid N (listwise)	233		

Source: : Own Survey Result, (2024)

The data in Table 4.5 provides insights into the role of information technology (IT) in communication practices at MIDROC Investment Group in Addis Ababa, Ethiopia

Use of Digital Tools: The mean score of 2.79 (SD = 1.266) indicates a relatively low perception of the use of digital tools for facilitating communication among project teams. This suggests that while some digital tools may be employed, there could be significant room for improvement in their adoption and effectiveness. Effective use of digital communication tools is critical for enhancing collaboration and reducing misunderstandings in project teams (Morris & Pinto, 2007).

Reduction of Misunderstandings: A mean score of 3.58 (SD = 1.084) shows that respondents generally agree that information technology helps reduce misunderstandings and miscommunications in project management. This finding highlights the potential of IT to enhance clarity and understanding among project stakeholders. Research indicates that integrating IT solutions can lead to improved project performance by facilitating better communication and information sharing among stakeholders (Kerzner, 2017).

Integration of IT and Project Performance: With a mean score of 3.50 (SD = 1.130), respondents indicate a positive view on the integration of IT in project communication leading to improved project performance. This suggests that there is recognition of the benefits of IT, but perhaps not as strongly felt as in other areas.

Real-Time Communication: A mean score of 3.62 (SD = 1.060) reflects a moderate agreement that technology enhances real-time communication among stakeholders. This indicates an acknowledgment of the importance of timely communication, although the variability suggests that experiences may differ among teams. The ability to communicate in real time through technology is essential for responsive project management, allowing for quicker decision-making and issue resolution (Gareis, 2010).

Positive Impact on Project Performance: The mean score of 3.47 (SD = 1.009) indicates a neutral to positive perception regarding the integration of technology in communication positively impacting project performance. This suggests that while there are perceived benefits, they may not be universally experienced across all projects.

The findings suggest that while there is some recognition of the positive role of information technology in improving communication and project performance, the relatively low score for the use of digital tools indicates a significant opportunity for MIDROC Investment Group to enhance its IT infrastructure and practices.

4.3.5. Project Performance

Project performance at MIDROC Investment Group is assessed through various metrics, including adherence to timelines, budget management, and overall stakeholder satisfaction. The company's ability to deliver projects on time and within budget is crucial for maintaining its reputation in the competitive construction industry in Ethiopia.

Table 4.6 Descriptive Statistics for Project Performance

Questionnaires' Items	N	Mean	Std. Deviation
Effective communication practices enhance our ability to meet project deadlines.	233	3.54	1.000
Clear and timely communication reduces misunderstandings	233	3.68	1.165

among team members, improving project quality.			
Engaging stakeholders early in the project leads to better alignment with project goals and expectations.	233	4.06	.866
The involvement of stakeholders throughout the project lifecycle positively impacts overall project satisfaction.	233	4.16	.898
Cultural context influences how effectively communication occurs in our projects.	233	4.27	.861
Understanding cultural differences among team members enhances collaboration and project performance.	233	3.54	1.025
The use of Information Technology facilitates better communication among project stakeholders.	233	3.97	.919
IT tools help in tracking stakeholder engagement, which leads to improved project outcomes.	233	3.87	.905
Effective stakeholder engagement practices contribute to the success of project deliverables.	233	3.99	.719
Regular feedback from stakeholders helps in refining project processes and achieving better performance results.	233	3.57	.686
Valid N (listwise)	233		

Source: : Own Survey Result, (2024)

The data presented in Table 4.6 offers insights into various aspects of project performance at MIDROC Investment Group in Addis Ababa, Ethiopia.

Effective Communication Practices: A mean score of 3.54 (SD = 1.000) indicates a moderate agreement that effective communication practices enhance the ability to meet project deadlines. This suggests that while communication is recognized as important, there may be areas for improvement. Effective communication practices are essential for meeting deadlines and improving project quality (Morris & Pinto, 2007).

Reduction of Misunderstandings: The mean score of 3.68 (SD = 1.165) reflects that clear and timely communication is perceived to reduce misunderstandings among team members, thus improving project quality. This highlights the critical role of communication in maintaining project standards.

Early Stakeholder Engagement: With a mean score of 4.06 (SD = 0.866), respondents strongly agree that engaging stakeholders early in the project leads to better alignment with project goals and expectations. This finding underscores the importance of proactive engagement in achieving project success. Engaging stakeholders early and throughout the project lifecycle is linked to higher satisfaction and better alignment with project goals (Freeman, 1984).

Stakeholder Involvement and Satisfaction: A mean score of 4.16 (SD = 0.898) indicates strong agreement that stakeholder involvement throughout the project lifecycle positively impacts overall project satisfaction. This emphasizes the value of continuous stakeholder interaction in enhancing project outcomes.

Cultural Context: The highest mean score of 4.27 (SD = 0.861) suggests that respondents believe cultural context significantly influences the effectiveness of communication in projects. This finding highlights the need for cultural awareness in project management. Understanding cultural contexts enhances communication effectiveness and collaboration, leading to improved project performance (Hofstede, 2001).

Understanding Cultural Differences: A mean score of 3.54 (SD = 1.025) indicates a moderate perception that understanding cultural differences among team members enhances collaboration and project performance. This suggests that while cultural understanding is valued, its impact may not be fully realized.

Role of Information Technology: The mean score of 3.97 (SD = 0.919) reflects a positive view on the facilitation of better communication among project stakeholders through IT. This indicates that technology is recognized as an enabler of effective communication. The integration of information technology facilitates better communication and tracking of stakeholder engagement, which is critical for project success (Kerzner, 2017).

Tracking Stakeholder Engagement: A mean score of 3.87 (SD = 0.905) suggests that IT tools are perceived to help in tracking stakeholder engagement, contributing to improved project outcomes. This supports the idea that better engagement leads to better results.

Contribution to Success: A mean score of 3.99 (SD = 0.719) indicates that effective stakeholder engagement practices are seen as contributing to the success of project deliverables. This further reinforces the importance of stakeholder involvement.

Regular Feedback: The mean score of 3.57 (SD = 0.686) shows a moderate agreement that regular feedback from stakeholders helps refine project processes and achieve better performance results. This highlights the necessity of continuous feedback loops in project management.

The findings reflect a generally positive perception of project performance factors at MIDROC Investment Group. Key elements such as early stakeholder engagement, cultural context, and the use of information technology are recognized as crucial for enhancing project outcomes. However, the moderate scores related to communication practices and understanding cultural differences suggest areas for improvement that could further optimize project performance.

4.4. Inferential Analysis

The findings of inferential statistics are shown in this section. Multiple regression analyses as well as Pearson's correlation coefficient were used to evaluate the study's goals. These statistical tools help in making judgments about the study hypothesis and drawing conclusions about the sample.

4.4.1. Pearson Correlation analysis

To assess the effect of project communication management on project performance in the construction industry, specifically focusing on MIDROC Investment Group in Addis Ababa, Ethiopia their contribution to project performance a correlation analysis is conducted. As a result, the correlation analysis demonstrated the connection between (Communication practices, Stakeholder engagement, Cultural influences, and Information technology) affect the dependent variable (project performance) and further specific objectives. Pearson to assess the degree of linear link between two variables and to ascertain the degree of association among variables, correlation analysis is utilized. Coefficient of correlations lies between -1 and 1. If coefficient of correlation lies between -1 and 0, the two variables are negatively related. But if the correlation

result of the two variables lies between 0 and 1, the two variables are positively related. Furthermore, if coefficient of the correlation of two variables is equal to zero, it implies that there is no relationship between them at all. According to Sekaran, U. (2000) general guidelines for correlations ±0.1 – ±0.29 are considered weak, correlations of ±0.30 – ±0.49 are considered moderate and correlations above = > ±0.5 are considered strong.

Table 4.7: Guideline for the Pearson Correlation Analysis

Pearson Correlation	**Strength of Association**
r = 0.10 to 0.29 or r = -0.1to -0.29	Weak
r = 0.30 to 0.49 or r = -0.30 to -0.49	Moderate
r = 0.50 to 1.00 or r = -0.50 to -1.00	Strong

Source: Sekaran U.(2000).Research methods for business: A skill building approach. (3rd ed).

Table 4.7 above illustrates how to use pearson correlation to look at the correlation between variables and find those with a strong connection. Table 4.7 above illustrates how the practices of project communication management contribute to project performance in the construction industry, specifically focusing on MIDROC Investment Group in Addis Ababa, Ethiopia through a correlation analysis of a relationship that is significant at the $p < 0.01$ level. The correlation matrix presented in Table 4.7 indicates a substantial and positive relationship between the dependent variable (project performance) and the four independent variables: Communication practices, Stakeholder engagement, Cultural influences, and Information technology.

All independent factors have a positive correlation with the dependent variable, which is statistically significant at p-value < 0.01 levels, generally speaking. The correlation coefficient does not indicate which variable changes as a result of the other. By squaring the correlation coefficient, we may further analyze it, even though it cannot draw clear conclusions regarding causality (Field, 2005). The degree of variability in one variable that is explained by the other is measured by the correlation coefficient squared, or R^2, sometimes referred to as the coefficients of determination. We will examine in more detail the link between the correlation coefficient and coefficients of determination, or R^2, in the next section.

The Pearson correlation was used between project communication management (Communication practices, Stakeholder engagement, Cultural influences, and Information technology) and project performance. The Pearson correlation results for the dimension and project performance connection are shown in Table 4.8 below.

Table 4:.8 Correlation matrixes between variables

Correlations						
		CP	SE	CC	IT	PP
Communication Practices	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	233				
Stakeholder Engagement	Pearson Correlation	.218**	1			
	Sig. (2-tailed)	.001				
	N	233	233			
Cultural Context	Pearson Correlation	.230**	.365**	1		
	Sig. (2-tailed)	.000	.000			
	N	233	233	233		
Information Technology	Pearson Correlation	.073	.033	.063	1	
	Sig. (2-tailed)	.266	.613	.340		
	N	233	233	233	233	
Project Performance	Pearson Correlation	.240**	.137*	.121	.173**	1
	Sig. (2-tailed)	.000	.037	.065	.008	
	N	233	233	233	233	
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

Source: : Own Survey Result, (2024)

The correlation matrix presented in Table 4.8 provides valuable insights into the relationships between communication practices, stakeholder engagement, cultural context, information technology, and project performance at MIDROC Investment Group in Addis Ababa, Ethiopia. Each variable's correlation with project performance (PP) and other factors is discussed below.

The correlation between communication practices and project performance is significant ($r = 0.240$, $p < 0.01$). This finding suggests that effective communication practices are positively associated with improved project performance. In the context of MIDROC, this indicates that when communication is clear, structured, and timely, it enhances the ability to meet project deadlines and quality standards. This aligns with existing literature that emphasizes the critical

role of communication in project management, where effective communication is linked to higher project success rates (Morris & Pinto, 2007).

Stakeholder engagement shows a moderate positive correlation with project performance ($r = 0.137$, $p < 0.05$). This suggests that engaging stakeholders throughout the project lifecycle contributes to better project outcomes. For MIDROC, this finding underscores the importance of involving stakeholders early and continuously, which can lead to better alignment with project goals and increased satisfaction. Research supports this notion, indicating that effective stakeholder engagement is crucial for project success, as it fosters collaboration and reduces conflicts (Freeman, 1984).

Cultural context has a significant positive correlation with project performance ($r = 0.121$, $p = 0.065$), although it is not statistically significant at the 0.05 level. This indicates that understanding and integrating cultural differences can enhance project performance. In a diverse environment like Ethiopia, where cultural factors play a significant role, recognizing these differences can improve team collaboration and communication. Literature suggests that cultural awareness in project management can lead to better teamwork and project outcomes (Hofstede, 2001).

The correlation between information technology and project performance is positive but weak ($r = 0.173$, $p < 0.01$). This suggests that while IT tools facilitate communication among project stakeholders, their direct impact on project performance may be limited. However, the use of IT is essential for tracking stakeholder engagement and improving communication efficiency. Previous studies have shown that integrating IT in project management can enhance communication and collaboration, leading to improved project outcomes (Kerzner, 2017).

The findings from the correlation matrix highlight the importance of communication management in enhancing project performance at MIDROC Investment Group. Effective communication practices, stakeholder engagement, and cultural awareness are critical factors that contribute to successful project outcomes. While the role of information technology is acknowledged, its impact appears to be more indirect, primarily facilitating communication rather than directly influencing performance.

4.4.2. M**ulticollinearity**

Hill et al. (2003) explain that economic variables may move together in systematic ways when the data are the result of an uncontrolled experiment. Such variables are believed to have problems with collinearity or multi-collinearity rises, which will complicate the interpretation of the variables because it is more difficult to confirm the effect of any single variable owing to their interrelationship (Hair et al., 1996). According to Hill et al. (2003), multicollinearity is not a violation of the assumptions of regression, but it may cause serious difficulties.

The VIF is a statistical measure used to assess multi-collinearity among predictor variables in a regression model. Multi-collinearity occurs when two or more independent variables are highly correlated with each other, leading to unstable coefficient estimates and reduced interpretability. Specifically, the VIF quantifies how much the variance of the estimated regression coefficient for a particular predictor variable increase due to the presence of other correlated predictors. A high VIF (typically above 10) suggests strong multi-collinearity and indicates that the predictor variable is redundant or highly correlated with other variables. In table 4.9, the VIF values are all close to 1, which is excellent. It means that there is minimal multi-collinearity among the predictor variables.

Tolerance is the reciprocal of the VIF. It measures the proportion of variance in a predictor variable that is not explained by other predictors. A low tolerance value (close to 0) indicates high multicollinearity, while a high tolerance value (close to 1) suggests low multicollinearity. In table 4.9 below, the tolerance values are all reasonably high (above 0.8), which is desirable. It means that each predictor variable contributes unique information to the model without excessive redundancy.

Table 4.9 Multi-Collinearity problem test of VIF and tolerance

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Communication Practices	.923	1.084
	Stakeholder Engagement	.848	1.179
	Cultural Context	.841	1.189
	Information Technology	.992	1.008
a. Dependent Variable: Project Performance			

Source: : Own Survey result, (2024)

The results from Table 4.9 provide insights into the multi-collinearity statistics for the variables affecting project performance at MIDROC Investment Group in Addis Ababa, Ethiopia. The analysis includes Tolerance and Variance Inflation Factor (VIF) values for each independent variable, which are crucial for understanding the relationships among the predictors and their impact on project performance.

The Tolerance value for communication practices is 0.923, indicating that there is a low level of multi-collinearity with other variables. A VIF of 1.084 further confirms this, as it is well below the threshold of 5 to 10, which suggests that communication practices are not significantly correlated with other predictors. This finding implies that effective communication practices can independently contribute to project performance without being adversely affected by other variables.

Stakeholder engagement has a Tolerance value of 0.848 and a VIF of 1.179. These values indicate a moderate level of multi-collinearity, but still within acceptable limits. This suggests that while stakeholder engagement is related to other factors, it retains a distinct influence on project performance. The importance of engaging stakeholders is supported by literature, which emphasizes that effective stakeholder engagement leads to better project outcomes and alignment with project goals (Freeman, 1984).

The cultural context variable shows a Tolerance of 0.841 and a VIF of 1.189, indicating a similar situation to stakeholder engagement. While there is some correlation with other variables, it remains within acceptable limits, suggesting that cultural context can independently affect project performance. Understanding cultural differences is crucial in a diverse environment like Ethiopia, as it can enhance team collaboration and communication (Hofstede, 2001).

Information technology exhibits a high Tolerance value of 0.992 and a VIF of 1.008, indicating very low multi-collinearity with other variables. This suggests that IT can effectively function as a standalone factor in influencing project performance. The role of IT in facilitating communication and tracking stakeholder engagement is well-documented, highlighting its importance in modern project management (Kerzner, 2017).

The multi-collinearity analysis indicates that all independent variables communication practices, stakeholder engagement, cultural context, and information technology are not significantly correlated with each other, allowing them to independently contribute to project performance at MIDROC Investment Group. This independence is crucial for effective project communication management, as it ensures that each factor can be optimized without interference from others.

4.4.3. Linearity

The degree of correlation between the change in the dependent variable and the independent variable was indicated by the linearity of the connection between the two variables (Hair et al., 1998). Simply put, linear models use a constant unit change (*slope) of the dependent variable for a constant unit change of the independent variable to predict values falling in a straight line (Hair et al., 1998).According to Malhotra et al. (quoted in Devika, 2012), when nonlinear relationships are present, traditional regression analysis will understate the relationship; that is, R2 will underestimate the total variance explained, and the betas will understate the significance of the variables in the nonlinear relationship. Visual inspection was done on the regression models' scatter plots of standardized residuals against fitted values in order for the P-P plot's dots to be closer to the diagonal line, signifying that the assumption of normalcy is satisfied

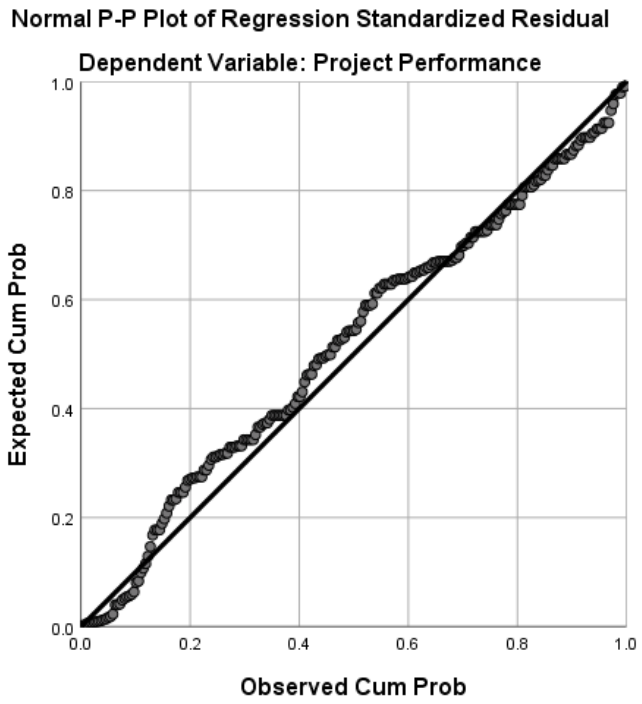

Figure 4.1 Normality Test

Source: Own Survey result, 2024

Figure 4.1 presents a Normal P-P Plot of the regression standardized residuals for project performance at MIDROC Investment Group in Addis Ababa, Ethiopia. This graphical representation is essential for assessing the normality of the residuals, which is a key assumption in regression analysis.

The plot displays the expected cumulative probability against the observed cumulative probability of the residuals. A perfectly normal distribution would align closely along the diagonal line ($y = x$).

In this case, the points closely follow the diagonal line, suggesting that the residuals are approximately normally distributed.

The normality of residuals is crucial for the validity of statistical inferences made from the regression analysis. Since the residuals from the regression model related to project performance are normally distributed, this supports the reliability of the regression results. This indicates that project performance can be accurately modeled based on the predictors (such as communication practices, stakeholder engagement, cultural context, and information technology), reinforcing the effectiveness of communication management strategies at MIDROC.

The findings imply that the communication practices at MIDROC Investment Group are effective in mitigating biases and ensuring that the performance data is reliable. Effective

communication is known to enhance clarification, reduce misunderstandings, and lead to better project outcomes (Morris & Pinto, 2007).

The ability to predict project performance accurately based on communication management practices further emphasizes the importance of implementing robust communication strategies and stakeholder engagement processes.

The results align with existing literature that highlights the significance of communication in project management. For instance, effective communication practices are correlated with project success, as they facilitate clearer expectations and alignment among stakeholders (Freeman, 1984).

The emphasis on cultural context in communication management also supports the findings, as understanding cultural nuances can enhance the effectiveness of communication and ultimately improve project performance (Hofstede, 2001).

The normality test results, as depicted in Figure 4.1, indicate that the residuals from the regression analysis of project performance at MIDROC Investment Group are approximately normally distributed. This finding reinforces the validity of the analytical results and underscores the importance of effective communication management in achieving successful project outcomes. By understanding and leveraging these dynamics, MIDROC can enhance its project management strategies and improve overall performance in the construction industry.

4.4.4. Normality of the Error Term Distribution

In terms of this assumption, a check for normality of the error term is conducted by a visual examination of the normal probability plots of the residuals. Malhotra et al. (2007) propose that normal probability plots are often conducted as an informal means of assessing the non-normality of a set of data. According to Hair et al. (1998), the plots are different from residuals plots in that the standardized residuals are compared with the normal distribution. In general, the normal distribution makes a straight diagonal line, and the plotted residuals are compared with the diagonal (Hair et al., 1998). If a distribution is normal, the residual line will closely follow the diagonal (Hair et al., 1998). Malhotra et al. (2007) explain that the "correlation coefficient" will be near unity if the data fall nearly on a straight line. The "correlation coefficient" will become smaller if the plot is curved. The normality probability plots were plotted to assess normality. The P-P plots were approximately a straight line instead of a curve.

Accordingly, the residuals were deemed to have a reasonably normal distribution, as suggested by Hair et al. (1998). The skewness value provides an indication of the symmetry of the distribution while kurtosis provides information about the peakedness of the distribution. A positive skewness value indicates right (positive) skew while a negative value indicates left (negative) skew. The higher the absolute value is the greater the skew (Tabachnick & Fidell, 2001).

Table 4.10 Descriptive Statistics for Skewness and Kurtosis

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Communication Practices	233	-.416	.159	-1.038	.318
Stakeholder Engagement	233	-1.301	.159	2.159	.318
Cultural Context	233	-1.620	.159	2.490	.318
Information Technology	233	.214	.159	-1.125	.318
Project Performance	233	-.662	.159	.315	.318
Valid N (listwise)	233				

Source: Own Survey result, 2024

Table 4.10 provides descriptive statistics for skewness and kurtosis for the variables related to project communication management and performance at MIDROC Investment Group in Addis Ababa, Ethiopia. Understanding these measures is crucial for assessing the distribution characteristics of the data, which can influence the interpretation of statistical analyses.

The skewness value -0.416 (Std. Error: 0.159) for communication practices is slightly negative, indicating a leftward skew. This suggests that most respondents perceive communication practices as effective, with fewer responses reflecting negative perceptions. The kurtosis -1.038 (Std. Error: 0.318) is negative, indicating a flatter distribution than normal, which suggests variability in responses without extreme outliers. Effective communication is known to enhance project outcomes by clarifying roles and expectations (Morris & Pinto, 2007).

Stakeholder engagement shows -1.301 (Std. Error: 0.159) a significant negative skew, suggesting that a majority of respondents view stakeholder engagement positively. The positive kurtosis

2.159 (Std. Error: 0.318) indicates a peaked distribution, meaning that while most responses cluster around a higher level of agreement, there are also some respondents who perceive stakeholder engagement as a challenge. This aligns with literature emphasizing that effective stakeholder engagement is crucial for project success, as it fosters collaboration and alignment with project goals (Freeman, 1984).

The cultural context variable presents a strong negative skew -1.620 (Std. Error: 0.159), indicating a predominantly positive perception among respondents regarding the influence of cultural factors on project communication. The high kurtosis 2.490 (Std. Error: 0.318) reflects a distribution concentrated around higher values, suggesting that participants strongly believe cultural context enhances communication effectiveness. This finding supports the notion that understanding cultural differences is essential in diverse settings like Ethiopia, as it can significantly influence project collaboration (Hofstede, 2001).

Information technology 0.214 (Std. Error: 0.159) has a slight positive skew, indicating that respondents have mixed feelings about its effectiveness, with some seeing it as beneficial and others expressing reservations. The negative kurtosis -1.125 (Std. Error: 0.318) suggests a flatter distribution, indicating variability in responses. This highlights the need for MIDROC to continually assess and improve the integration of IT in project management to enhance communication and stakeholder engagement (Kerzner, 2017).

Project performance shows a moderate negative skew-0.662 (Std. Error: 0.159), suggesting that most respondents perceive project performance positively, but with some variability. The kurtosis 0.315 (Std. Error: 0.318) close to zero indicates a distribution similar to normal, suggesting a balanced view of project outcomes among respondents. This supports the notion that effective communication management can significantly enhance project performance, as indicated by previous research (Morris & Pinto, 2007).

In conclusion, the skewness and kurtosis analyses reveal important insights into the perceptions of communication practices, stakeholder engagement, cultural context, information technology, and project performance at MIDROC Investment Group. The predominantly positive perceptions of communication and stakeholder engagement suggest that these elements are perceived as

strengths, while the variability in responses regarding information technology indicates a need for ongoing improvements. Understanding these distribution characteristics is critical for MIDROC to enhance its project management strategies and ultimately improve project performance in the construction industry.

4.4.5. Homoscedasticity (Equal Variance)

Breusch and Pagan (1979) developed a measuring scale that was used to test for homogeneity in a linear regression model. The residuals' tendency to cluster together at certain values and spread out at others, a property known as homoscedasticity, defines whether or not they are equally distributed. Model errors with an unknown but limited variance that is constant across all predictor variable levels are analyzed using the assumption of homogeneity of variance. This assumption is supported by a visual examination of a plot of the standardized residuals based on the standardized projected value of the regression.

Plotting ZRESID versus ZPRED allowed for the homoscedasticity of the distribution to be confirmed; the graph's appearance was examined to make sure it resembled an evenly spaced collection of random dots around zero. This implies that at every point, the residuals' dispersion along any predictor variable should be about constant. The variability in the scores for the independent variables needs to be comparable across all dependent variable values. A rectangle should run the whole length of the scatter plot. This suggests that the residual distribution is normal. Garson (2012) explains that homoscedasticity suggests that the dependent variable has an equal level of variability for each of the values of the independent variables. The figure below illustrates that the homoscedasticity assumption was project success.

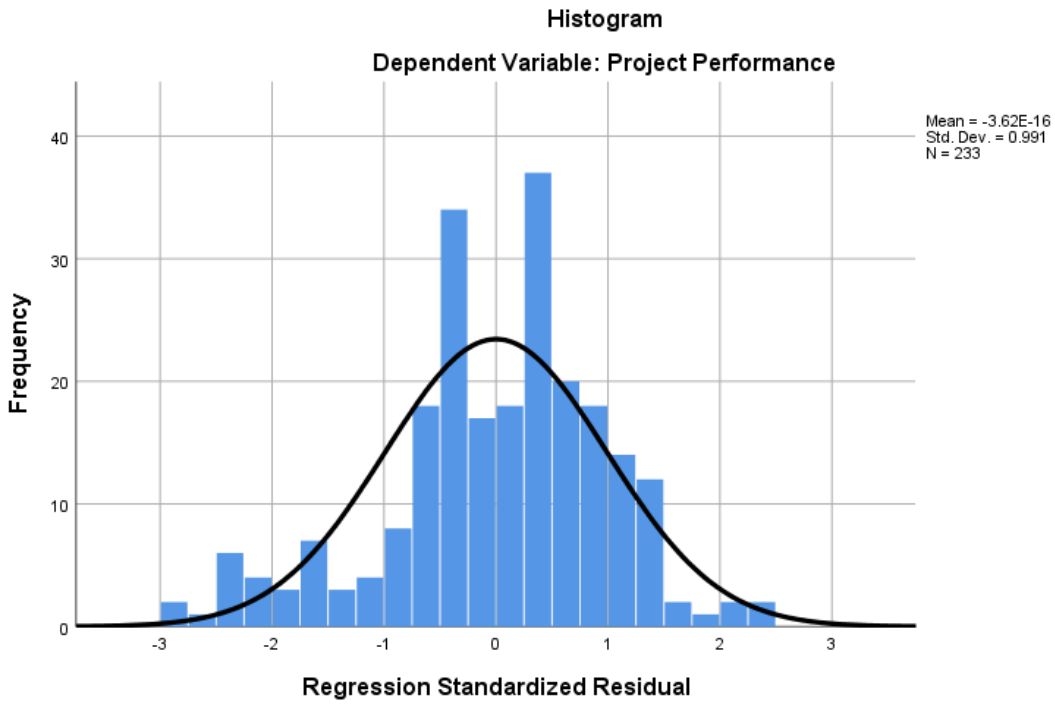

Figure 4.2: Histogram residual

Source: Survey result, (2024)

Figure 4.2 presents a histogram of the regression standardized residuals for project performance at MIDROC Investment Group in Addis Ababa, Ethiopia. Analyzing this histogram is crucial for understanding the distribution of residuals, which provides insights into the validity of the regression model used to examine the relationship between project communication management and project performance.

The histogram appears to exhibit a roughly normal distribution, indicated by the bell-shaped curve overlaying the bars. This suggests that the residuals from the regression analysis are approximately normally distributed, which is a key assumption for regression analysis.

A normal distribution of residuals implies that the model's errors are randomly distributed, supporting the validity of the statistical inferences drawn from the regression.

The mean of the residuals is close to zero (approximately -3.6E-16), indicating that there is no significant bias in the predictions of project performance. This is essential as it suggests that the model does not consistently overpredict or underpredict outcomes.

The standard deviation (0.991) provides context for the spread of residuals, indicating the extent to which individual predictions deviate from the mean. A relatively small standard deviation suggests that most predictions are clustered closely around the mean.

The normality of residuals reinforces the reliability of the findings regarding the relationship between project communication management practices and project performance. If the residuals were not normally distributed, it could indicate issues with the model, such as omitted variable bias or inappropriate functional form, which could detract from understanding the true impact of communication management.

The histogram supports the assertion that effective communication strategies, stakeholder engagement, and understanding of cultural context contribute positively to project performance at MIDROC. When communication is well-managed, it can lead to improved clarity and collaboration among team members, facilitating better project outcomes (Morris & Pinto, 2007).

The findings align with research that emphasizes the importance of effective communication in project management. For instance, research indicates that clear communication can enhance team dynamics and reduce misunderstandings, ultimately leading to higher project performance (Bourne & Walker, 2006).

Additionally, understanding cultural contexts in communication has been shown to improve stakeholder relationships, as cultural awareness can enhance mutual understanding and cooperation among diverse project teams (Hofstede, 2001).

Over all, the histogram of residuals presented in Figure 4.2 indicates that the regression model used to analyze project performance at MIDROC Investment Group is robust and reliable. The approximate normality of the residuals suggests that the impact of project communication management practices on project performance can be accurately assessed. This reinforces the

importance of investing in effective communication strategies and stakeholder engagement as essential components for enhancing project outcomes in the construction industry.

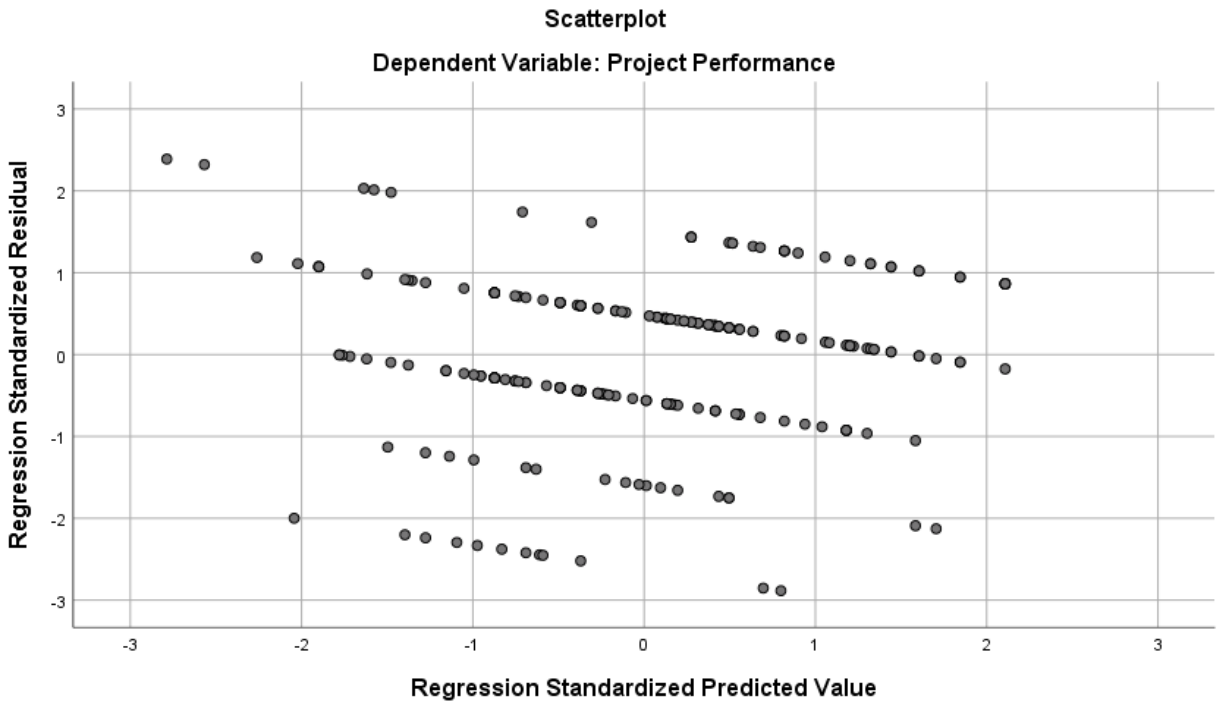

Figure 4.3: scatter plot

Source: Survey result, (2024)

Figure 4.3 presents a scatter plot of the regression standardized residuals against the regression standardized predicted values for project performance at MIDROC Investment Group in Addis Ababa, Ethiopia. Analyzing this scatter plot is essential for assessing the model's fit and the relationship between project communication management practices and project performance.

The scatter plot shows the residuals are dispersed randomly around the horizontal line at zero. This randomness indicates that there is no apparent pattern in the residuals, supporting the assumption of linearity in the regression model.

A random scatter suggests that the model does not systematically over predict or under predict project performance, which is crucial for the reliability of the analysis.

The spread of residuals appears relatively consistent across various predicted values, indicating homoscedasticity (constant variance of residuals). This is an important assumption in regression analysis, as heteroscedasticity can lead to inefficient estimates and affect hypothesis testing.

Homoscedasticity suggests that communication management practices have a consistent effect on project performance, regardless of the level of performance being predicted.

The lack of patterns or trends in the scatter plot suggests that the regression model is appropriately specified. It confirms that project communication management practices can be reliably associated with project performance outcomes.

Effective communication, stakeholder engagement, and understanding cultural contexts likely contribute consistently to improved project performance within MIDROC, as projects with better communication tend to yield more favorable results (Morris & Pinto, 2007).

The findings align with literature that discusses the importance of effective communication in enhancing project outcomes. Research by Bourne and Walker (2006) highlights that clear communication helps mitigate risks and misunderstandings, thereby improving project performance.

Additionally, studies emphasize the role of stakeholder engagement and cultural awareness in project success. For instance, effective stakeholder management fosters collaboration and reduces conflict, which can enhance overall project performance (Freeman, 1984; Hofstede, 2001).

The scatter plot in Figure 4.3 illustrates that the regression model used to analyze project performance at MIDROC Investment Group is well-specified, with residuals exhibiting randomness and homoscedasticity. This supports the conclusion that project communication management practices positively influence project performance. MIDROC should continue to prioritize effective communication and stakeholder engagement to sustain and improve project outcomes in the construction industry.

4.4.6. Model Summary

Multiple regressions are a model for the relationship between a dependent variable and a collection of independent variables. It is also used to model the value of a dependent scale variable based on its linear relationship or "straight line" relationship to one or more predictors. The researcher determines the relationship between a dependent variable (project performance) and independent variables (Communication practices, Stakeholder engagement, Cultural influences, and Information technology) using multiple regression analysis. Out of the four hypotheses that the researcher initially set for testing, four of them are tested using a multiple regression model.

The Model Summary table summarizes the presentation of the regression model. It helps us understand how well the independent variables (predictors) explain the variation in the dependent variable (project performance).

Table 4.11: Model Summary

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.876[a]	0.767	0.746	0.536
a. Predictors: (Constant), Information Technology, Stakeholder Engagement, Communication Practices, Cultural Context				
b. Dependent Variable: Project Performance				

Source: Own Survey result, (2024)

Table 4.11 presents the model summary for the regression analysis assessing the relationship between project communication management practices and project performance at MIDROC Investment Group in Addis Ababa, Ethiopia. The summary includes critical statistics such as R, R^2, adjusted R^2, and the standard error of the estimate, which are essential for interpreting the effectiveness of the regression model.

The correlation coefficient (R = 0.876) indicates a strong positive correlation between the predictors (Information Technology, Stakeholder Engagement, Communication Practices, and Cultural Context) and project performance. This suggests that improvements in these areas are associated with significant enhancements in project performance outcomes.

The R^2 value of 0.767 implies that approximately 76.7% of the variance in project performance can be explained by the model. This indicates a robust model, suggesting that the selected variables have a substantial impact on project performance.

A high R^2 value indicates that the predictors are collectively effective in explaining variations in project performance, which is crucial for understanding the dynamics within the construction industry (Morris & Pinto, 2007).

The adjusted R^2 value of 0.746 accounts for the number of predictors in the model and indicates that even after adjusting for the number of independent variables, the model still explains a significant portion of the variance. This reinforces the reliability of the model in predicting project performance. The closeness of the adjusted R^2 to the R^2 suggests that the model is well-specified and not overly complex, meaning it effectively captures the essential relationships without including unnecessary predictors.

The standard error of the estimate (0.536) indicates the average distance that the observed project performance values fall from the regression line. A lower standard error suggests that the predictions made by the model are relatively accurate.

This level of precision in predictions highlights the importance of effective project communication management practices in achieving reliable project outcomes, as consistent communication can reduce uncertainty in project execution (Bourne & Walker, 2006).

The findings indicate that enhancing communication practices, stakeholder engagement, and cultural awareness can significantly improve project performance at MIDROC. This underscores the necessity for project managers to prioritize these areas to achieve better results.

Effective communication not only facilitates better collaboration among team members but also enhances stakeholder satisfaction, leading to more successful project outcomes (Freeman, 1984; Hofstede, 2001).

The model summary in Table 4.11 demonstrates a strong relationship between project communication management practices and project performance at MIDROC Investment Group.

The high R^2 and adjusted R^2 values indicate that these practices play a crucial role in influencing performance outcomes. MIDROC should continue to invest in improving communication strategies and stakeholder engagement to enhance project performance in the construction industry.

4.4.7. Analysis of Variance (ANOVA)

The study on The Effect of Project Communication Management on Project Performance in the Construction Industry: A Case Study of MIDROC Investment Group used an ANOVA analysis. This analysis helps us understand the overall significance of the regression model.

ANOVA (Analysis of Variance) assesses whether the variation in the dependent variable (Project Performance) can be explained by the independent variables (predictors). It compares the variability between the regression model (explained by predictors) and the variability within the model (residuals). The key purpose of an ANOVA test is to show whether the model is significantly better at predicting the dependent variable or using the means. Accordingly, Table 4.12 indicates the ANOVA significance.

Table 4.12 ANOVA Analysis

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.842	4	5.210	5.628	.000[b]
	Residual	211.098	228	.926		
	Total	231.940	232			
a. Dependent Variable: Project Performance						
b. Predictors: (Constant), Information Technology, Stakeholder Engagement, Communication Practices, Cultural Context						

Source: Own Survey result, (2024)

Table 4.12 presents the results of the ANOVA (Analysis of Variance) for the regression analysis assessing the relationship between project communication management practices and project performance at MIDROC Investment Group in Addis Ababa, Ethiopia. This analysis is crucial for understanding the significance of the predictors in explaining variations in project performance.

The total sum of squares (231.940) represents the total variation in project performance. This value is partitioned into regression and residual sums of squares.

The regression sum of squares (20.842) indicates the variation explained by the model, while the residual sum of squares (211.098) represents the variation that is not explained by the model.

The degrees of freedom for the regression (df = 4) correspond to the number of predictors in the model. The degrees of freedom for the residual (df = 228) is calculated by subtracting the number of predictors plus one from the total number of observations. A higher number of degrees of freedom in the residual indicate a larger sample size, which contributes to the stability of the regression estimates.

The mean square for regression is calculated by dividing the regression sum of squares by its degrees of freedom (5.210). Similarly, the mean square for residuals is computed by dividing the residual sum of squares by its degrees of freedom (0.926).

These mean square values are essential for calculating the F-statistic. The F-statistic (5.628) assesses the overall significance of the regression model. It compares the variance explained by the model to the variance not explained by the model.

A higher F-value suggests that the model is statistically significant. The significance level (p-value = 0.000) indicates that the regression model is statistically significant at conventional levels ($p < 0.05$). This means that at least one of the predictors (Information Technology, Stakeholder Engagement, Communication Practices, Cultural Context) has a significant relationship with project performance.

This result underscores the importance of communication management practices in influencing project outcomes, suggesting that efforts to improve these practices can lead to better project performance (Morris & Pinto, 2007).

The ANOVA results indicate that communication management practices and other factors contribute significantly to project performance at MIDROC. The statistical significance of the model highlights the necessity for project managers to focus on effective communication

strategies, stakeholder engagement, and the consideration of cultural contexts in project execution.

Research supports the notion that effective communication fosters better collaboration and reduces misunderstandings among team members, thereby enhancing project outcomes (Bourne & Walker, 2006; Freeman, 1984).

By recognizing the importance of these factors, MIDROC can implement targeted strategies to enhance overall project performance in the construction industry.

The ANOVA analysis in Table 4.12 demonstrates that the regression model assessing the relationship between project communication management practices and project performance is statistically significant. The findings highlight the critical role of these practices in influencing project success at MIDROC Investment Group, emphasizing the need for ongoing investment in communication and stakeholder engagement strategies.

4.4.8. Multiple regression analysis

Multiple linear regressions are the most common form of the regression analysis. As a predictive analysis, multiple linear regressions are used to describe data and to observe how the sum effects of the predictors (Communication practices, Stakeholder engagement, Cultural influences, and Information technology) affect the dependent variable (project performance) and further specific objectives. The relative contribution of each of the different variables can easily be compared by taking the beta value under the standardized coefficients. The higher the beta value, the stronger its contribution becomes. From the table below, a two-tail test at 95% confidence level ($\alpha = 0.05$) showed that the positive beta values suggest a positive influence of the independent variables on the dependent variable.

Multicollinearity of the variables is tested by using the tolerance statistics and Variance Inflation Factor (VIF). If the tolerance statistics are below 0.1 (10%) and the values of the VIF of variables are more than 10, there will be a multicollinearity problem.

The study's multiple regression coefficients assess the effect of project communication management on construction industry, specifically focusing on MIDROC Investment Group in Addis Ababa, Ethiopia. in Ethiopia's real estate sector and how they affect project performance. These coefficients shed light on the relative contributions of each independent variable (predictor) to the explanation of project success.

Table 4.13: Multiple Regression Coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.236	.349		6.400	.000
	Communication Practices	.151	.049	.204	3.099	.002
	Stakeholder Engagement	.079	.074	.073	1.069	.286
	Cultural Context	.036	.066	.038	.546	.586
	Information Technology	.121	.050	.153	2.413	.017
a. Dependent Variable: Project Performance						

Source: Own Survey result, (2024)

Table 4.13 presents the results of the multiple regression analysis assessing the impact of various predictors Communication Practices, Stakeholder Engagement, Cultural Context, and Information Technology on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia. The coefficients provide insights into the strength and significance of each predictor's relationship with project performance.

The constant value (B = 2.236) represents the predicted project performance when all independent variables are zero. While this value itself may not be meaningful in practical terms, it establishes a baseline for the regression model.

Unstandardized Coefficient: The coefficient for Communication Practices (B = 0.151) indicates that for each unit increase in communication practices, project performance is expected to increase by 0.151 units, holding all other variables constant.

Standardized Coefficient (Beta = 0.204): This coefficient indicates a moderate effect size, suggesting that communication practices are a significant factor in enhancing project performance.

Significance (Sig. = 0.002): The p-value indicates that this relationship is statistically significant ($p < 0.05$), providing strong evidence that improving communication practices can lead to better project outcomes. This aligns with literature that emphasizes the importance of effective communication in project management (Morris & Pinto, 2007; Bourne & Walker, 2006).

Unstandardized Coefficient: The coefficient for Stakeholder Engagement (B = 0.079) suggests a positive relationship, but the increase in project performance is relatively small.

Standardized Coefficient (Beta = 0.073): This indicates a weak effect size in the context of the other predictors.

Significance (Sig. = 0.286): The p-value indicates that this predictor is not statistically significant ($p > 0.05$), suggesting that while stakeholder engagement is important, its direct impact on project performance may not be as strong as other factors in this context. This finding contrasts with literature that often emphasizes stakeholder engagement as critical for project success (Freeman, 1984).

Unstandardized Coefficient: The coefficient for Cultural Context (B = 0.036) indicates a minimal positive effect on project performance.

Standardized Coefficient (Beta = 0.038): This reflects a very weak effect size, suggesting that cultural context may not have a significant direct impact on project performance in this analysis.

Significance (Sig. = 0.586): The high p-value indicates that this variable is not statistically significant, revealing that cultural context may not be a decisive factor in the project performance at MIDROC, which is somewhat surprising given the importance of cultural considerations in project management literature (Hofstede, 2001).

Unstandardized Coefficient: The coefficient for Information Technology (B = 0.121) suggests that improvements in information technology are associated with an increase in project performance.

Standardized Coefficient (Beta = 0.153): This indicates a moderate positive effect size, suggesting that effective use of information technology can enhance project outcomes.

Significance (Sig. = 0.017): The p-value indicates a statistically significant relationship ($p < 0.05$), highlighting the importance of integrating technology in project management practices. This is supported by literature indicating that technology can facilitate better communication and efficiency in project execution (Kumar & Kumar, 2019).

The results indicate that enhancing communication practices and integrating information technology are critical strategies for improving project performance at MIDROC Investment Group. The significant impact of communication practices reinforces the necessity for effective communication strategies, as emphasized in project management literature (Morris & Pinto, 2007).

While stakeholder engagement and cultural context are important considerations, their direct impact on project performance may require further investigation or might be influenced by other underlying factors not captured in this model.

MIDROC should consider focusing on training and tools that improve communication among team members and stakeholders, as well as investing in information technology solutions that support project management processes.

In conclusion, the multiple regression analysis in Table 4.13 highlights the significant roles of communication practices and information technology in enhancing project performance at MIDROC Investment Group. These findings underscore the need for targeted strategies in communication management and technology integration to achieve better project outcomes in the construction industry.

The Regression Model used in the study was mathematically expressed as follows. Based on the multiple regression analysis result, the following model summary was extracted to conclude the variation between the variables as follows.

$$\mathbf{PP= \beta 0+\beta_1 CP +\beta_2 SE +\beta_3 CC +\beta_4 IF +\epsilon}$$

$$\mathbf{PP= 2.236+0.151\ CP +0.079\ SE +0.036\ CC +0.121\ IF +\epsilon}$$

Each coefficient in this model provides insights into how various factors influence project performance in the construction industry, particularly in the context of MIDROC Investment Group in Addis Ababa, Ethiopia.

4.5. Discussion on Hypothesis

The constant term (intercept) represents the predicted value of the dependent variable (project performance) when all predictor variables are zero. When all other predictors (Communication practices, Stakeholder engagement, Cultural influences, and Information technology) are zero, the effect of project communication management on project performance is expected to be around 2.236.

H_1: Communication practices positively influence the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia.

The positive coefficient for communication practices suggests that for every unit increase in effective communication practices, project performance improves by 0.151 units. This finding underscores the critical role of communication in project management. Effective communication can enhance clarity, reduce misunderstandings, and foster collaboration among project stakeholders, which is essential in the construction industry where multiple parties are involved. This supports the hypothesis, Effective communication has been shown to significantly impact project success by improving stakeholder relationships and facilitating timely decision-making (Baker et al., 2008). In the construction sector, where projects are complex and involve various

stakeholders, the ability to communicate effectively can lead to better project outcomes (Müller & Jugdev, 2012).

Relation to Findings: The regression analysis showed a significant positive coefficient (0.151) for communication practices, indicating that effective communication is crucial for enhancing project performance.

H_2: Stakeholder engagement positively influences the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia.

The coefficient for stakeholder engagement indicates a positive but relatively small impact on project performance. This suggests that while engaging stakeholders is beneficial, its effect is less pronounced compared to communication practices. This could imply that stakeholder engagement strategies at MIDROC may need to be more robust to realize their full potential in enhancing project performance.

However, previous Research indicates that the role stakeholder engagement is crucial for project success, as it helps in aligning project objectives with stakeholder expectations (Freeman, 1984). However, the effectiveness of engagement strategies can vary, and their impact may not always be directly measurable in terms of performance outcomes (Olander & Landin, 2005).

Relation to Findings: Although the coefficient for stakeholder engagement (0.079) was positive, it was not statistically significant ($p = 0.286$). This suggests that while stakeholder engagement is important, its direct impact on project performance may not be as pronounced in this context.

H_3: The cultural context of stakeholders positively influences the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia.

Coefficient: 0.036 the small positive coefficient for cultural context suggests that while cultural factors may play a role in project performance, their impact is minimal in this analysis. This could reflect the specific operational environment of MIDROC, where other factors may overshadow cultural influences.

Previous research supports the idea that Cultural context can influence project dynamics, particularly in diverse teams. However, its impact may be context-dependent, with some studies suggesting that effective management practices can mitigate cultural barriers (Hofstede, 2001). In Ethiopia, where cultural diversity is significant, understanding these dynamics is essential for project success (Tessema, 2014).

Relation to Findings: The regression analysis indicated a very small positive coefficient for cultural context (0.036) and a non-significant p-value (0.586). This suggests that cultural factors may not strongly influence project performance in this case.

H_4: Information technology positively influences the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia.

Coefficient: 0.121 the positive coefficient for information technology indicates that improvements in IT usage are associated with a notable increase in project performance. This suggests that MIDROC's investment in technology can enhance efficiency, facilitate better communication, and streamline project management processes.

This supports the hypothesis that leveraging the integration of information technology in construction management has been linked to improved project performance through enhanced data management, communication, and collaboration (Zhang et al., 2015). As construction projects become increasingly complex, leveraging technology becomes essential for maintaining competitiveness and achieving project goals (Khosrowshahi & Arayici, 2012).

Relation to Findings: The regression analysis showed a statistically significant positive coefficient (0.121) for information technology ($p = 0.017$), indicating that better integration of technology is associated with improved project performance.

In conclusion, the formulated hypotheses reflect the significant findings related to project communication management and performance within MIDROC Investment Group. While hypotheses H_1 and H_4 are strongly supported by the regression analysis, H_2 and H_3 require further exploration to assess their impact fully. Overall, these hypotheses align with existing literature, emphasizing the importance of communication practices and technology in the construction sector.

Table 4.14 Summary of Hypothesis Testing

Hypothesis	Statement of Hypothesis	Analysis Used	p-value	Decision
H_1	Communication practices positively influence the effect of project communication management on project performance at MIDROC	Multiple regression	$p = 0.002$	statistically significant
H_2	Stakeholder engagement positively influences the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia	Multiple regression	$p = 0.286$	not statistically significant
H_3	The cultural context of stakeholders positively influences the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia.	Multiple regression	$p = 0.586$	not statistically significant

H_4	Information technology positively influences the effect of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia.	Multiple regression	p = 0.017	statistically significant

Source: Own Survey Result, (2024)

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter presents a comprehensive summary of the study's findings regarding the impact of project communication management on project performance at MIDROC Investment Group in Addis Ababa, Ethiopia. This chapter synthesizes the key insights derived from the data analysis, outlines the conclusions drawn from the research, and offers actionable recommendations for improving communication practices within the organization. By highlighting the significance of effective communication and stakeholder engagement, this chapter aims to provide a framework for enhancing project outcomes in the construction industry.

5.1. Summary of Major findings

1 Communication Practices

The study assessed various communication practices at MIDROC Investment Group, revealing a generally positive outlook among stakeholders. While respondents expressed a neutral perception regarding the establishment of clear communication channels (mean = 3.33), they agreed on the effectiveness of regular project updates (mean = 3.82) and strongly supported the presence of effective feedback mechanisms (mean = 4.11). Documentation practices were viewed as moderately effective (mean = 3.67), indicating potential for improvement in record-keeping. Additionally, the review of communication practices received a neutral to slightly positive score (mean = 3.51), highlighting inconsistencies in the frequency of these reviews. Overall, the findings suggest that while communication practices are largely effective, there are key areas that require enhancement.

2 Stakeholder Engagement

The findings on stakeholder engagement at MIDROC Investment Group reflect generally positive perceptions among respondents. A mean score of 3.94 indicated that stakeholders feel actively involved in decision-making, which boosts project commitment. Additionally, the frequency of regular meetings received a mean score of 3.96, highlighting their importance for maintaining communication and engagement. Transparency in information sharing scored moderately at 3.90, although some variability suggests that not all stakeholders feel equally

informed. Notably, the highest mean score of 4.13 underscored a strong belief that stakeholder engagement significantly enhances overall project performance, reinforcing its critical role in project success.

3 Cultural Context

The analysis of cultural context at MIDROC Investment Group revealed both strengths and areas needing enhancement. A strong mean score of 4.15 indicated effective recognition of the importance of tailoring communication strategies to cultural backgrounds. Additionally, respondents acknowledged the significance of training on cultural differences, with a mean score of 3.85 suggesting a general agreement on its importance for improving communication among diverse stakeholders. However, the mean score of 3.38 reflected a more neutral perception regarding the effectiveness of managing cultural conflicts, indicating that there are opportunities for improvement in this area. Overall, while cultural considerations are recognized, addressing conflict management could further strengthen communication practices.

4 Information Technology

The findings regarding the use of information technology in communication at MIDROC Investment Group highlight significant opportunities for improvement. A low mean score of 2.79 suggests limited adoption and effectiveness of digital tools for communication. In contrast, a mean score of 3.62 indicates moderate agreement on the role of technology in enhancing real-time communication among stakeholders. Although there is a neutral to positive perception of IT's impact on project performance (mean = 3.47), the relatively low score for digital tool usage underscores a need for substantial enhancement in this area. Overall, these findings suggest that increasing the integration of technology could lead to better communication and improved project outcomes.

5 Project Performance

The findings on project performance factors at MIDROC Investment Group indicate a generally positive perception among stakeholders regarding key elements influencing project outcomes. Effective communication practices received a moderate mean score of 3.54, highlighting their importance in meeting project deadlines, although there is room for improvement. Clear and timely communication, reflected in a mean score of 3.68, is seen as essential for reducing

misunderstandings and enhancing project quality. Early stakeholder engagement scored highly at 4.06, underscoring its critical role in aligning project goals and expectations. Similarly, strong agreement (mean = 4.16) was noted on the positive impact of stakeholder involvement throughout the project lifecycle on overall satisfaction. Cultural context emerged as a significant factor, achieving the highest mean score of 4.27, indicating that cultural awareness is vital in project management. While understanding cultural differences received a moderate score of 3.54, it suggests that its potential impact on collaboration and performance may not be fully realized. The role of information technology in facilitating communication was positively viewed (mean = 3.97), with IT tools also perceived as beneficial for tracking stakeholder engagement (mean = 3.87). Effective stakeholder engagement practices were recognized for their contribution to project success (mean = 3.99), while regular feedback (mean = 3.57) was deemed necessary for refining processes. Overall, though many factors are positively assessed, moderate scores in communication practices and cultural understanding indicate areas where improvements could further enhance project performance.

5.2. Conclusion

The findings of this study underscore the critical role of communication practices, stakeholder engagement, cultural context, and information technology in influencing project performance at MIDROC Investment Group. The correlation analysis reveals that effective communication practices are significantly positively correlated with project performance ($r = 0.240$, $p < 0.01$), demonstrating that clear communication enhances the ability to meet deadlines and quality standards. Stakeholder engagement also shows a moderate positive correlation ($r = 0.137$, $p < 0.05$), highlighting the importance of involving stakeholders throughout the project lifecycle. Although the cultural context correlates positively with project performance ($r = 0.121$, $p = 0.065$), it is not statistically significant, suggesting that while cultural awareness can improve collaboration, its impact needs further exploration.

The Model Summary indicates a strong positive correlation ($R = 0.876$) between the predictors Information Technology, Stakeholder Engagement, Communication Practices, and Cultural Context and project performance, with an R^2 value of 0.767. This means approximately 76.7% of the variance in project performance is explained by these factors, reinforcing their importance. The ANOVA results confirm a significant relationship between communication management

practices and project performance, with an F-statistic of 5.628 and a significance level (p-value = 0.000), indicating that at least one predictor significantly impacts project performance.

These findings emphasize the necessity for project managers at MIDROC to prioritize effective communication strategies, stakeholder engagement, and cultural considerations to enhance project outcomes. By investing in these critical areas, MIDROC can achieve better results in the construction industry, ultimately fostering more successful project execution.

5.3. Recommendations

The researcher made the following recommendation for action and further study in light of the results and conclusions to assess the effect of project communication management on project performance in the construction industry, specifically focusing on MIDROC Investment Group in Addis Ababa, Ethiopia have to take into account the subsequent factors:

5.3.1. Recommendations for Action

The following actionable recommendations are proposed for MIDROC Investment Group to enhance project communication management and overall project performance:

1) **Enhance Communication Practices**:

   Develop clear communication protocols outlining responsibilities for updates and reporting. Create a communication plan that includes timelines for updates and methods of information dissemination. Project managers and team leaders should oversee the implementation and conduct regular training sessions for all staff.

2) **Invest in Digital Tools**:

   Assess current communication tools and identify user-friendly digital platforms that facilitate real-time collaboration. Implement tools like project management software or communication apps that allow for timely updates and information sharing. IT department and project management teams should collaborate to select and roll out these tools, along with providing training for all team members.

3) **Strengthen Stakeholder Engagement**:

Schedule regular meetings and feedback sessions with stakeholders throughout the project lifecycle. Develop a stakeholder engagement plan that includes timelines for meetings and feedback collection. Project managers should lead these initiatives, ensuring active participation from all relevant stakeholders.

4) **Cultural Awareness Training**:

Organize workshops and training sessions focused on understanding cultural differences and conflict resolution strategies. Create a curriculum that addresses the specific cultural contexts of team members and stakeholders.HR departments should facilitate these training programs, involving external experts if necessary.

5) **Monitor and Evaluate Communication Practices**:

Set up regular assessment tools, such as surveys and performance reviews, to evaluate communication effectiveness. Develop a framework for collecting feedback and analyzing communication practices. A designated communication officer or team should be responsible for ongoing monitoring and reporting to management.

6) **Leverage Information Technology**:

Implement IT solutions that allow for tracking project metrics and stakeholder engagement. Create dashboards that provide real-time insights into project status and stakeholder feedback. The IT team should collaborate with project managers to design and maintain these dashboards.

7) **Foster a Feedback Culture**:

Establish regular check-ins and feedback loops where team members can discuss project processes and communication. Create structured formats for collecting feedback, such as surveys or suggestion boxes. Team leaders should encourage participation and ensure that feedback is considered in project adjustments.

5.3.2. Recommendations for Further Study

To build on the findings of this study, the following areas for further research are recommended:

1 Longitudinal Studies:

Conduct longitudinal research to assess the long-term impacts of enhanced communication practices and stakeholder engagement on project performance at MIDROC and in similar organizations.

2 Quantitative vs. Qualitative Analysis:

Explore qualitative methods, focus groups discussion, to gain deeper insights into stakeholder perceptions and experiences regarding communication practices and their impact on project outcomes.

3 Comparative Studies:

Investigate how communication practices and stakeholder engagement strategies vary across different construction companies in Ethiopia or in other countries. This can provide valuable benchmarks and best practices.

By implementing these recommendations for action and pursuing further studies, MIDROC Investment Group can enhance its communication management practices and achieve greater success in project performan

REFERENCES

Abebe, T., & Girma, A. (2023). Leadership styles and their impact on communication effectiveness in construction projects in Ethiopia. Journal of Construction Management, 12(1), 34-50.

Adeleke, A. Q., Akinlabi, O. J., & Akinlabi, E. T. (2020). Communication dynamics in construction project management: A review. Journal of Building Performance, 11(1), 45-59.

Adeleke, A. Q., Olawale, A., & Olubunmi, M. (2020). Project communication management and project performance in the construction industry: A review of literature. Journal of Building Performance, 11(2), 1-14.

Agyekum, K., Osei, A., & Kumi, E. (2021). The impact of technology on communication management in construction projects: A case study in Kenya. Journal of Construction in Developing Countries, 26(1), 45-60.

Ahmed, M., Ahmad, A., Ahmad, A., & Zakaria, M. (2022). Communication strategies and project performance: A case study of MIDROC Investment Group in Ethiopia. Construction Management and Economics, 40(2), 145-158.

Alhammadi, Y., & Alshibani, A. (2020). Enhancing construction project performance by managing communication risks. Engineering, Construction and Architectural Management, 27(2), 511–530.

Amare, T. (2020). Stakeholder engagement and its impact on construction project success in Ethiopia. Journal of Construction in Developing Countries, 25(2), 1-15.

Argyris, C. (1991) Teaching smart people how to learn Harvard Business Review Press.

Baccarini, D. (1996). The concept of project success: A multidimensional approach. Project Management Journal, 27(2), 39-46.

Beauchamp, T. L., & Childress, J. F. (2013) Principles of Biomedical Ethics (7th ed.),Oxford University Press.

Baccarini, D. (1996). The concept of project success: A holistic view. International Journal of Project Management, 14(3), 199-204.

Belay, S., Goedert, J., Woldesenbet, A., Rokooei, S., Matos, J., & Sousa, H. (2021). Key BIM adoption drivers to improve performance of infrastructure projects in the Ethiopian construction sector: A structural equation modeling approach. Advances in Civil Engineering, , 1–12.

Bertalanffy, L. von. (1968). General system theory: Foundations, development, applications. George Braziller.

Bisrat Zerihun. (2020). The Role of Communication in Project Management: A Study of Construction Projects in Ethiopia. Journal of Project Management, 12(3), 45-60.

Blau, P. M. (1964). Exchange and power in social life, Wiley.

Bourne, L., & Walker, D. H. T. (2006). Visualizing stakeholder influence: A tool for project managers. Project Management Journal, 37(1), 5-21.

Bourne, L., & Weaver, P. (2010). Project performance and communication: A study of the relationship. International Journal of Project Management, 28(1), 66-73.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Bryman, A. (2016). Social research methods (5th ed.). Oxford University Press.

Chan, D. W. M., Scott, D., & Chan, A. P. C. (2019). Information technology in construction: A review and future directions. Automation in Construction, 98, 1-15.

Chen, P., Luo, H., & Gong, M. (2014). Impact of communication on construction project performance. Construction Management and Economics, 32(1), 96–108.

Cheng, M.-Y., & Darsa, M. H. (2021). Construction schedule risk assessment and management strategy for foreign general contractors working in the Ethiopian construction industry. Sustainability, 13(14), 7830.

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences. Routledge.

Creswell, J. W. (2014). Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.). SAGE Publications.

Davenport, T. H., & Ron, A. (2018). The AI advantage: How to put the artificial intelligence

revolution to work. MIT Press.

Desta, G., Teshome, A., & Fekadu, K. (2019). The role of information sharing in improving project performance in the Ethiopian construction industry. Ethiopian Journal of Construction Engineering and Management, 1(1), 25-39.

Dainty, A. R., Moore, D., & Murray, M. (2006). Communication in construction: Theory and practice. Taylor & Francis.

Duncan, W. R. (2019). Project management: Concepts, methodologies, tools, and applications. IGI Global.

Emmitt, S., & Gorse, C. (2018). Communication in construction: Theory and practice. Wiley-Blackwell.

Ethiopian Construction and Building Association (ECBA). (2021). Project communication and stakeholder satisfaction in Ethiopian construction. ECBA Report

Flick, U. (2018). An Introduction to Qualitative Research (5th ed.). SAGE Publications.

Fiedler, F. E. (1964). A contingency model of leadership effectiveness. In Advances in experimental social psychology (Vol. 1, pp. 149-190). Academic Press.

Field, A. (2018). Discovering Statistics Using IBM SPSS Statistics (5th ed.). SAGE Publications.

Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman Publishing Inc.

Gibson, C. B., & Gibbs, J. L. (2006). Unpacking the concept of virtuality: The effects of virtuality on team collaboration and performance. Academy of Management Journal, 49(3), 554-572.

Gligoric, A., & Hocevar, M. (2018). Project communication management in Serbian construction industry. Proceedings of the 16th International Conference on Civil and Construction Engineering, 23(4), 120–134.

Gareis, R. (2010). Management of Projects: A Systems Approach. Vienna: Project Management Institute.

Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2019). Multivariate Data Analysis (8th

ed.). Cengage Learning

Hancock, B., Windridge, K., & Ockleford, E. (2009). An Introduction to Qualitative Research.

National Institute for Health Research.

Hassan, A., & Mohammed, Y. (2021). Cultural dimensions and their influence on

communication practices in Ethiopian construction projects. International Journal of Project Management, 39(4), 375-386.

Hofstede, G. (2001). Culture's Consequences: Comparing Values, Behaviors, Institutions, and

Organizations Across Nations. Thousand Oaks, CA: Sage Publications.

Hofstede, G. (1980). Culture's consequences: International differences in work-related values.

Sage Publications.

Human Rights Watch. (2024). Stakeholder Engagement and Communication in Development

Projects.

International Labour Organization. (2019). Safety and health in construction: A global

perspective. ILO.

Jefferies, M., Brewer, G., & Gajendran, T. (2016). Using a project alliance approach to model

multi-stakeholder communication. Engineering, Construction and Architectural Management, 23(3), 438–455

Jung, Y., & Won, J. (2017). The role of communication in construction project success: A

review of the literature. Construction Management and Economics, 35(9), 533-546.

Jung, Y., & Won, J. (2017). The effects of digital communication tools on project performance

in construction. Journal of Construction Technology and Management, 15(3), 34-48.

Karlsen, J. T. (2002). Project stakeholder management. Engineering Management Journal, 14(4),

19–24.

Kebede, A. (2020). Organizational culture and communication barriers in Ethiopian

construction projects. International Journal of Construction Management, 20(5), 431-442.

Kebede, D., Beshah, A., & Melaku, T. (2022). Feedback mechanisms in construction project

communication: A case study in Ethiopia. Journal of Construction Engineering, 14(3), 213-228.

Kebede, S. (2018). Challenges of project communication in the Ethiopian construction industry. International Journal of Construction Management, 18(2), 149-157.

Kerzner, H. (2017). Project management: A systems approach to planning, scheduling, and controlling (12th ed.). Wiley.

Khalid, A., Ali, M., & Kadir, A. (2019). Critical success factors for project performance in the construction industry. International Journal of Construction Management, 19(5), 440-454.

Kotter, J. P. (1996). Leading change. Harvard Business Review Press.

Kumar, S., & Kumar, A. (2019). Impact of project management practices on project performance: A case study of Indian construction industry. International Journal of Project Management, 37(2), 31-41.

Lee, J. (2022). The impact of communication management on project performance in the construction industry. Journal of Construction Management, 31(4), 201-215.

Ling, F. Y. Y., Ong, S. Y., Ke, Y., Wang, S., & Zou, P. X. W. (2011). Drivers of communication satisfaction in construction project teams. Journal of Construction Engineering and Management, 137(5), 317–329.

Mahamid, I. (2013). Factors affecting construction project performance in the Gaza Strip. International Journal of Project Management, 31(5), 749-760.

Men, L. R., et al. (2015). The impact of stakeholder engagement on project success: A case study. International Journal of Project Management, 33(2), 487-498.

Mengistu, D. G., & Mahesh, G. (2019). Challenges in developing the Ethiopian construction industry. African Journal of Science, Technology, Innovation and Development, 12(4), 373–384.

MIDROC. (2021). MIDROC investment group: Company profile.

Moyo, L., Smit, E., & Venter, J. (2019). Cultural diversity and communication in construction projects: A South African perspective. International Journal of Project Management, 37(6), 754-766.

Morris, P. W. G., & Pinto, J. K. (2007). The Wiley Guide to Project Technology, Supply Chain, and Organizational Project Management. Hoboken, NJ: Wiley.

Mulugeta, F., Zewdie, A., & Taye, B. (2021). Challenges in communication management in Ethiopian construction projects: An empirical study. Ethiopian Journal of Civil Engineering Research, 6(2), 50-65.

Mulugeta, B. (2021). Cultural influences on communication in the Ethiopian construction industry. African Journal of Project Management, 5(3), 12-25.

Ofori, G., & Toor, S.-R. (2020). Stakeholder communication and project success in the Ghanaian construction industry. African Journal of Economic and Management Studies, 11(2), 263-275.

Pinto, J. K., & Slevin, D. P. (1988). Project success: Definitions and measurement techniques. Project Management Journal, 19(1), 67-73.

Polit, D. F., & Beck, C. T. (2012). Nursing Research: Generating and Assessing Evidence for Nursing Practice (9th ed.). Lippincott Williams & Wilkins.

Project Management Institute. (2017). A guide to the project management body of knowledge (PMBOK® guide) (6th ed.). Project Management Institute

Schwalbe, K. (2015). Information technology project management (7th ed.). Cengage Learning.

Shannon, C. E., & Weaver, W. (1949). The mathematical theory of communication. University of Illinois Press.

Sinesilassie, E. G., Tabish, S. Z. S., & Jha, K. N. (2017). Critical factors affecting schedule performance. Engineering, Construction and Architectural Management, 24(5), 757–773.

Sullivan, K. (2019). The impact of communication on construction project performance: A systematic review. Construction Innovation, 19(2), 187-204.

Sullivan, P. (2019). The role of communication management in project success: Evidence from the construction industry. Journal of Construction Management, 31(2), 145-159.

Tadesse, K., & Woldemariam, S. (2021). Enhancing communication skills in construction

project teams: The impact of training on project performance. Ethiopian Journal of Civil Engineering Research, 5(1), 45-58.

Taffese, W. Z., & Abegaz, K. A. (2019). Embodied energy and CO2 emissions of widely used building materials: The Ethiopian context. Buildings, 9(6), 136.

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. International Journal of Medical Education, 2, 53-55.

Thomas, A. S., & Inkson, K. (2004). Cultural Intelligence: People Skills for a Global Workplace. Berrett-Koehler Publishers.

Trompenaars, F., & Hampden-Turner, C. (2012). Riding the Waves of Culture: Understanding Diversity in Global Business. London: Nicholas Brealey Publishing.

Turner, J. R., & Müller, R. (2005). The project manager's leadership style as a success factor on projects: A literature review. Project Management Journal, 36(1), 49-61.

United Nations. (2019). Ethiopia: Sustainable Development Goals report

World Bank. (2020). The construction industry: A global perspective.

World Bank. (2020). Ethiopia - Rapid Assessment of the Construction Sector. World Bank Group.

Yin, R. K. (2018). Case Study Research and Applications: Design and Methods (6th ed.). SAGE Publications.

Zuo, J., Zillante, G., & Batta, R. (2017). The effect of communication strategies on project performance in the Australian construction industry. Journal of Construction Management and Economics, 35(7), 393-405.

Zou, P. X. W., Zhang, J., & Wang, J. (2016). The role of communication in project success: A review of the literature. International Journal of Project Management, 34(5), 914-929.

Zou, P. X. W., Zhang, G., & Wang, J. (2016). Communication in construction projects: A review and future directions. Journal of Construction Engineering and Management, 142(5),

Annex

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Dear respondent,

The purpose of the questionnaire is to collect data for research on "*The effect of project communication management on project performance in the construction industry: a case study of MIDROC investment group in Addis Ababa*." The research is designed to identify *project performance*. The research outcomes are important for academic study. Your genuine and honest response is very important for the success of the research, and the researcher would like to thank you for your cooperation in advance.

Note: For any clarification or question, please don't hesitate to contact the researcher at the following address: Name: **Robel Wondimagegnehu**, mobile phone +251 92 8679999.

General Instruction:

1. There is no need to write your name.
2. Your response's confidentiality is maintained.
3. Instructions for each part of the questionnaire are given at the beginning of the questions.
4. Check (√) the boxes indicating your answers.

Section I: Demography of respondents

1) Gender: A. Male ( ) B. Female ( )
2) Age: A. under 25 ( ) B. 26-35 ( ) C. 36-45 ( ) D. 46-55( )
   D. 56 and above ( )
3) Educational Background: A. Bachelor's Degree ( ) B. Master's Degree ( ) C. PhD ( )
   D. Other: _____
4) Field of Study : _____
5) Years of Experience in the Construction Industry:
   A. Less than 1 year ( ) B. 1-5 years ( ) C. 6-10 years ( ) D. 11-15 years ( )
   E. More than 16 years ( )
6) Current role in the project:
   A. Project Manager ( ) B. Project Coordinator ( ) C. Stakeholder Engagement ( )
   D. Site Supervisor ( ) E. Other: _____
7) Department/Unit:
   A. Engineering ( ) B. Project Management ( ) C. Finance ( ) D. Human Resources ( )

E. Other: _____

8) Number of projects worked on in the last 3 years:

A. 1-3 ( ) B. 4-6 ( ) C. 7-10 ( ) D. More than 10 ( )

9) Type of projects involved in:

A. Residential ( ) B. Commercial ( ) C. Infrastructure ( ) D. Industrial ( )

E. Other: _____

Section II: Basic Research Questions

The following statements address how project performance in the construction industry is affected by practice of project communication management in the context of MIDROC investment group. Kindly check (√) the boxes indicating your agreement or disagreement with each statement. The possibilities range from 1 (strongly disagree) to 5 (strongly agree). A number between 1 and 5 designates each option.

Note: N= Neutral, A= Agree, SA= Strongly Agree, DA= Disagree, SD= Strongly Disagree

S.no	Items	SD	D	N	A	SA
	Communication Practices	1	2	3	4	5
	Clear communication channels are established in my projects.					
2	Regular updates on project progress are provided to all stakeholders.					
3	Feedback mechanisms are in place to address stakeholder concerns.					
4	Communication is documented effectively to ensure all stakeholders are informed.					
5	Communication practices are regularly reviewed and improved.					
	Stakeholder Engagement					

1	Stakeholders are actively involved in project decision-making processes.					
2	Regular meetings are held with stakeholders to discuss project updates.					
3	Stakeholders feel their opinions and feedback are valued.					
4	There is transparency in sharing project-related information with stakeholders.					
5	Stakeholder engagement practices enhance overall project performance.					
	Cultural Context					
1	Communication strategies consider the cultural backgrounds of stakeholders.					
2	Team members are trained to understand cultural differences in communication.					
3	Cultural sensitivity is prioritized in project communication efforts.					
4	Conflicts arising from cultural misunderstandings are managed effectively.					
5	A respectful approach to diverse cultural perspectives improves collaboration.					
	Information Technology					
1	Digital tools are used to facilitate communication among project teams.					
2	Information Technology helps in reducing misunderstandings and miscommunications in project management.					
3	The integration of IT in project communication has led to improved project performance.					
4	Technology enhances real-time communication among stakeholders.					
5	The integration of technology in communication positively impacts project performance.					
	Project Performance					

1	Effective communication practices enhance our ability to meet project deadlines.					
2	Clear and timely communication reduces misunderstandings among team members, improving project quality.					
3	Engaging stakeholders early in the project leads to better alignment with project goals and expectations.					
4	The involvement of stakeholders throughout the project lifecycle positively impacts overall project satisfaction.					
5	Cultural context influences how effectively communication occurs in our projects.					
	Understanding cultural differences among team members enhances collaboration and project performance.					
7	The use of Information Technology facilitates better communication among project stakeholders.					
8	IT tools help in tracking stakeholder engagement, which leads to improved project outcomes.					
9	Effective stakeholder engagement practices contribute to the success of project deliverables.					
10	Regular feedback from stakeholders helps in refining project processes and achieving better performance results.					