



Addis Ababa University

School of Commerce

Master of Project Management Program

**Factors Affecting Project Performance Case of PepsiCo Expansion
Project in Ethiopia**

By:

Tinsae Getachew

**A Thesis Submitted to Addis Ababa University School of Commerce for
the Partial Fulfillment of the Requirements for Master of Arts Degree in
Project Management**

Advisor:

Fesseha Afework (A/Professor)

Addis Ababa

June 17, 2023

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE

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Approval Board Committee:

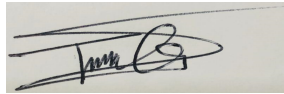
<u>Fesseha Afewerk (A/Professor)</u>	_____	_____
Research advisor	Signature	Date
_____	_____	_____
Internal Examiner	Signature	Date
<u>Amare Abawa (PhD)</u>		<u>10/07/2023</u>
External Examiner	Signature	Date

Declaration

I, Tinsae Getachew, declare that the study titled "An Assessment of Factors Affecting Project Performance: Case Study: PepsiCo Expansion Project in Ethiopia", has been conducted by myself with the guidance and supervision of my research advisor, Fesseha Afewerk (A/Professor). It is entirely my own original work that has not been submitted to any university degree program.

Tinsae Getachew

Researcher Name



Signature

June 19 , 2023

Date

Letter of Certificate

This is to certify that Tinsae Getachew has conducted this project work entitled "An Assessment of Factors Affecting Project Performance: Case Study: PepsiCo Expansion Project in Ethiopia" as a partial fulfillment of the requirement for the award of a Master of Arts Degree in Project Management. She has been doing this project work by herself under my supervision.

Therefore, I hereby declare that it is her own work and hasn't been submitted to any university degree programs.

Fesseha Afework (A/Professor)

Researcher Advisor Name

Signature

Date

Acknowledgement

My first and foremost gratitude belongs to God Almighty for his protection, support, and countless blessings throughout my entire existence. I thank my family for their unwavering support and encouragement during the academic years. As a result, I was able to complete my education.

I am sincerely grateful to my advisor, Fesseha Afework (A/Professor), for his invaluable advice on the research. This research would not have been possible without his guidance and persistence, and I am grateful for his patience in assisting me in the preparation of this research paper. So that I have been finally able to accomplish the project work.

Next, I would like to thank the PepsiCo team, who were important in the successful completion of this project, for assisting me with data collection.

Thank you all.

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Abstract

Construction is considered one of the sectors that ignite economic growth for a nation. However, the majority of construction projects performance is not satisfactory. Some deal with cost overruns, others with time delays and quality problems that do not meet the end user's expectations and result in low customer satisfaction. The purpose of this study is to assess factors that affect construction project performance in the case of PepsiCo expansion project. The study grouped the assessed factors into four clusters, including managerial factors, project team performance factors, risk management performance factors, and external factors. These four clusters have five to eight factors that are identified as potential factors. The methodology chosen for this study is descriptive statistics, which involves analysing data that is collected through Likert-structured questionnaires from targeted populations. A total of 30 questionnaires were filled out by employees of the contractor, consultant, and owner with engineering and project management experience. The collected data was analysed through SPSS, and Cronbach's alpha test was performed to check the reliability of the study. The findings indicate that managerial factors, project team performance factors, risk management performance, and external factors affected the construction project's performance in the case of the PepsiCo expansion project. The study concluded that the project's time and cost performance were influenced by managerial factors, project team performance, risk management, and external factors. The initial project plan was found to be increased by time and cost performance by 15% and 9%, respectively. The project team must address the identified assessed factors and develop strategies to improve the project's performance.

Key words: construction performance, managerial factors, risk management, Project performance, external factor and team performance

Chapter One

1. Introduction

1.1 Background of the Study

In this agile business world, the economic impact of the construction sector on a nation is significant. It has the capability to show the country's economic development in terms of the constructed, in-progress, or planned construction projects such as high-rise infrastructure, roads, bridges, railways, industrial parks, etc. Generally, the construction industry propels the economy (Harris and McCaffer, 2013). Important projects in the construction industry contribute significantly to the formation of a healthy society and strengthen the general political class of the country by addressing societal demands. (Wang et al, 2017). The construction sector allows different stakeholders' involvement as it is multidisciplinary, provides employment opportunities, improves livelihoods for people, etc. Challenges encountered in the construction sector's progress would affect the global economy (Junaid et al, 2022).

However, the performance of construction projects is called into question when several projects fail to meet the project's objectives. As a result, the success of the construction project is critical to achieving all of the aforementioned economic benefits. According to Pinnington (2011) project accomplishment is defined as meeting the objectives and expected outcomes within the time, cost, and execution constraints.

As every project has its own unique characteristics, the definition and evaluation of project performance vary depending on the project objectives and stakeholders' perspectives (Chan and Chan 2004). For instance, According to Mbugua et al. (1999), performance measurement is a method of gathering and analysing data regarding the inputs, effectiveness, and efficiency of construction project activities. It is described by Takim (2003) as a methodical approach to assessing project performance by evaluating data pertaining to the inputs, outputs, and project outcomes. Construction performance could be evaluated using its completed schedule, cost, productivity, and safety. (Molavi and Barral 2016).

Previous research found elements that influence project performance in terms of cost, time, and quality, as well as project success. According to Roshana Takim and Akintola Akintoye (2002), several factors influence construction project performance, including risk management, the business environment, economic and political stability, and the managerial, financial,

technical, and organizational performance of stakeholders. Dadhich et al. (2015) describe the construction industry as risky, underperforming, low productivity, ambitious, wasteful, hazardous, poorly managed, fragmented, high uncertainty, and complex. This indicates construction projects operate in a constantly changing environment. Although the construction sector is widely acknowledged as the driving force of economic growth, several government documents imply that it is impossible to precisely quantify its performance consistently (Harris and McCaffer, 2013). It is evident that various elements influence the project's performance. Due to the complexity of construction projects, an advanced systematic strategy is required to deal with initiating, planning, financing, designing, approving, implementing, and completing a project (Wang (1994). This will accurately capture the construction project's complexity in each project management cycle.

The Ethiopian construction market is anticipated to expand at an average annual growth rate of more than 8% through 2026, according to the global data Ethiopian construction market forecast 2022 report on the country's construction sector. The last two decades brought a significant change in the Ethiopian construction sector due to an increasing number of contractors, consultants, and technological improvements. Despite the enhancement of the way of working, the performance of construction projects is still inadequate. The construction project's performance is a concern globally for major stakeholders such as the government, contractors, consultants, project managers, and end-users or clients (Habitamu, 2021).

Several studies have addressed identifying factors that affect construction project performance, mostly on the basic project dimensions of cost, time, and quality. This study conducts a critical review of the literature on factors affecting industrial construction project performance, mainly focusing on cost, time, and quality. It attempts to explain why construction projects experience cost inflation, schedule delays, and inadequate quality and why their performance is insufficient given how they impact the economy. The study explains managerial attributes, project team members' performance and project management knowledge areas and tools importance in enhancing project performance.

This research further investigates industrial plant construction to assess project performance and effectiveness in the construction sector. There has been no research carried out on industrial construction in Ethiopia while assessing factors that affect construction project performance. This research will fill the gap by assessing factors that affect project performance in industrial

plant construction projects. It sheds light on assessing factors affecting project performance, specifically time, cost, and quality, in the case of PepsiCo's expansion project.

1.1.1. Background of the Company

PepsiCo is one of the leading global beverage and convenient food with a complementary portfolio of brands, including Lays, Doritos, Cheetos, Gatorade, Pepsi-Cola, Mountain Dew, Quaker and SodaStream. The company produces, distributes, and sells a wide variety of beverages and convenient foods globally. It operates and serves customers in more than 200 countries and territories (PepsiCo Annual report 2022).

PepsiCo owns Senselet Food Processing Plc. in Ethiopia, which manufactures potato chips in a single-line production system known as sun chips. As the company strives to produce consumer-centric products in Ethiopia, it has been implementing expansion projects to meet customer demand. The expansion project has two phases. The first one has two projects that are early works and water unlocking that is prerequisites for the second phase of the project, which is machinery and equipment installation. The study assesses factors affecting the performance of the project so far. The project is under construction. (PepsiCo Annual report 2022)

1.2 Statement of Problem

In Ethiopia, construction projects suffer delays, cost overruns, and quality problems (Yenealem, 2020: Aschalew, 2017: Zinabu, 2015). These difficulties of non-completion of a construction project with the intended budget, with the desired level of quality, and timeline directly link with the project's performance (Monicah, 2016). As a result, cost and time overruns are the most significant issues while carrying out construction projects (Arcila, 2012).

Construction project performance has been measured by several researchers with different methods. Since the beginning of project management, performance measurement has been a crucial component of the process (Bassioni et al., 2004).

As the construction projects operate in an uncertain volatile environment, it is important to assess the confronting difficulties that influence project performance. The existence of several issues in construction projects, requires project managers' attention to assess the performance of projects in different directions. Despite the project manager's competency, technology

advancement still the construction project performance is unsatisfactory. To complement this reason there are several construction projects that are not completed according to the project objectives. According to a report on project performance status evaluation by the Federal Democratic Republic of Ethiopia's Ministry of Urban Development, Housing, and Construction (2014), of 14 construction projects, 57%, have failed to fulfil the anticipated percentage. (MOUDHD, 2014). These can demonstrate that construction projects are suffering delay and cost escalation.

Despite significant scientific study and improved management strategies, construction projects continue to face issues such as delays, cost overruns, conflicts, low productivity, inadequate performance, and many more. Failure to complete construction projects successfully is a global issue (Bertelsen S, Sacks R 2007). It is crucial to keep an eye on the various factors that have influenced how construction projects have performed. This promotes improved and better outcomes (Henok Wendafrash 2018).

Several researchers studied the project performance in Ethiopia's construction sector in terms of cost, time, and quality. Beside a project's cost, time, and quality, there are other areas that can highlight project performance, such as scope, risk mitigation, opportunity utilization, end-user benefit analysis, etc. This study will assess factors that affect project performance in three dimensions: cost, time, and quality in the case of the PepsiCo expansion project in Ethiopia with aim of enhancing current practices in construction sector that facilitate project performance. This study will provide information on construction project performance to improve progress, identify potential factors to act on for the success of the project, and plan for future projects.

1.3 Research Questions

To identify factors that affect project performance, the following research questions are going to be answered:

1. What are the factors that affect project performance in the case of PepsiCo's Expansion project in Ethiopia?
2. What are the performance problems that occur during PepsiCo's expansion project?
3. What is the organization's current practice for managing project performance?

1.4 Objectives of the Study

The study aims to assess factors affecting the performance construction project and to identify factors that affect project performances in the case of PepsiCo expansion Project.

1.4.1. Specific Objectives

1. To assess and identify factors that affect project performance in PepsiCo Expansion Project,
2. To identify the performance problems that occur PepsiCo's expansion project's performance.
3. To assess the current organization's practice in managing project performance.

1.5 Significance of the Study

In Ethiopia, it has been witnessed that construction has increased over the past two decades while significantly impacting the economy. Even though several projects haven't been completed within the intended budget and timeframe. This research assesses the factors that influence project performance in PepsiCo's expansion construction projects. If this research is carried out, it provides valuable knowledge about potential factors influencing project performance. It assists project managers in determining which variables are influencing their project's performance and to understand enabler factors that ensure project performance in present time or for future use in successfully managing projects.

The study findings and recommendations provide useful information that leads to project success and efficient resource utilization for project implementers in the construction sector, future industry, and manufacturing projects. Besides that, the project is unique and complex by itself, and the lesson learned can be used for other industrial projects that involve construction and machine installation projects.

1.6 The scope and Limitation of Study

The scope of the study is limited to PepsiCo's expansion construction project. It will focus the progress of the project toward its project performance to date. In addition, there is no previous research that has assessed industrial construction project performance in Ethiopia. It assesses factors that affect project performance in the project's time, budget, and quality processes throughout the project implementation phase.

The scope of the research is going to be limited. It does not include other construction projects due to the difficulties in managing the allocated budget and time. As a result, making it difficult to confidently generalize the results to other construction projects.

1.7 Organization of the Thesis

The research report will have five chapters. In Chapter 1, the report will give background information that consists of a statement of the problem, basic research questions, the objectives of the study, a hypothesis (if any), a definition of terms, the significance of the study, and the delimitation or scope of the study. Chapter two will cover the literature review. It will include relevant study reviews. It will have an introduction, a theoretical review, an empirical review, and the conceptual framework of the study. The research methodology of the study will be covered in Chapter three. You are required to describe the type and design of your research, the subjects or participants of the study, the sources of your data, the tools or instruments employed for data collection, the procedures for data collection, and the methods of data analysis used. Chapter four Discuss results and discussion/data presentation, analysis, and interpretation. It will summarize the results and findings of the study and interpret and/or discuss the findings. The final chapter, Chapter 5, will draft a conclusion and recommendation that include a summary of the findings, conclusions, limitations of the study, and recommendations.

Chapter Two

2. Literature Review

2.1. Introduction

This chapter contains a review of the literature on assessing factors that affect construction project performance and their influence on construction projects. It focuses on performance dimensions of schedule, cost, and quality that are integrated into project management in the case of the PepsiCo expansion project. The first section deals with a theoretical literature review, which is followed by a discussion of an empirical literature review and a conceptual framework.

2.2. Theoretical Review

2.2.1. Project Definitions

A project is defined as a temporary endeavor undertaken to create a unique product or service (PMI, 2013). According to PMBOK 2017, A project may be described as a one-time thing that includes a hard and fast of activities, whose executions take time, require assets, and incur fees or result in money flows. According to PMBOK® Guide, 4th Edition, A project can be considered to be any series of activities and tasks that: have a specific objective to be completed within certain specifications, have defined start and end dates, have funding limits (if applicable), consume human and resources (i.e., money, people, equipment), are multifunctional (i.e., cut across several functional lines). Every project must have a beginning and an end point, as well as a deliverable product or service. (Mubarak Saleh 2015). Project has a set of activities that are sequential to deliver the end products.

2.2.2. Project Management

In today's constantly ever-changing business world, there is an increasing need to manage projects efficiently. In the defense, aerospace, and construction industries, project management has evolved significantly since 1960s. Project management is a field that has mostly emerged since World War II according to studies. Many project management principles have been created as projects have become more complex and uncertain. The principles always include a cost, time, and quality, which can be found in any project (David L. Olson, 2020).

In the 1960s, construction, aerospace, and defence industries began to apply project management principles, as CPM, Pert and project cost management was developed to manage projects efficiently. Following that the project management societies were founded. For example, the International Project Management Association was founded in 1965, and the Project Management Institute (PMI) was founded in 1969 (Stephen S. Bonham, 2008).

According to the PMBOK Guide, 4th edition, project management involves five process groups: project initiation, project planning, project execution, project monitoring and control, and project closure. Project management is a set of principles, concepts, methods, and procedures that equip individuals to organize, manage and control project work efficiently. It provides valuable information for efficient planning, scheduling, resourcing, decision-making, controlling, and planning (Larry Richman – 2002).

Project Management involves in achieving achieve the project objectives within the expected performance targets for time, cost, quality, scope, benefits and risk through its principles of planning, delegating, monitoring and controlling process (The PRINCE2 Method. 2017). Successful project management may then be described as achieving the project objectives on time, within budget, at the required specification, while effectively and efficiently utilizing the allocated resources, and having been accepted by the customer (PMBOK guide, 4th edition).

2.2.3. Project Management Practices

In this ever-agile business environment, the evolvement of project management has benefited business to survive. In today's world according to Harold Kerzner 2023, Strategic planning for project management is performed in favour of the business's future. Project management is today seen differently by executives than it once was. Instead of being seen as a career path, it is now seen as a strategic or core capability required for the survival and growth of the business. Previously, project managers were primarily used for project implementation; today, they also take part in strategic planning and make decisions for both the project and the business. Thus, it shows that project management science is advancing as it operates in a dynamic environment. As technology advances, it is important to be aware of the volatility of the world.

The advancement of project management is helping project managers throughout the project cycle by using the PMBOK. According to the Kenneth H. Rose 2008, the project management

practices are vital in every business to achieve their strategic objectives. The Project Management Institute's PMBOK (A Guide to Project Management Body of Knowledge) is made up of ten knowledge areas, including integration management, scope management, time management, cost management, quality management, risk management, human resource management, communication management, procurement management, and stakeholder management. It is critical to understand the types of project management (PM) practices that lead to project success in order to execute well according to Florence Yean et al (2009). The implementation of these knowledge areas enhances project performance by guiding project managers with the methods, processes, techniques, tools, and skills necessary for successful project management. This will improve project performance and lower the risk of failure.

2.2.4. Project Performance

Performance has been defined in different ways; some define it as the achievement of results, while others link it with the records of achievements or judging projects with the overall measurement of whether a project has met objectives and requirements of scope, cost, and schedule. Simply said, satisfying customer expectations or adhering to their standards with regard to time, quality, and budget constraints is what is meant by performance. Project performance was described using a variety of concepts by experts in quality, time, and cost. It is crucial to have a consistent definition of project success since project performance attempts to optimize project success. Success has a different meaning to each person as they have their own predetermined set of success criteria (Freeman and Beale 1992). The success of a project is achieved if it is completed within the requirements and limits of scope, quality, time, and cost (Parida and Ray 2015). According to traditional project management perspective, a project's success or failure is based on its timeline, budget, and requirements (De Bakker et al. 2010). Project management success is judged by the usual performance indicators such completing the project within schedule, budget, and scope while maintaining quality, whereas project success is measured against the entire project objectives (Cooke-Davies, 2002).

According to Harold Kerzner (2023), project success was defined by the deliverables of the triple constraints. Even if all deliverables are done on schedule and under budget, the project may still fail if there is no market demand for the project's outcome, if it doesn't satisfy customer needs, if the customer is unhappy with the performance of the deliverables, if the business case's intended benefits aren't realized, and if the resulting financial value expected from the benefits is significantly lower than anticipated. Jugdev and Müller (2005) reported

that the concept of defining project success changed from having a limited focus on completing a project on time, on budget, and within scope to having a broader objective that includes stakeholder requirements.

2.2.5. Construction Project Performance

The construction industry ignites the economic development of any nation. The complexity of the nature of the project makes it vulnerable to delay, cost overrun, and poor performance. Planning, timely delivery, and reliability are concerning subjects that influence the performance of construction projects (Saurav Dixit 2020). Many businesses in the construction sector sink money into fruitless endeavors. This is a result of complex supply chains that involve numerous stakeholders with different objectives. It operates in a dynamic context with a diversity of stakeholders, activities, and interactions, as well as with a high degree of technical and financial uncertainty (Chan 2004).

Successful construction project performance is described as occurring when stakeholders meet their requirements, individually and collectively (Atkinson, et al., (1997), The standard cost schedule quality iron triangle, which is a fundamental component of most contemporary standard project management approaches, is associated primarily with project success (Vittal S. Anantatmula (2015). There are, however, increasing differences in perceptions of how effectively or poorly projects work and the reasons why performance measures are (are not) satisfied (Wang & Pitsis, 2020). Many contracting parties collaborate on construction projects (El-Sayegh et al., 2021). The performance of construction projects depends upon many different factors that influence their success throughout the project cycle. According to Kagioglou et al. (2001), these metrics are insufficient, and a wide range of additional elements exist that might affect a client's tendencies to continue a particular procurement route in the future as well as their level of customer satisfaction. Even though Performance gives construction companies a competitive edge in the market by demonstrating a degree of concern for their team and clients. It is a procedure used in the construction industry to create an atmosphere where employees and subcontractors can deliver their best efforts.

The activities of the construction industry are complex, as are the stakeholders who participate, the many construction phases, and the related codes, ordinances, and regulations that ensure successful project planning, designing, construction, and delivery (Isa et al 2016). The construction business has been acknowledged to have issues with its structure, particularly fragmentation, which has hampered performance, according to Beatham et al (2004). Project

managers are struggling to deliver services on time, on budget, and with high customer satisfaction as projects get more and more complicated as a result of growing in size, quantity, and supply chain stakeholders (Alfredo R., 2016).

2.2.6. Performance Measurement

Performance Measurement is vital to enhance project management efficiency and effectiveness in construction performance. According to Neely (1995), it is defined as "the set of metrics used to quantify both the efficiency and effectiveness of actions." It allows to assess the efficiency and effectiveness of projects, programs, and initiatives by collecting data that pertains to a project and evaluating how the project is performing towards the pre-set outcomes, goals, and objectives. It provides opportunities for organizations to grow by learning, capturing, and analysing what happens on a daily basis that connects customers, employees, suppliers, partners, and new technologies. (Mbugua et al., 1999)

Performance measures are the numerical or quantitative indicators (Sinclair and Zairi, 1995). It entails analysing critical information and allowing activities to be monitored on a regular basis at various levels of the organization (Ashcalew Yohans, 2021). Performance measurement, on the other hand, is a systematic method of evaluating the inputs and outputs in manufacturing operations or construction activity that serves as a tool for continuous improvement (Sinclair and Zairi, 1995; Mbugua et al., 1999).

Construction industry impacts the economy as it has a holistic approach in creating economic growth. Yet it has been noticed that construction project performance is difficult to accurately measure and meet the requirements of environmental change and progressing alteration (Harris and McCaffer, 2013). In fact, it appears that there weren't any formal project evaluations at all for the construction projects as a whole (Kumaraswamy and Thorpe, 1996). Therefore, in order to manage the overall activities and outcome of the performance of the construction project team, project managers need a set of perfect and efficient performance evaluation models. In addition, the model can raise the overall management standard of the project department, enhance project management risk, project economic benefit, and gradually raise the competitiveness of the construction industry (Jingtao Feng and Junwu Wang 2018). As the significance of performance evaluation is recognized, some research has been conducted to suggest effective assessment of a construction project (Cox et al., 2003).

According to Phusavat et al. (2009), quantitative and qualitative data is utilized to improve performance through the decision-making process. The information used will enable project managers to fully comprehend and identify the objectives in current situations, allowing them

to make sound decisions. A construction process involves ongoing data analysis, and a number of decisions must be made for an uncertain future (Hee Sung Cha and Chan Kyu Kim, 2011). As a position check, performance measurement could constantly keep track of the procedure in each phase and evaluate the current situation. To improve the efficacy of the overall project management, it is important to measure the progress of the project by comparing its progress against the goals, objectives, and results.

2.2.7. Significance of Performance Measurement

Managers should monitor project performance to understand how well projects are performing. It assists them in determining where the project is performing well, where it is insufficient, and factors that can be improved. Performance measurement is viewed to be an important key in the success of a business because it communicates the established project objectives to the stakeholders. It outlines the activities that need to be achieved by project's teams and it also provides a sense of direction for project. Without conducting performance measurement, project progressed cannot be able to determine where it's going. There are seven reasons, according to Bourne et al. (2000) and Neely et al. (2000), why managers prioritize performance measurement in the management process. All of the projects are dynamic, and the reasons for this include increased competition, explicit advancement dynamism, domestic or international quality rewards, changing institutional roles, informed customers, and information technology. Furthermore, regularly using performance measures allows for the mid-course adjustment of a plan or the reset of priorities to capitalize new opportunities. An organization's ability to learn from its successes and failures will be aided by an internal performance measurement system.

2.2.8. Factors Affecting Construction Project Performance

Many studies of project management have focused on cost and time scheduling problems with the assumption that better scheduling methods will lead to better management and, ultimately, the successful completion of projects. The success or failure of a project, however, may depend on a variety of circumstances.

Several studies have identified several factors that affect the performance of construction projects. Yet there is no common ground for the identified factors; for this reason, the factors vary along with the projects. M. Al-Tabtabai (2002) stated that these factors can be majorly classified into categories including contractor's site management related factors, design and documentation related factors, financial management related factors, information and communication related factors, human resource (workforce) related factors, non-human

resource related factors, project management and contract administration related factors, and external factors. Chan et al. (2004) grouped factors that contributed to project success into five main categories: PM actions, project-related factors, project procedures, human-related factors, and the external environment. Study's findings show that poor construction performance is caused by unskilled labor, poor supervision and site management, a lack of leadership, and inadequate equipment performance, among other factors (Faridi and El-Sayegh (2006), Durdyev, S., and Hosseini 2020).

Iyer and Jha (2005) revealed that the project manager's competence, top management support, and coordinating and leadership skills have an impact on project cost performance. In addition, time performance is affected by the project manager's competence, supportive owners and top management, monitoring, feedback, and coordination. The research further identified quality performance influencing factors such as conflict among project participants, a hostile socio-economic environment, and harsh climatic conditions. According to Hoonakker et al. (2010), quality performance is affected by employee involvement and collaboration, management commitment, and a skilled workforce. The customer, project environment, project team leaders, project procedures, and project management procedures are factors that affect quality performance, according to Chan & Tam (2000).

Thus, the previous research findings show that there are different factors that affect construction performance for different projects.

2.2.8.1. Identified Affecting Factors for This Research

In this study, a total of four key factors, including (1) managerial factor, (2) project team performance, (3) risk management process, and (4) external factors, affect the construction project's performance.

2.2.8.1.1. Managerial Factors

Managerial practices have a significant impact on project performance. Factors related to the skills and characteristics of project management also have impact on project success. By identifying the best project management attributes benchmarking has been recognized by many researchers as a key technique to improve the performance of projects and businesses (El-Mashaleh et al., 2007; Ramirez et al., 2004).

Studies have identified several critical factors that add value to project success, among which managerial practices are one. Pinto JK, & Slevin (1989) showed how crucial it is to choose project managers with the required technical and managerial skills, such as commitment and competence, for a successful project completion. As the construction project is full of uncertainties, it is vital to have a competent and effective team that has relevant managerial experience on the project to ensure project success. Hyvari (2006) further classified managerial practices into four clusters as follows: those that contribute to project success (1) Making decisions: This cluster includes the managerial practices of planning and organizing, problem-solving, consulting, and delegating. (2) Influencing people: motivating or inspiring, recognizing, and rewarding are classified into this cluster. (3) Building relationships: This cluster comprises the managerial practices of networking, conflict management, team building, supporting, and developing. (4) Giving and seeking information: They are monitoring, informing, and clarifying.

According to Haseeb et al. (2011), poor planning, poor site management, insufficient stakeholder experience, a shortage of materials and equipment, and other factors are problems in Pakistan's construction and cause delays. According to Zimmerer and Yasin (2012), managerial practices that drive project success are team building, communicating, demonstrating trust, and focusing on results. These are some of the characteristics of effective project managers. Durdyev, S. & Hosseini 2020, studied constraint factors on construction project delivery and study identified "poor communication", "lack of coordination and conflicts between stakeholders", "ineffective or improper planning", "material shortages", "financial problems", "payment delays", "equipment and plant shortages," "lack of qualified stakeholders", "labour shortages", and "poor site management" as obstacles to project completion. This indicates that stakeholder's managerial capability in adhering to and coping with challenges highly influences the project's performance. Their managerial effectiveness during the project's execution is important. On the other hand, consultative effectiveness in assessing change orders, contractors' financial standing and experience, design errors, and insufficient preliminary studies are identified as factors that affect construction projects in Uganda (Muhwezi, L., Acai, J., and Otim (2014).

2.2.8.1.2. Project Team Performance Factor

A construction project team is a group of people who are in charge of planning, designing, and carrying out a construction project from start to finish, according to Gorse & Emmitt (2007). It

requires acquiring different people and professionals with a variety of skills, expertise, and knowledge to fulfil the tasks. The team members' capabilities in determining project cost, schedule, coordination plan, technical knowledge, and expertise contribute to the project's success. However, if the team lacks the necessary skills to manage the project, the project will high likely to fail. Evbuonwan & Anumba (1998) claim that the incapacity of project participants to cooperate and a lack of coherence are to blame for the construction industry's poor performance in product delivery.

Lechler (1997) contends that project execution invariably requires a strong team effort, and team performance is considered as the key to advancing project success. Robert Loo (2002) contends that project teams with effective technical competencies in planning, scope management, and project control, especially over costs, documentation, and having a project management system enhance performance. Spalek (2005) claims that a competent project manager with high authority, a clear project goal, an experienced and competent team, and top management are critical success factors.

Vittal S. Anantatmula (2010) states that leadership style and competence are not directly related to project success; however, they are crucial to facilitating various project success factors that add value to project performance as they influence the project team and stakeholders influence on project outcomes and performance. Ghenni et al. (2017) suggested that a committed and motivated team, internal communications, goals and objectives, use of tools and infrastructure, risk analysis, good estimation, skilled teams, and project monitoring as success factors for IT projects.

Pakseresht & Asgari (2012) identified the following factors: Resources, experience, and executive records of the project manager, project strategic planning, executive experiences of the contractor team about the project subject, and a project control system were critical success factors in the construction projects. Therefore, having a strong team that is competent and has experience in the role will, without a doubt, contribute to project success and enhance project performance.

2.2.8.1.3. Risk Management

Liu et al (2010), indicate that risk is associated with conditions that can seriously threaten project success. However, risk also can bring opportunities for the project depending on the

condition and the circumstance of the project. Previous research indicates that the majority of projects have underperformed due to poor control and risk management practices (Liu, 2015; Maqsoom et al., 2020). Although empirical data suggests that risk affects performance both directly and indirectly, a number of research have studied the interactions between risk and control (Keil et al., 2013).

According to Daniel Baloia & Andrew D.F (2001), contractors in developing countries frequently face the majority of construction risks, especially those they have little influence over. Many contractors are not aware of these risk factors and do not have the right experience and knowhow to properly manage them. Thus, lead to inadequate quality performance, delay completion, poor cost performance, and business bankruptcies are frequent in the construction sector. As project complexity increases, in-place risk management becomes a critical factor for successful project management. Effective risk management is directly related to project success since risks are assessed by their potential effect on the objectives of the project.

2.2.8.1.4. External Factors

The construction sector is a very complex industry that is exposed to external influences as it involves several stakeholders with diverse interests. Further. Physical, economic, socio-political, and industrial relations are external influences that affect project performance. In Nigeria, Ajayi et al. (2010) highlighted four external environmental factors—land acquisition, weather conditions, economy, and governmental policies—as being obstacles and negatively affecting project performance. This indicates that the external factors are not part of the main project's characteristics; they arise from other stakeholders' interests. While researching the effects of environmental factors on building project performance in Delta State, Nigeria, Akanni et al. (2015) divided the factors into the categories of political, legal, construction techniques and resources, economic and financial, sociocultural, and physical.

2.2.9. Project KPI For This Research

Defining success factors for construction projects is challenging (Ljevo et al 2017). The success of a project is achieved through the effective and timely management of information, including KPIs. KPIs show how a project is performing in relation to predetermined goals. They assist project managers in making informed decisions and reducing risks (Ying, F., & Tookey, J., 2017). KPIs are used in the construction project to measure performance. KPIs and metrics

cannot predict project success, however they provide real time and accurate information that give insights into the future (Harold Kerzner 2023).

According to Harold Kerzner 2023, KPIs are critical components in measuring performance in terms of "cost variance," "schedule variance," "schedule performance index," "cost performance index," and "time/cost at completion. It enhances performance measurement as it reflects controllable factors. Previously, KPIs were only considered in terms of time and cost, but now project status can be measured in different dimensions such as customer satisfaction, safety, quality, risk management, effective customer communications, etc. Construction project performance has been measured by large number of performance indicators including cost, quality, customer satisfaction and revenues and profit (Enshassil et al 2009). In this study, the iron triangle—cost, time, and quality— are identified KPIs to measure project performance.

2.2.9.1. Cost Performance

According to Y. A. Olawale and M. Sun (2010), A project can be said to be successful when it achieves its technical goals, maintains its schedule, and remains within budgetary limits. The project budget is a crucial factor in determining a project's success. According to Bon-Gang Hwang et al 2017, Cost performance measures how effectively costs are kept in control, or, in other words, whether expenses go over budget or under budget. Flyvbjerg (2008) identified technical explanations, political-economic explanations, and psychological explanations as the three primary causes of construction projects cost overruns. Le-Hoai et al., (2008) state that the cost overrun amount varies depending on the size, location, or type of the project. Cost overruns result from poor performance. It is the difference between actual cost of a project and its cost limit. It occurs when the project cost limit—the most the client is willing to spend on the project's completion—is exceeded by the actual cost (O. Jackson and O. Steven 2001). In this research, cost variance is used measuring project performance because it indicates how much the project is over or under budget.

2.2.9.2. Time Performance

The success of the project is measured by accomplishing the intended activities within the planned schedule in addition to cost and quality. According to Azhar and Choudhry (2016), the majority of failures ascribed to the construction sector are caused by project-related problems that add to schedule delays. Delays or time overruns are a symptom of poor performance. According to Maqsoom et al. (2018), a time delay is the observable difference between the

estimated and actual times needed to accomplish a task. It is the difference between the actual completion of the task and the anticipated or contractual completion date. It occurs when a contract's progress lags behind its planned schedule. The construction industry has been facing time delay is due to factors that are associated with risk and uncertainty (Hedaya A. M. Abusafiya & Saad M. A. Suliman 2016). In construction projects there have been identified several factors that affect time performance such as unsuitable leadership, incorrect planning at earlier stages, slow decision making, drawing approval, shortage of skilled manpower, poor management, poor site supervision, shortage and failure of equipment, communication and coordination, contract management, design and documentation, financial management, skilled labour, procurement management and site operation. It has a negative impact on the project. Time performance is critical as it saves the additional incurring costs that are linked directly and indirectly with time delays' activities.

2.2.9.3. Quality Performance

Quality was described by Fynes and De Burca (2005) as the level of performance the final product exhibits when used. It is viewed as conformance to specification, performance to standards, or value paid for the price, according to R. A. Sanders (2011). According to Flynn et al. (1994), quality is the difference between the performance's input and output quality.

Quality is one of the key performance indicators in construction projects that may result in cost overruns and delays. Poor quality performance in construction projects result delays, cost overrun, and unsafe structure. Project quality management should prioritize both the processes and qualities of every project, i.e., product quality and process quality in construction projects.

A successful project completed within the specified contract budget and schedule, in compliance with the necessary specifications, that satisfy stakeholders, according to Long et al. (2004). Arditi & Gunaydin (1998) discover that general factors influencing process quality include management commitment to continuous quality improvement, management leadership in promoting high process quality, quality training for all employees, effective teamwork to promote quality issues at the corporate level, and effective cooperation between parties involved in the project. Quality control is required in construction projects to verify that the requirements listed on the contract agreement and specifications for the project characteristics are met in order to assert there is quality performance.

2.2.10. Definition Of Terms

Project

A project is a set activity to create a unique product or service that has agreed objectives that need to be accomplished within a fixed period of time. According to the PMBOK® Guide, it is defined as a temporary endeavor undertaken to create a unique product, service, or result.

Project performance

A process of measuring whether the overall objective of the project has been met, such as completing the project within time and cost and meeting scope and quality. In other words, it is described as the measurement of project performance in terms of completing the overall activities within the agreed time, quality, cost, and meeting the expectations of customers. The literature on project performance demonstrates that it has always placed a strong emphasis on project success, as all projects must meet their objectives (Carvalho and Rabechini Junior, 2015).

Key performance indicators

KPIs are pre-determined criteria that measure the success of an organization or a project activity. They are a set of measurable metrics used to measure the performance of an organization or a project activity.

External factors

External factors are things outside the project that have a negative or positive impact on its success. As the project operates in an environment that is volatile and uncertain, project performance has been impacted by external factors. The most important identified external factors include physical, economic, sociocultural, political, and industrial relations. The project does not have control over external factors, but it is making strategic decisions to help it remain successful.

Managerial Factors

Managerial factors are related to managerial attributes such as the act, manner, or practice of managing; handling, supervision, and decision-making for planning and controlling the project.

It is essential for setting objectives creating detailed strategic and operational plans, enhancing the structure, and implementing procedures for control.

Risk Management

As projects become more complicated and competition gets stronger, risk management has become an essential component of successful project management. Risk have impact on project performance as it can be an opportunity or threat. Risk management is a process that includes the following key steps: planning for risk management, risk identification, assessment, analysis, response to risk, monitoring, and communication of risk.

Consultant

A consultant is a person who is an experienced professional in a specific field who possesses comprehensive knowledge of the subject matter and uses it to provide expert advice to help client.

Contractor

A contractor is responsible for planning, leading, executing, supervising and inspecting a building construction project.

Construction

Construction is the act of building something. In this study, the case study's expansion project is PepsiCo's expansion project in Ethiopia.

Owner

The owner is the organization or individual who is responsible for paying for the design and construction of the building and for whom the construction is being done

2.3. Empirical Literature Review

More projects are finding it difficult to meet their performance objectives for cost and schedule due to increasing complexity and inefficiency in the initial and execution phase of construction project control systems. According to the report (PBSRG, 2016), construction companies struggle to execute services on time, on budget, and with great client satisfaction. Research has demonstrated that neither advantage influences improved project delivery performance, contrary to the widely held belief that wealthy countries have a significant edge in higher performance and quality due to more access to modern technologies and skilled personnel (Alfredo et al, 2016).

Many studies have investigated various approaches to performance management in the context of projects Charles et al., 2021. The project time, cost, and quality are still used in determining the output and success of a project (Pollack et al., 2018). In construction project performance, several studies find other performance indicators that affect the iron triangle. For instance, Alade et al. (2022) assert that the choice of architects in terms of cost and infrastructure has a significant impact on project cost, time, and quality. According to Karlsson et al. (2019), performance is measured by using facts, possibilities, values, and communication to improve decision-making and provide successful investment project proposals. Pesamaa et al. (2018) indicate the significance of feedback, collaboration, and learning in promoting successful performance. Cheung et al. (2003) revealed that effective partnering and behavioral aspects of a project team enhance construction performance, such as a good program, quality, safety, and financial goals. Challenge, compare, consult, and compete for the best value, claim Bukoye & Mordi (2013), all lead to improved performance.

The success of construction projects depends on a wide range of variables that are available throughout the project cycle. Numerous researches have outlined the issue of poor performance of construction projects worldwide. Saurve Dixit (2020), identifies the main significant factors in the performance of construction projects as site management and coordination, leadership and financial management, planning, commitment, and communication. Many authors identified challenges that affect the construction sector, including labor shortages and variability in prices, delay in completion of projects, cost overruns, construction risk management, uncertain or unscheduled activities, integrated project delivery, a lack of communication, the blame game, and other issues categorized as challenges that hamper the construction project's performance.

Enshassi et al. (2008) has outlined six key factors, including (1) delays caused by closed borders and roads leading to a shortage of materials; (2) a lack of resources; (3) poor project leadership; (4) an increase in material prices; (5) a lack of highly experienced and qualified personnel; and (6) the poor quality of the equipment and raw materials that were available.

According to H. M. Al-Tabtabai (2002), these factors can be broadly categorized into the following categories: external factors, project management and contract administration related factors, design and documentation related factors, financial management related factors, information and communication related factors, workforce related factors, non-human resource related factors, and workforce related factors. Thus, shows that the factors vary along with the

project characteristics. Construction performance is affected by six major elements, including (1) financial, (2) customer, (3) internal process, (4) leadership, (5) personnel, and (6) innovation factors (Jean Meenchainant et al, 2018).

It is important to understand how the main risk factors affect construction projects so that prompt alternatives or solutions can be implemented to prevent them (Saurav Dixit, 2020). Due to the fragmented nature of the construction business, it is essential to understand how the major risk factors affect individual projects to promptly implement alternatives or solutions to mitigate them. Construction projects are accompanied by a number of global risk considerations. Client, subcontractor, financial, contractor, and government risk categories are typical in nature (Jayasudha and Vidivelli 2016). Because of its enormous diversity and complexity, the construction industry is more dangerous than jobs in other industries. Protection and compensation are higher as a result.

There are increasing differences in perceptions of how effectively or poorly projects perform and the reasons why performance measures are (are not) satisfied (Wang & Pitsis, 2020), therefore it is important to assess the other possible factors that affect the construction project performance beside the iron triangle. According to Bethlehem Hailu 2019, the critical success factors in real estate projects are client objectives, client core competency, project team leaders' performance, project management actions, economic environment and physical environment. Masoetsa et al. 2022 identified the following constraint factors: "stakeholders' inappropriate project scheduling and coordination factors," "organization and government policies factors," "ownership financial and contractual irregularity factors," "external factors," "project peculiarity factors," and "managerial factors" that have a direct impact on goals, performance, and delivery of the project. The results of earlier research evaluated and outlined a number of variables that influence the success of construction projects. There isn't a single case study of an industrial project that has been linked to project performance. This study evaluates the performance of industrial projects and offers information to advance project progress, pinpoint factors to act on for the project's success, and plan for future initiatives.

2.4. Conceptual Framework

A conceptual framework developed from a literature review shows the four identified factors that potentially affect project performance. The research sheds light on the four factors: managerial factors, project team performance, risk management, and external factors. Under each factor, there are factors that influence the project's performance or the dependent variable.

Managerial factors include the project management practices. Project team performance focuses on team members' capabilities and know-how. The external factors include all the external influences on the construction projects.

Time, cost, and quality are identified as potential construction project performance criteria in a conceptual framework created from a literature review. The research will identify further factors based on the identified criteria that assess influential factors that hamper project performance.

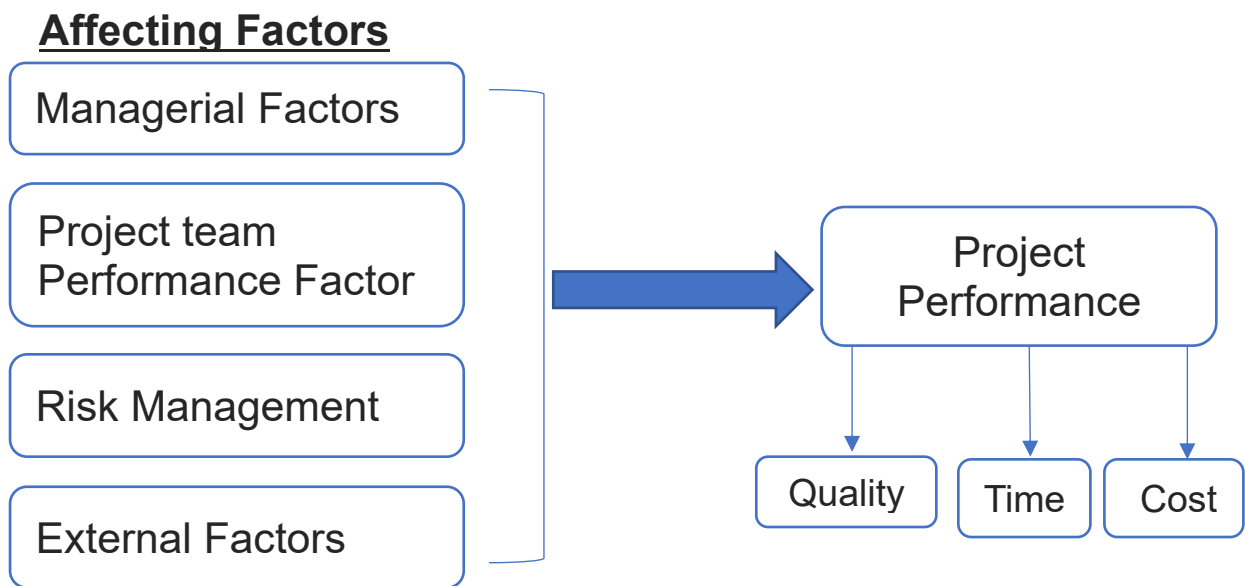


Figure 1 Conceptual Framework of Project performance for Case study: Source: Researcher's design 2023

Chapter Three

3. Research Methodology

3.1. Introduction

Chapter three is dedicated to discussion about the research, approach, design, and methods used for the purpose of assessing factors that affect construction projects in the case of the PepsiCo expansion project. The target population includes project team members such as project managers, engineers, office staff, and foremen from consultants, clients, and contractors who participated in the survey. Furthermore, sampling technique, sample size, data collection, and data analysis are reflected in this chapter.

3.2. Research Approach and Design

The research was conducted to assess factors that affect project performance in the case of PepsiCo's expansion project. This study employed a descriptive research design with the aim of getting a complete picture of PepsiCo's expansion project performance in terms of cost, time, and quality. It discovers information on its nature, cause, course, and effects on the construction performance of case study. The primary goal of a study design is to ensure that the evidence acquired allows us to answer the initial research questions as clearly as feasible. It can be thought of as a road map for data collecting and analysis (Umesh Kumar et al (2022)). Following that, the study used a quantitative approach to specify the research purpose. The investigation was carried out using a case study. It provides more details of the subject while also providing a better understanding of the subject. The questioner was distributed among project team members to analyse and assess factors that potentially affect project performance in case study.

3.3. Population and Sampling

For the research, both primary and secondary data have been analysed. Primary data is gathered through questions and meetings with the project team to get first-hand information. Secondary data has been gained from surfing the internet, project status reports, websites, articles, journals, books, etc. that pertain to research. These sources can also provide valuable information. A total of 30 questioners are distributed to the project team, which consists of clients, contractors, and consultants. Those involved and engaged with the project activities

include project managers, consultants, suppliers, project engineers, the project core team, site engineers, and concerned supervisors.

3.3.1. Target Population

According to Umesh Kumar et al. (2022), population is a group of people or objects for which questions can be asked or observed to collect the required data structures and information for measurement. Target population for the study is 30 employees that are involved in this project such as contractors, project managers, consultants, suppliers, project engineers, project core team, site engineers, and concerned supervisors. The study's population consists of the owners, consultants, and contractors involved in the PepsiCo's expansion construction projects. Since the number of sample data is small, the data will be census of sample survey.

3.4. Data collection and Instrument

The data was collected through primary and secondary data sources to have detail information. Primary data was gathered through a distributed questionnaire; the respondents were purposefully selected because they had a better understanding of the factors that affect the project's performance as they were involved in the project. The questioner is adapted from the literature review. The questionnaires were prepared using 5 Point Likert-Scale approaches (i.e., from "Strongly Disagree to Strongly Agree"). For the 5-point Likert scale the respondents were asked to indicate their level of agreement with the ratings of Strongly Disagree (1), Disagree (2), neutral (3), Agree (4) and Strongly Agree (5). An online form questionnaire presents a way to collect data. The first section of the questioner refer the general information of participants. The second section focus on the factors that affect construction performance, which was important from a research point of view. The questionnaires were distributed to selected respondents from the respective real estates on May 15–19. They were filled out and returned from May 20 to May 24. Secondary data was obtained through searching the internet, project status reports, websites, articles, journals, books, etc.

3.5. Methods of Data Analysis

The collected data was analysed through the quantitative data analysis method using the statistical package for social science (SPSS). To present the data that is collected through the questioner, it is presented in tabular form. For displaying data linked to project performance factors and key performance indicators in PepsiCo's expansion construction projects, all have

been evaluated using the MS-Excel tool in addition to SPSS. Numerical figures used to present descriptive data analysis methods such as frequency, percentage, simple tabulation, mean, and standard deviation were used for each factor. Furthermore, performance index analysis was used for time and cost performance measure in the project. Beside that using SPSS correlation was conducted using the Karl Pearson's coefficient of correlation.

3.6. Validity

The study conducted a validity test for the research instrument to determine whether the questioner has the ability to gather the right information to suit the measurement tool to measure the performance of the PepsiCo expansion project or not. The experts who have relevant experience in the research evaluated the validity of the instrument and had a discussion to go through each question to determine its relevance to the research questioner. In addition, the study conducted through literature that ensure validity.

3.7. Reliability Test

Reliability is a state in which consistent results can be obtained from different respondents and places under the same conditions. It is important to check the reliability of collected data. The data were collected independently from different respondents at different designation and from different organizations. So, it is important to check the reliability of collected data. For this reason, a Cronbach's alpha was conducted using SPSS software, and the value ranges from .755 to .966, which indicates that the questionnaire is reliable.

Table 1 Cronbach Alpha Test Result: source own survey 2023

Variables	Cronbach's Alpha	N of items
Managerial Factors	.780	8
Project team performance factors	.966	6
Risk Management performance factor	.769	6
External factors	.839	5
Cost Performance	.878	4
Time Performance	.806	4
Quality Performance	.755	5

3.8. Ethical Consideration

Ethical consideration is vital when it comes to doing research. While conducting the investigation, the researcher adhered to the following ethical principles: the right to informed consent, the right to safety, the right to privacy, and the right to confidentiality. The study was done in a way that protects the privacy and confidentiality of PepsiCo and its employees. Further, the research is conducted in a manner that respects the privacy of the research participants and other stakeholders in the project. Everyone who participates in the research is informed of the purpose of the research and is asked to do so voluntarily. The research is conducted in a manner that respects the privacy of the research participants and other stakeholders in the project. During the data collection process, the participants' anonymity was respected by omitting their names, positions, and companies. The researcher ensured that data results, methods, and procedures were collected and conducted genuinely.

Chapter Four

4. Results and Discussions

4.1. Introduction

This chapter presents the study findings based on data analysis according to the designed research methodological framework. The main objective of this study is to assess factors that affect project performance in the case of the PepsiCo expansion project. It evaluates expansion project performance using the project's cost, time, and quality outputs. Besides that, the study sheds light on the identified factors that have the potential to influence construction performance, such as managerial factors, project team performance factors, risk management performance, and external factors. The findings are presented in tabular and chart formats by analysing the data that is obtained from the questioner using Statistical Package for Social Science (SPSS).

4.2. Questionnaire Response Rate

A total of 30 questionnaires were distributed to the respondents, who are project team members from the contractor, client, and consultant sides. The respondents have knowledge of the construction sector as they are project managers and engineering professionals (senior managers, project managers, construction/office engineers, and Forman). They responded to the questions through Google Forms, and all respondents gave their responses. It suggests that the data collected using this instrument had a response rate of 100%.

4.3. Response Demographic

The questioner's first section collected the respondents' background information. It contained four questions, including type of organization, years' experience, profession, and company size. The type of organization was coded as (1 = owner, 2 = consultant, and 3 = contractor). Profession was coded as 1 = Project Manager, 2 = Site Engineer, 3 = Office Engineer, 4 = Project Engineer, 5 = Sector Engineer, 6 = Architect, 7 = General Forman, 8 = Resident Engineer, and 9 = Other, whereas years of experience (1 = 0–5 years, 2 = 5–10 years, 3 = 10–15 years, 4 = 15–20 years, and 5 = 20 years and above) The company size was coded as (1 = less than 50, 2 = 50 - 150, 3 = 150 - 250, 4 = 250 and above). Below presents about the demographic information of the respondents.

Table 2 Response Demographic: Field Survey 2023

Respondent's General Information		Quantity	Percentage %
Type of organizations	Owner	11	36.7 %
	Consultant	10	33.3 %
	Contractor	9	30 %
	Total	30	100 %
Profession	Project Manager	4	13.3 %
	Site Engineer	2	6.7 %
	Office Engineer	5	16.7 %
	Project Engineer	5	16.7 %
	Sector Engineer	3	10.0 %
	Architect	4	13.3 %
	General Forman	2	6.7 %
	Resident Engineer	2	6.7 %
	Other	3	10.0 %
	Total	30	100.0 %
Years of Experience	0 – 5	4	13.3 %
	5 – 10	9	30.0 %
	10 – 15	9	30.0%
	15 – 20	3	10.0%
	20 and above	5	16.7 %
	Total	30	100.0%
Company Size	150 – 250	9	30.0 %
	250 and above	21	70.0 %
	Total	30	100.0%

The respondents' years of experience suggests that 13.3 % had less than five years' experience, 30% had six to ten years' experience and 30% had years of working experience ranging from eleven to fifteen years. 10 % had fifteen to twenty years of experience and 16.7 % of respondents had more than twenty years' experience. The fact that most respondents have between 5 and 15 years of experience in the construction industry suggests that the respondents were experienced and offered helpful data.

4.4. Descriptive Analysis of Construction Performance Factor

In this part, the findings of a descriptive analysis utilizing the mean and standard deviation to examine factors influencing construction project performance are presented. Questions were presented for selected respondents to rate factors that affect PepsiCo's expansion project performance. The identified factors were in four clusters: managerial factors, project team performance factors, risk management performance factors, and external factors. A 5-point Likert scale was used to prepare the questioner, and their response was rated as 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The responses from the respondents are analysed, and the mean values are sorted in descending order, with a greater mean value indicating a higher factor that influences the performance of the construction.

4.4.1. Managerial Factors That Affect Project Performance

Under managerial factors, the following factors are identified as factors that affect project performance: The descriptive statistics of the study include the mean, standard deviation, maximum, and minimum values.

Table 3 Managerial Factor Descriptive Analysis

Managerial Factors that Affect	N	Minimum	Maximum	Mean (M)	Std. Deviation (SD)
Poor Planning and Stakeholders' Inappropriate Project Scheduling	30	4	5	4.67	0.479
Design Issues	30	4	5	4.67	0.479
Poor Communication	30	3	5	4.57	0.728
Labor Market Inefficiency in Supplying Qualified Employees	30	3	5	4.53	0.571
Insufficient Stakeholder Experience	30	2	5	4.47	0.73
Scope Change Management	30	2	5	4.47	0.73
Poor Site Supervision and Monitoring Procedures	30	3	5	4.46	0.621
Payment Delay	30	3	5	4.43	0.679
Effective Decision Making	30	3	5	4.4	0.77

Source: Survey 2023

According to the above table, the values for poor planning and stakeholders' inappropriate project scheduling (M = 4.67, SD = 0.479) have the highest mean, indicating one of the major

factors that affect project performance. Poor planning and inappropriate scheduling result in last-minute tasks and unclear project demands that lead to insufficient resource utilization, delays, and poor cost performance. In addition, the value of design issues is $M = 4.67$ $SD = 0.479$, indicating that it is a leading factor among the managerial factors that affect the project's performance. According to the responses, design issues were not solved quickly and resulted in poor planning and delays. Following that, poor communication values ($M = 4.57$ and $SD = 0.728$) indicate that communication is not sufficient among stakeholders as the second factor that affects the project's performance. Labor market inefficiency in supplying qualified employees was found to have a mean value of ($M = 4.53$ and $SD = 0.571$). Insufficient stakeholder experience and scope change management was found with a mean value of 4.47 and a SD of 0.73. Poor site supervision and site monitoring procedures with a value of ($M = 4.46$, $SD = 0.621$). Payment delays weighed with a value of $M = 4.43$ and $SD = 0.679$. Lastly, effective decision-making had a value of $M = 4.4$ and $SD = 0.77$. The slow decision-making process has affected the planning activity in the project.

The respondents indicated that poor planning and design issues were the major factors that affected the execution of the project. The other factors, including payment delay, effective decision-making process, scope change, and poor experience handling this project, are considered the main reasons that affect the current project's performance.

4.4.2. Project Team Performance Factors

The study categorizes project team performance as an independent variable to assess the negative effect on project performance. The table below presents the study's findings.

Table 4 Project Team Performance Descriptive Analysis: Own Survey 2023

	N	Minimum	Maximum	Mean (M)	Std. Deviation (SD)
Inaccurate Cost Estimation	30	3	5	4.4	0.621
Leadership Skills	30	3	5	4	0.743
Procurement and Sourcing Techniques	30	3	5	4	0.743
Project team's abilities in organization, coordination, and planning	30	3	5	4	0.743
Project team's experience, technical knowledge, and project management abilities	30	3	5	4	0.743
Lack of Top Management Support	30	2	5	3.5	0.861

Source own 2023

Among the five factors that describe the team performance factors, respondents indicated that inaccurate cost estimation projects team performance as the leading factor with a value of $M = 4.4$ and $SD = 0.621$. The other findings that the leadership skills have a high impact on team

performance. The value indicates $M = 4$ and $SD = 0.743$. The respondents indicate that the project team's abilities in organization, coordination, and planning, as a second higher mean value with the $M = 4$ and $SD = 0.743$. Following that the project team's experience, technical knowledge, and project management abilities, have a second higher mean value of $M = 4$ and $SD = 0.743$. This shows that majority of respondents agreed on the competency of project team to have impact on the overall project performance. Thus, low team performance has a negative effect on project outcomes. The least M value is scored on the top management support M value of 3.5 and $SD = 0.861$ those respondents agreed that there is insufficient top management support in the execution of the project.

4.4.3. Risk Management Factor

The risk management of the project has been investigated as one of the independent factors that affect project performance. The respondents gave responses on the risk management performance implementation process.

Table 5 Risk management descriptive analysis

Risk Management Performance	N	Minimum	Maximum	Mean (M)	Std. Deviation (SD)
Implementation of safety and health practices	30	3	5	4	0.743
Proper risk responses	30	3	5	4	0.743
Risk identification and assessment processes	30	3	5	4	0.743
Risk management plan's implementation	30	1	4	3.23	0.935
Quantitative and qualitative risk analysis	30	1	4	3.07	0.868
Risk Mitigation	30	1	4	3	0.91

Own survey 2023

The respondents indicated that the implementation of safety and health practices in risk management is essential to avoid risks related to human health. This ensures a low risk of fatalities and major accidents in construction, which is high risk. The respondents gave a value of $M = 4$ and $SD = 0.743$. It suggested that the safety implementation is not adequate enough comparing the size of the project. The other processes of risk identification and assessment were found to be the major factors that influence the project's performance, with a value of $M = 4$ and $SD = 0.743$. On top of that, the study found that proper risk response had a mean value

of $M = 4$ and $SD = 0.743$, which indicates that the majority of the respondents believe that the risk response plan is not fully addressing the threat that happened on site. Also, the respondents indicate the risk management plan's implementation value as $M = 3.23$ and $SD = 0.935$. The risk management plan's implementation effectiveness is important to the project's performance. However, the project does not have an effective risk management plan. Furthermore, risk mitigation plan had mean value of $M = 3$ and $SD = 0.91$. It demonstrates that most of the respondents have a neutral opinion on the risk mitigation process of the project, which was not fully circulated among the project team members.

4.4.4. External Factors

External factors were investigated as the project was implemented in a very complex environment where every stakeholder had their own interest in the project. The table below presents the descriptive analysis.

Table 6 External factors descriptive analysis

	N	Minimum	Maximum	Mean(M)	Std. Deviation (SD)
Fluctuation in Currency	30	4	5	4.67	0.479
Weather condition	30	2	5	4.47	0.73
Political Instability	30	3	5	4.5	0.572
Government regulations	30	3	5	4.43	0.679
Issuance of permits	30	3	5	4.4	0.621
Community involvement	30	3	5	4.4	0.621

Source own 2023

According to the respondents, fluctuation in currency is indicating the highest mean ($M = 4.67$ and $SD = 0.479$). Respondents strongly agree with the foreign exchange currency fluctuation the project cost has affected and increased. Whereas the value for the region's political instability indicates a mean value of $M = 4.5$ and $SD = 0.572$. The government regulation value is $M = 4.43$ and $SD = 0.679$. The issuance of permits had a value of $M = 4.4$ and $SD = 0.621$. The finding show that the government regulation and issuance of permit process is time taking and complicated procedure. The weather condition value is $M = 4.47$ and $SD = 0.73$, indicating that the weather had a significant impact on project performance. In addition, community involvement is indicated with mean value of $M = 4.4$ and $SD = 0.621$.

4.4.5. Cost Performance

To understand project performance, respondents were asked about cost performance, as it is one of the performance indicators. The project cost refers to cost from inception to completion, which includes contingencies that will be used for any variations, additional works, or forgotten costs related to the project that will be covered through the project cost. If a project is completed within budget, then it is a success. Cost performance is measured by the cost performance index. The below table show the descriptive analyses the cost performance.

Table 7 Cost Performance descriptive analysis

Project's Cost Performance	N	Minimum	Maximum	Mean (M)	Std. Deviation (SD)
Cost Control effectiveness	30	3	5	4.37	0.669
Cost Overrun indicated on the project	30	3	5	4.2	0.714
Actual Cost is achieved as per the plan	30	3	5	4.2	0.714
Cost within the budget	30	3	5	4	0.788
Cost escalation and contingency budget	30	1	5	3.9	1.029

Source own survey 2023

The values for the cost overrun are $M = 4.2$ and $SD = 0.714$. Respondents agreed that cost overruns show poor performance. The mean value for cost control effectiveness is $M = 4.37$ and $SD = 0.669$, strongly agreeing that effective cost control contributes to project performance. Actual cost is indicated with the second higher mean value, which is $M = 4.2$ and $SD = 0.714$. Respondents suggested that if the actual cost is not below the cost limit, then it is indicated as poor cost performance. The cost within the budget has a mean value of $M = 4$ and $SD = 0.788$, indicating that the project's actual cost is not under budget. The values for the cost escalation and contingency budgets are $M = 3.9$ and $SD = 1.029$. Responses show that the cost escalation couldn't be covered through the contingency budget.

Further by analysing the project documents the cost performance index is had performed to check the project cost performance. Table 10 below shows the cost-performance index analysis.

Table 8 Cost performance Index

Project	Project Phase	Budgeted Cost of Work Performed	Actual Cost	Cost Performance Index	
				Cost variance	CPI %
PepsiCo Expansion Project	Early works - Earth Works	1,203,600 USD	1,256,020 USD	52,420 USD	95.8%
	Equipment Supply and Installation	23,300,467 USD	25,710,456 USD	2,409,989 USD	90.6%
	Main works	15,567,665 USD	16,673,802 USD	1,106,137 USD	93.3%
	Total	40,071,732	43,640,278	3,568,546	91%

Source Survey 2023

The project cost has increased by 9% from the project reports which show that the lower cost performance is indicated on the second phase of the project. The early works increased by 4%, equipment supply, and installation increased by 10%, and main works increased by 7%. This shows that the project didn't meet the financial objectives in terms of completing it at its initial cost.

4.4.6. Time Performance

Time performance of the project was assessed, and respondents shared their experience in the project. The descriptive value presented the findings.

Table 9 Time Performance Descriptive Analysis

Time Performance	N	Minimum	Maximum	Mean (M)	Std. Deviation (SD)
Schedule Estimation accuracy	30	3	5	4.5	0.572
Prior to schedule	30	3	5	4.37	0.669
Milestone Achievements	30	3	5	4.33	0.711
Delay	30	3	5	4.33	0.711
Waiting For Approval	30	3	5	4.1	0.845
According to Schedule	30	3	5	4	0.788

Source Survey 2023

Schedule estimation accuracy had the highest mean value. $M = 4.5$ and $SD = 0.572$ are stated as indicating that accurate project cost estimation highly contributes to good performance. The project timeline is not accurately estimated according to respondents. Finishing prior to

schedule, according to the respondents, is valued to have a second higher mean value ($M = 4.37$ and $SD = 0.572$) that shows the project didn't complete prior to schedule. Delay in milestone achievements and delay had the same mean value of 4.33 and SD of 0.606; respondents agree that delay is an indicator of poor performance. The value of waiting for approval from the client side is considered a negative factor resulting in delay, with a mean value of $M = 4.1$ and $SD = 0.845$. The respondents also indicated that according to schedule, there is a mean value of $M = 4$, and the SD is 0.788, which shows that activities are not accomplished according to schedule.

Further, the time performance index is performed to check the project's accomplishment. The analysis shows that the project is delayed. The early work was delayed by 18 working days, equipment, and supply by 45 working days, and main work by 27 working days; this is why the project timeline was not achieved. The lower time performance indicated on the second phase of the project.

Table 10 Time performance Index

Project	Project Phase	Initial Timeline	Actual Completion timeline	Time performance index	
				Time variance	CPI %
PepsiCo Expansion Project	Early works - Earth Works	122 Days	140 days	18	87%
	Equipment Supply and Installation	187 Days	232 Days	45	81%
	Main works	218 Days	245	27	89%
Total		527	617	90	85%

Source own 2023

4.4.7. Quality Performance

The questioner had questions related to quality performance outcomes. Respondents valued each factor as follows

Table 11 Quality Performance

	N	Minimum	Maximum	Mean (M)	Std. Deviation (SD)
Quality Test	30	3	5	4	0.83
Quality according standard	30	3	5	3.9	0.845
Quality exceed expectation	30	2	4	3.4	0.724
Quality Control	30	2	4	3	0.823
Quality below the requirement	30	2	4	2.93	0.868

Source own survey 2023

The highest mean value is the observed quality test ($M = 4$ and $SD = 0.83$), respondents agree that the quality test inspection is performed. The value for quality according to the standard ranked second, with a mean value of $M = 3.9$ and $SD = 0.845$. This demonstrates that the contractor performed high-quality work that aligned with the standard. Also, the quality of the work exceeded the customer's expectations ($M = 3.4$ and $SD = 0.72$). Quality control is indicated by a mean $M = 3$ and $SD = 0.823$. And lastly, the quality below the requirement is indicated as $M = 2.93$ and $SD = 0.868$. That demonstrate that the project activities are not below the required standard.

From the project documents, it is found that quality performance control has achieved its objectives in terms of working according to drawings, and quality control tests are done at several stages of the work as approvals are given after test results there was no issues regarding quality defects.

4.5. Correlation Analysis

Pearson's correlation analysis was performed to measure the strength of the relationship between the variables. The Pearson's value varies from -1 to +1. The significance of a correlation is determined by a p value below 0.05 and higher significance is lower than 0.01 (2-tailed). It is possible to assess whether there is a positive or negative relationship between the variables. When the relationship is positive, the incremental rise of one variable raises the other variable; when the relationship is negative, the incremental increase of one variable decreases the other variable.

On the table 14 below displays the results. The study found that there is a positive relationship between the managerial factors and project team performance the correlation coefficients value is 0.392 and p value of 0.32. Also, there is a positive relationship between risk management and managerial factors with correlation coefficient value of 0.210 and p value 0.047. The other positive relationship with managerial factor is that cost performance with coefficient value 0.238 and p value of 0.046. The time performance indicated a positive correlation coefficient value with managerial factors with the value of 0.235 and $p = 0.011$. There is found a positive relationship between managerial factors and quality performance with correlation factor of 0.21 and p value 0.47.

Table 12 Correlation Analysis

Correlations								
		Managerial Factors	Project Team Performance	Risk Management Factor	External Factor	Cost Performance	Time Performance	Quality Performance
Managerial Factors	Pearson Correlation	1	.392*	.210*	.463	.238*	.235*	.210*
	Sig. (2-tailed)		0.32	.047	.066	.046	.011	.047
	N	30	30	30	30	30	30	30
Project Team Performance	Pearson Correlation	.392*	1	.325*	.183*	.159*	.240**	.005*
	Sig. (2-tailed)	0.32		.030	.034	.040	.008	.039
	N	30	30	30	30	30	30	30
Risk Management Factor	Pearson Correlation	.210*	.325*	1	-.304	.096*	.310**	.251
	Sig. (2-tailed)	.047	.030		.103	.044	.006	.182
	N	30	30	30	30	30	30	30
External Factor	Pearson Correlation	.463	.183*	-.304	1	.287*	.463**	.235
	Sig. (2-tailed)	.066	.034	.103		.024	.010	.211
	N	30	30	30	30	30	30	30
Cost Performance	Pearson Correlation	.238*	.159*	.096*	.287*	1	.100**	.278*
	Sig. (2-tailed)	.046	.040	.044	.024		.008	.037
	N	30	30	30	30	30	30	30
Time Performance	Pearson Correlation	.235*	.240**	.310**	.463**	.100**	1	.173
	Sig. (2-tailed)	.011	.008	.006	.010	.008		.060
	N	30	30	30	30	30	30	30
Quality Performance	Pearson Correlation	.210*	.005*	.251	.235	.278*	.173	1
	Sig. (2-tailed)	.047	.039	.182	.211	.037	.060	
	N	30	30	30	30	30	30	30

*. Correlation is significant at the 0.05 level (2-tailed).
 **. Correlation is significant at the 0.01 level (2-tailed).

Source own 2023

The Pearson correlation for project team performance and risk management factor is correlation coefficient value of .325 with P value of 0.030. This demonstrate that there is a positive relation between risk management factors and project team performance. Project team performance is found to have a positive relationship with external factors, with correlation coefficient value of 0.183 and p = 0.034. The cost performance was found to have a positive relationship with project team performance, with a correlation value of 0.159 and p= 0.04. The correlation value of project performance and time performance is 0.24 and a p value of 0.08.it shoes there is significant relation. Project team performance and quality performance had a significant relation with correlation value of 0.05 and p = 039.

Risk management and cost performance has correlation value of 0.096 and $p = 0.044$. The correlation analysis confirms that risk management has a positive relationship with the time performance factor, with a correlation coefficient value of 0.310 and a p value of 0.006. External factor and cost performance had correlation value of 0.287 with P value of $p = 0.024$. Also, external factors were found to have a positive relationship with time performance, with a higher significant value of p 0.01, and a correlation coefficient of 0.463. Cost performance was found to have a positive relationship with time performance with correlation coefficient value (0.100 and 0.008). Quality performance and cost performance had a correlation coefficient value of 0.278 and a p value of 0.037. From the study's correlation analysis, it is concluded that the identified factors—the managerial factor, the project team performance factor, risk management, and the external factor—have an influence on the project's performance in terms of cost, time, and quality. More significantly, the project cost and time are highly influenced by the above-mentioned factors, according to the analysis.

Chapter Five

5. Summary, Conclusion, and Recommendations

5.1. Introduction

This is the research's final chapter, and it comprises a summary of findings, a conclusion, and recommendation. The summary highlighted the data analysis findings while answering the research questions. Furthermore, this section presents conclusions and recommendations based on the research findings.

5.2. Summary

Construction projects are considered complex projects with high uncertainty and risk. This is due to the unique nature of the work, the involvement of several stakeholders, the influence of the agile environment, and other factors affecting the performance of the project, which resulted in the project not meeting its objectives in terms of completing within budget, according to schedule, and with the right quality.

In this study, factors that affect project performance have been assessed in the case of PepsiCo's expansion project. The study assessed factors from previous research and grouped them into four categories. The four categories include managerial factors, project team performance factors, risk management performance factors, and external factors. The managerial factors include poor planning and stakeholders' inappropriate project scheduling, design issues, poor communication, labor market inefficiency in supplying qualified employees, insufficient stakeholder experience, scope change management, poor site supervision and monitoring procedures, and effective decision-making. A questionnaire is distributed to the 30 employees from consultant, contractor, and owner organizations who have an engineering and project management background with different work experiences. According to the respondents, poor planning and stakeholders' inappropriate project scheduling and design issues ($M = 4.67$, $SD = 0.479$) have the highest mean value, which indicates poor planning and design issues are identified as constraints in the implementation of the project. The remaining factors under the managerial factors scored an M value of 4.57–4.4, which indicates that the respondents still agreed that these factors, poor communication, labor market inefficiency in supplying qualified employees, insufficient stakeholder experience, scope change management, poor site

supervision and monitoring procedures, and effective decision-making, are affecting the project's performance.

Furthermore, project team performance factors were analysed, including inaccurate cost estimation, leadership skills, the project team's abilities in organization, coordination, and planning, the project team's experience, technical knowledge, and project management abilities, and top management support. In addition, the respondent rated the project team's performance on cost estimation accuracy with the highest mean value of 4.4 and $SD = 0.621$, which is indicated on the cost estimation accuracy as a factor that affects the project's performance in terms of allocating a precise budget. The majority of the respondents agreed that the project cost is underestimated and that there are variations that affect the project cost. Leadership skills and project team's experience, technical knowledge, and project management abilities are rated, with the second mean value of $M = 4$ and $SD = 0.743$ considered to be potential factors affecting the implementation of the project. This demonstrates that the majority of respondents were in agreement that the project team's competence had an impact on the performance of the entire project. Therefore, poor team performance has a negative impact on the success of projects.

The third factor was risk management performance during the execution phase of the project, which was questioned. It includes effectiveness risk management plan implementation, safety and health practices implementation, risk mitigation plan implementation, risk identification and assessment, risk response, and quantitative and qualitative risk analysis. Respondents gave responses on risk management processes such as risk identification and assessment, risk response, and health and safety implementation a higher mean value ($M = 4$ and $SD = 0.743$). The mean values for the effectiveness of the risk management plan's implementation and the qualitative and quantitative risk analyses were 3.23 and 3.07, respectively. According to the responses, the risk response was ranked last with a mean score of 3.

The last cluster of factors that affect construction project performance is external factors, which include weather conditions, political instability, government regulation, the issuance of permits, the fluctuation of currency, and community involvement. From these identified factors, currency fluctuation is found to have the highest mean value ($M = 4.67$ and $SD = 0.479$). It is found to be the major factor that affects the project cost since most of the project items are procured abroad. The second factor that has an effect on the project performance time is weather condition with a mean value of $M = 4.47$ and $SD = 0.73$. Political instability had a

mean value of M 4.5 and SD =0.572 ranked at third. Whereas government regulation, building permit issuance, and community involvement with a mean value of M = 4.43 and SD = 0.679, M = 4.4 and SD = 0.621, and M = 4.4 and SD = 0.621, respectively. The respondents indicated that government regulations and procedures complicated the issuance of building permits, and as a result, it took a long time to obtain a permit.

The organization's practice regarding project performance indicates low consideration is given to risk management practices, especially since the respondents agree that the risk management process is not supported by appropriate risk identification, response, and mitigation techniques that were not adequately implemented. During the project's execution, the risk management procedure did not receive the proper attention.

Cost performance management practices show that there are not enough effective cost control techniques in place. The major reasons for cost escalation are inappropriate cost estimation, poor planning and scheduling, poor project leadership skills, lack of qualified professional, poor communication, slow decision-making process and market escalation. The project team estimated the cost based on other countries' context, which doesn't apply to the local conditions. Without considering local circumstances like permit issues, customer clearance, local technical capability, logistics, etc., the 9% cost increased. Time management practice that is used by the project team are define and identify the sequence of activities and estimating the activity of resources and developed a timeline. However, the timeline developed by the team is not accurate following the critical path. From the controlling point of the place of order has affected the equipment and installation timeline. From the project document it is ascertained that the project timeline is extended by 15% or 90 days. Regarding quality performance measurement, the project team works towards quality assurance. Every work has been investigated, and quality control tests are performed according to the project documents. According to the reports, each activity has passed the minimum quality requirements. In the respondent's opinion, the quality of work hadn't been compromised. The project team invested more in quality control than the timeline and project cost control to ensure every activity was done with the utmost quality as per the PepsiCo standard.

To sum it up, managerial factors, project team performance, risk management, and external factors influence project performance. These factors have a correlation with project performance dimensions. However, the regression test verified that there is a significant positive relationship between cost and time performance with the managerial factor, team

performance, and risk management, and a negative relationship with external factors. On the other hand, the study found that time performance has a significant relationship with managerial factors, project team performance, risk management, and external factors. Considering that quality performance does have a significant relationship with managerial factors and project team performance. To measure the project's performance in terms of cost, time, and quality, project documents are used. The cost performance index shows that the project has increased the cost by 9%, while the timeline has been extended by 15%. The quality performance is not altered by the above-mentioned factors due to the high-quality inspection and control test applications throughout the project phase. The project documents share that there is no poor-quality performance through the approval procedures, which highlights that the project's quality performance might have a direct link between cost and time performance. The incremental addition of time and cost is to ensure the quality of the work is according to the requirements.

5.3. Conclusion

The PepsiCo expansion project's performance was examined. Following the research findings and results and a review of previous studies, the respondent's answers provided insightful information that satisfied the study's objectives.

The primary objective of the study is to assess and identify factors that affect project performance in the PepsiCo Expansion Project. According to the study findings, there are four groups of factors that affect the project performance in the case of the PepsiCo expansion project: managerial factors, project team performance factors, risk management performance, and external factors. The managerial factors that are assessed and identified as potential factors include poor planning and stakeholders' inappropriate project scheduling, design issues, poor communication, labor market inefficiency in supplying qualified employees, insufficient stakeholder experience, scope change management, poor site supervision and monitoring procedures, and effective decision-making. Project team performance is another factor worth mentioning that affects the PepsiCo expansion project's performance. It includes inaccurate cost estimation, leadership skills, the project team's abilities in organization, coordination, and planning, the project team's experience, technical knowledge, project management abilities, and top management support. The third group of factors is risk management performance, which has the following factors as the major factors: effective risk management implementation, safety and health practices implementation, risk mitigation plan, risk

identification and assessment, risk response, and quantitative and qualitative risk analysis. The fourth factor is external it has five factors such as political instability, weather condition, government regulation, the issuance of permits, the fluctuation of currency, and community involvement.

The second objective of the study is to assess the effect of the identified factors on PepsiCo's expansion project's performance. The study findings suggested that PepsiCo's project performance hasn't met its cost and time objectives, but the quality aspect of the project has met the project requirements. This is due to several factors that have identified in the study. According to the respondents poor planning and stakeholder's inappropriate project scheduling were noticed in the project, and as a result, the project's milestones were not achieved according to the initial plan. Poor communication among the stakeholders is another identified factor that has an impact on the progress of the project. The project has two consultants, one local and the other international. The international one is hired by the sector team, whereas the local one is hired by the regional sector team that supports the local team. The communication between the stakeholders was noted to be poor and affected the permit issuance process as the developed design had to be translated according to the local government regulations. The other factor was design issues; the design had developed according to the PepsiCo standard, but some of the designs had to be changed to align with local government regulations. The labor market doesn't provide the necessary professionals for the project, so the project brought an installation team from abroad to do the activities. This decision also impacted the cost and time of the project. Insufficient stakeholder experience in the project is also another factor in why major decisions are made by the sector team without understanding what is happening on the ground. This is due to the lack of sufficient experience from the implementation team. Poor supervision and monitoring procedure was also recognized during the execution of the project. The lack of effective decision-making affected the project in terms of doing activities at the right time whenever there was change. Some works require the client's approval in addition to the consultant's technical approval; the decision process takes a long time and affects the critical path. Further, the project team underestimated the project cost and schedule due to a misunderstanding of the external environment of the project location. The cost was developed based on the suppliers from Asia who provided the minimum cost; however, the procurement was done from Europe, from higher-quality manufacturers, due to PepsiCo's standard of using the utmost quality. The project team's competency was another reason why effective decisions and liaising with contractors, consultants, and suppliers in planning ahead of time were not

effective. The risk management performance was also another red flag in the management process. Luckily, the project hasn't been exposed to higher risks. The project team didn't plan for risk in the early stages of the project. The risk identification and response process didn't receive the right attention. There was no qualitative or quantitative risk analysis implemented on the project. On the other hand, External factors impact the project cost and timeline. Most significantly, the foreign exchange fluctuations affected the project cost as the consultant's and contractor's payment is in USD. The other significant impact was brought by the permit issuance process. The government's long and complicated process caused the project not to start at the right time.

The third objective of the project is to assess the current organizational practice of PepsiCo Ethiopia Foods in managing project performance. The project team didn't properly implement the risk management process throughout the project, which led to a time and cost performance increment. It is pointed out that the risk management process is not supported by appropriate risk identification, response, and control methods and is not deployed efficiently. Regarding cost management practice, the project team didn't estimate the project cost precisely; more variation costs were added as they were forgotten at the initial phase. On top of that, the poor planning and scheduling contributed for market escalation. The project timeline was underestimated, and the activities weren't assigned a realistic time frame to complete. The quality management procedure has several quality inspection and control mechanisms has been deployed to make sure every work is completed according to specification.

To sum it up, the performance of PepsiCo's expansion project is largely influenced by identified factors. The study's findings indicate that primarily managerial, team performance, and external variables were responsible for the project's 9% cost increase and the 15% increase in timeline. Inadequate cost estimation, poor planning and scheduling, a lack of stakeholder experience and leadership skills, and market escalation are the main causes of cost escalation. The project team estimated the cost and timeline using an external context that does not relate to local circumstances without considering local factors like permit processes, customer clearance, and local technical capability. However, the project team does not compromise the quality of the work, even though the cost and time have already increased. This is the bright side of the project: meeting the quality requirements in place.

5.4. Recommendation

The research has identified factors that have the potential to affect project performance in the case of the PepsiCo expansion project. Based on the findings of the study, the following areas of improvement are recommended to assist PepsiCo's expansion project:

To address the managerial factors

- The project team must develop a realistic timeline and plan that enable the activities to meet the project milestones and deliver within the project budget and time for future projects and should include well experienced employees throughout the project life cycle to determine the cost and schedule.
- Developing a better communication plan to get every stakeholder on the same page. Arranging weekly connecting or check-in sessions to discuss issues and the overall progress of the project with each stakeholder. Distributing reports, circulating emails, memos, and project documents among the relevant stakeholders.
- To solve design-related issues, the project team must capitalize on and leverage the local consultant's capabilities. The design issues affected the permit issuance process due to local government regulations. Working closely with local stakeholders facilitates smooth changes to the design. This ensures that design issues can be solved quickly.
- Empowering the project team to make sound decisions when there are approval requests from the consultant and contractors A slow decision-making process had been noticed through the execution phase to get approvals from the client and consultant sides, which resulted in delays. Therefore, empower the project to make sound decisions in a timely manner.
- To improve the stakeholder experience, it is better to provide an experience-sharing program to advance team skills. Availing such an interactive program will enhance the team's capability to do the activities.

To address Project team performance Factors

- There is a lack of technical expertise, experience, and skills among the project team members. The organization should therefore execute capacity training programs, related cost estimation, planning, and organizing, hire more qualified team members,

acquire fresh talent from overseas, and move team members for a longer period for full-time support to develop the skill sets of the team members.

To address Risk management process

- Effective risk management processes should be ingrained throughout the project implementation strategies to tackle unforeseen risks and grab opportunities.

To address External Factors

- External factors are out of the project team's control; however, dedicating resources and personnel to follow-up prior to the project execution phase is essential for the completion process.
- Developing SWOT analysis to check the effect of the existing environment influence during the preliminary studies and during the different phases of the project.
- Assessing potential local resources that might be used for the project and understanding the local economy will help reduce costs related to foreign exchange fluctuations.

Organizational Practices in Project Performance Management

- The organization must investigate the practical practices that can enhance the project cost and time management. The time schedule estimation is inaccurate, and on top of that, the project team timeline is not updated the timeline according to the work breakdown of these sequential activities to the smallest detail. The activities of each task must be revised and tracked. This improves the project timeline by tracking and managing each activity's time. In addition, the project team should have project baseline visualization to get a complete picture of the project in real time.
- Cost estimation must be developed with experienced people who have knowledge of project-related areas or cost estimation techniques such as bottom-up, analogous, and parametric methods. Thus, improve cost estimation precisely. During the execution stage of the project, the cost must be tracked and evaluated according to the project cost baseline to track the project's progress and executed amount of work. Therefore, the project team must implement the above-mentioned cost management techniques and update and control the project budget accordingly.

The above-outlined recommendations will enhance the project performance of PepsiCo's expansion project.

References

- Harold K., (2023). 'Project Management Metrics, KPIs, And Dashboards:A Guide to Measuring and Monitoring Project Performance.'
- Tariq, J. and Gardezi, S.S.S. (2022). Study the delays and conflicts for construction projects and their mutual relationship: A review. *Ain Shams Engineering Journal* 14 (2023) 101815.
- Alade, T., Bukoye, O. T., Roehrich, J., & Edelenbos, J.(2022). Cross-national collaboration in strategic transport projects: The impact on benefits realization. *International Journal of Project Management, forthcoming*, 40(4), 411–425.
- Masoetsa, T.G.; Ogunbayo, B.F.; Aigbavboa, C.O.; Awuzie, B.O. (2022). Assessing Construction Constraint Factors on Project Performance in the Construction Industry. *Buildings* 2022, 12, 1183.
- Umesh K, Bhayyalal D and D. P. Kothari (2022). Research Methodology Techniques and Trends
- El-Sayegh, S.M., Basamji M., Haj Ahmad, A., Zarif, N., Dec. (2021). Key contractor selection criteria for green construction projects in the UAE. *Int. J. Const. Manag.* 21 (12), 1240–1250
- Charles, S. H., Chang-Richards, A., & Yiu, T. W. (2021). What do post-disaster reconstruction project success indicators look like? End-user's perspectives. *International Journal of Disaster Resilience in the Built Environment*, 13(1), 31–50.
- Habtam A.(2021). Assessment of factors affecting construction project performance _ the case of Bole International Airport terminal expansion and Minilik II Referral Hospital Eye care center construction projects.
- Durdyev, S.; Hosseini, M.R. (2020).Causes of delays on construction projects: A comprehensive list. *Int. J. Manag. Proj. Bus.* 2020, 13, 20–46.
- Saurav D (2020). Study of factors affecting the performance of construction projects in AEC Industry. *Organization, Technology and Management in Construction* 2020; 11: 2275–2282
- Wang, A., & Pitsis, T. S. (2020). Identifying the antecedents of megaproject crises in China. *International Journal of Project Management*, 38, 327–339.
- Yenealem K. (2020). 'Determinants of Infrastructure Project Delays and Cost Escalations: The Cases of Federal Road and Railway Construction Projects in Ethiopia.' *American Scientific Research Journal for Engineering, Technology, and Sciences (ASRJETS)* Volume 63, No 1, pp 102-136
- David L. (2020). 'Core Concepts of Project Management.' pp 3 – 45.
- Bethlehem H. (2019). Assessment Of Critical Success Factors In Real Estate Development Projects In Addis Ababa
- Pollack, Helm, J.,& Adler, D.(2018). What is the iron triangle, and how has it changed? *International Journal of Managing Projects in Business*, 11(2), 527–547.

- Jainnarong J, Veedard T, Pitchayanan P, Sasawat A, Jean M, Katawut N and Thanwadee C (2018). *Causal Relationships of Construction Performance Using the Balanced Scorecard*
- Pesamaa, O., Larsson, J., & Eriksson, P. E (2018). Role of performance feedback on process performance in construction projects: Client and contractor perspectives. *Journal of Management in Engineering*, 34(4), Article 04018023.
- Karlsson, B., & Kurkkio, M. (2018). Using calculations in the early phase of strategic capital investment projects - Insights from the mining industry. *Qualitative Research in Accounting & Management*, 15(4), 465–484.
- Jingtao F. and Junwu W. (2018). Study on the Performance Evaluation of Construction Project Based on Matter: Element Analysis Method
- Henok W. (2018). Factors affecting the performance of construction projects: a case of 20/80 condominium projects in Addis Ababa
- Bajjou MS,& Chafi A. (2018). Empirical study of schedule delay in Moroccan construction projects. *Int J Constr Manage*. 1–18. DOI: 10.1080/15623599.2018.1484859.
- Maqsoom A, Khan MU, Khan MT, Khan S, Ullah F. (2018).. Factors Influencing the Construction Time and Cost Overrun in Projects: Empirical Evidence from Pakistani Construction Industry. *Proc., Proceedings of the 21st International Symposium on Advancement of Construction Management and Real Estate, Springer*, 769–778
- Gheni,A., Y., Jusoh, Y., Jabar, M.A. and Ali, N.M. (2017). The Critical Success Factors for IT Projects. *Journal of Telecommunication, Electronic and Computer Engineering*, Volume 9(3), p.3
- Ljevo, Z´., Vukomanovic´, M., & Rustempas´ic´, N. (2017). Analysing significance of key quality factors for management of construction projects. *Gradevinar*, 69(5), 359–366.
- Bon-Gang H, Lei Z, Yinglin W.& Xinyi C. (2017) Green Building Construction Projects in Singapore: Cost Premiums and Cost Performance, *Project Management Journal*, Vol. 48, No. 4, 67–79
- Ying, F., & Tookey, J. (2017). Key performance indicator for managing construction logistics performance. In *LC3 2017 Volume II—Proceedings of the 25th Annual Conference of the International Group for Lean Construction*, Heraklion, Greece (pp. 869–876)
- Wang J, Wu P, Wang X, Shou W (2017). The outlook of blockchain technology for construction engineering management. *Front Eng Manage* 2017;4(1):67.
- The PRINCE2 Method. (2017). Effective Project Management
- Mwakajo, I. S. & Kidombo, H. J. (2017). Factors influencing project performance: A case of county road infrastructural projects in Manyatta Constituency, Embu County, Kenya. *International Academic Journal of Information Sciences and Project Management*, 2(2), 111-123
- SAP (2017) Top 4 challenges facing the construction industry.
- Molavi, J., & Barral, D. L. (2016). A construction procurement method to achieve sustainability in modular construction. *Procedia Engineering*, 145, pp. 1362-1369.

- Mwangi, M. (2016). Factors Influencing Performance of Contractors in the Road Construction Sector: Case of Selected Contractors in Kenya. *Ph.D. Thesis, University of Nairobi, Nairobi, Kenya*
- Alfredo R., Nguyen L, Jacob K. and Dean K. (2016). Identifying the Global Performance of the Construction Industry. *Article in Journal for the Advancement of Performance Information and Value* .December 2016
- Larsen JK, Shen GQ, Lindhard SM, Brunoe TD. (2016).Factors affecting schedule delay, cost overrun, and quality level in public construction projects. *J Manage Eng.* 32(1):04015032
- Azhar S, Choudhry RM.(2016). Capacity building in construction health and safety research, education, and practice in Pakistan. *Built Env Proj and Ass Man.* 6(1): 92–105.
- Hedaya A. M. Abusafiya S. & Saad M. (2016). Causes and Effects of Cost Overrun on Construction Project in Bahrain: Part I (Ranking of Cost Overrun Factors and Risk Mapping). *Modern Applied Science*; Vol. 11, No. 7; 2017
- Akanni, P.O.; Oke, A.E.; Akpomiemie, O.A. (2015) Impact of environmental factors on building project performance in Delta State, Nigeria. *Hous. Build. Natl. Res. Cent. J.* 2015, 11, 91–97
- Carvalho, M.M.d. and Rabechini Junior, R. (2015), “Impact of risk management on project performance: the importance of soft skills”, *International Journal of Production Research*, Vol. 53 No. 2, pp. 321-340.
- Yang, L., Chen, J., and Wang, X. (2015). “Assessing the effect of requirement definition and management on performance outcomes: Role of interpersonal conflict, product advantage and project type.” *International Journal of Project Management*, Vol. 33, No. 1, pp. 67-80,
- Palinkas, L.A., Horwitz, S.M., Green, C.A., Wisdom, J.P., Duan, N. and Hoagwood, K. (2015), “Purposeful sampling for qualitative data collection and analysis in mixed method implementation research”, *Administration and Policy in Mental Health and Mental Health Services Research*, Vol. 42 No. 5, pp. 533-544
- Vittal S.(2015). Strategies for Enhancing Project Performance. *Journal of Management in Engineering*,
- Parida, R., & Ray, P. K. (2015). Factors influencing construction ergonomic performance in India. *Procedia Manufacturing*, 3, pp. 6587-6592.
- Siemiatycki M (2015).. ‘Cost overrun on Infrastructure Projects: Patterns, Causes and Cures’. *Institute on Municipal Finance & Governance Munk School of Global Affairs*, University of Toronto.
- Mubarak S. (2015). Construction Project Scheduling and Controlling, Third edition”. *John Wiley & Sons, Inc. Hoboken*, New Jersey, 2015
- Dadhich P, Genovese A, Kumar N,& Acquaye A (2015). Developing sustainable supply chains in the UK construction industry: a case study. *Int J Prod Econ* 2015;164:271–84.

Muhwezi, L.; Acai, J.; Otim, G. (2014). An assessment of the factors causing delays on building construction projects in Uganda. *Int. J. Constr. Eng. Manag.* 3, 13–23

Akinyede, I.J. (2014). Framework for Effective Management of Cost Constraint on Building Project Delivery in South Africa. *Ph.D. Thesis, Cape Peninsula University of Technology, Cape Town, South Africa.*

Ogunbiyi, O., Goulding, J. S., & Oladapo, A. (2014). An empirical study of the impact of lean construction techniques on sustainable construction in the UK. *Construction Innovation*, 14(1), pp. 88-107. doi: 10.1108/CI-08-2012-0045.

Federal Democratic Republic of Ethiopia, Ministry of Urban Development, Housing and Construction (2014); Housing Development and Public Building Construction office 2014 *Fiscal Year Report.*

Keil, M., Rai, A., Liu, S.(2013). How user risk and requirements risk moderate the effects of formal and informal control on the process performance of IT projects. *Eur. J. Inf. Syst.* 22 (6), 650–672

Isa, R.B.; Jimoh, R.A.; Achuen, E. (2013). An Overview of the Contribution of Construction Sector to Sustainable Development in Nigeria. *Net. J. Bus. Manag.* 2013, 1, 1–6.

HARRIS, F. & MCCAFFER, R.(2013). Modern construction management, *John Wiley & Sons.*

Arcila (2012). Avoiding Cost Overrun in Construction projects in the United Kingdom

Chou, J.-S., Yang, J.-G., (2012). Project management knowledge and effects on construction project outcomes: an empirical study. *Project Manage. J.* 43 (5), 47–67.

Ghasemi, A., & Zahedias, S. (2012). Normality tests for statistical analysis: A guide for non-statisticians. *International Journal of Endocrinology and Metabolism*, 10, 486–489

Ismail R, Aftab H, Sasitharan N, Qadir A& Imran L. (2012). Time and Cost Performance of Construction Projects in Southern and Central Regions of Peninsular Malaysia

Haseeb, M.; Bibi, A.; Rabbani, W. (2011) Problems of projects and effects of delays in the construction industry of Pakistan. *Aust. J. Bus. Manag. Res.* 2011, 1, 41–50.

Hee C. and Chan K. (2011). Quantitative Approach for Project Performance Measurement on Building Construction in South Korea. *KSCE Journal of Civil Engineering* (2011) 15(8):1319-1328

Pinnington, A. H. (2011). Leadership development: Applying the same leadership theories and development practices to different contexts?. *Leadership*, 7(3), 335-365.

Olawale Y. A. and Sun M. (2010). "Cost and time control of construction projects: inhibiting factors and mitigating measures in practice," *Construction Management and Economics*, vol. 28, pp. 509–526, 2010.

Ajayi, O.M.; Ogunsanmi, O.E.; Ajayi, K.A.; Ofili, C.M. (2010). The Construction, Building and Real Estate Research Conference of the Royal Institution of Chartered Surveyors. *In Proceedings of the Royal Institution of Chartered Surveyors (RICS)*, Salford, UK, 2–3 September 2010.

- Vittal S. Anantamula (2010). Project Manager Leadership Role in Improving Project Performance Western Carolina University. *Article in Engineering Management Journal*; EMJ · March 2010
- Hoonakker, P., Carayon, P., and Loushine, T. (2010). "Barriers and benefits of quality management in the construction industry: An empirical study." *Total Quality Management*, 21(9), 953-969.
- Zwikael, O., 2009. The relative importance of the PMBOK Guide's nine Knowledge Areas during project planning. *Project Manage. J.* 40 (4), 94–103
- De Bakker, K., Boonstra, A., and Wortmann, H. (2010). "Does risk management contribute to IT project success? A meta-analysis of empirical evidence." *Int. J. Project Manage.*, 28(5), 493–503.
- Enshassil, A., Mohamed, S., & Abushaban, S. (2009). Factors affecting the performance of construction projects in the Gaza strip, Gaza
- Enshassi, A., S. Mohamed, Z. Abu Mustafa, & P.E. Mayer (2009). Factors affecting labor productivity in building projects in the Gaza Strip, *Journal of Civil Engineering and Management*, 13(4): 245–254.
- Kenneth H. Rose 2008. Book review :Impact on Project Management of Allied Disciplines: Trends and Future of Project Management Practices and Research by Young Hoon Kwak and Frank T. Anbari
- Flyvbjerg, B. (2008), "Curbing optimism bias and strategic misrepresentation in planning: reference class forecasting in practice", *European Planning Studies*, Vol. 16 No. 1, pp. 3-21.
- Stephen S. (2008). Actionable strategies through integrated performance, process, project and risk management, page 145 – 167)
- Isik, Z., Arditi, D., Dikmen, I., Birgonul, M.T., (2008). Impact of corporate strengths/ weaknesses on project management competencies. *Int. J. Project Manage.* 27 (6), 629–637
- Bertelsen S, Sacks R. (2008). Towards a new understanding of the construction industry and the nature of its production.
- Florence Y , Sui P , Shou Q.W , Hwee H. (2007). Key project management practices affecting Singaporean firms' project performance in China. *International Journal of Project Management* 27 (2009) 59.
- Olander, S. (2007). Stakeholder impact analysis in construction project management. *Constr. Manag. Econ.* 2007, 25, 277–287.
- Gorse CA, Emmitt S. (2007). Communication behaviour during management and design team meetings: a comparison of group interaction. *Cons Manag Econ.* 25:11971213
- El-Mashaleh, M. S., Minchin Jr, R. E., and O'Brien, W. J. (2007). 'Management of construction firm performance using benchmarking.' *Journal of Management in Engineering*, Vol. 23, No. 1, pp. 10-17,
- Flyvbjerg B (2007) Cost Overruns and Demand Shortfalls in Urban Rail and Other Infrastructure Transp. *Plan. Technol.* 30 9–30

- Müller, R. & Turner, R. (2007). The influence of project managers on project success criteria and project success by type of project. *European management journal*, 25(4), 298-309.
- Faridi, A.; El-Sayegh, S. (2006). Significant factors causing delay in the UAE construction industry, *Construction Management and Economics* 24(11): 1167–1176
- Hyvari I.(2006). Project management effectiveness in project-oriented business organizations. *Int J Project Manage* 2006;24(3):216–25
- Iyer, K.C., Jha, K.N., 2005. *Factors affecting cost performance: evidence from Indian construction projects. International Journal of Project Management* 23, 283–295.
- Fynes, B., and De Burca, S. (2005). 'The effects of design quality on quality performance.' *Int. J. Prod. Econ.*, 96(1), 1–14.
- Spalek, S. (2005). Critical Success Factors in Project Management: To fail or not to fail, that is the question! In: *Project Management Institute Global congress 2005-EMEA*
- Jugdev K., and Ralf M. (2005) , 'A Retrospective Look at Our Evolving Understanding of Project Success,' *Project Management Journal*, 36:4 (2005), pp. 19-31.
- Ramirez, R. R., Alarcon, L. F., and Knights, P. (2004). "Benchmarking system for evaluating management attributes in the construction industry." *Journal of Management in Engineering*, Vol. 20, No. 3, pp. 110-117,
- Chan A.P.C and Chan A.P.L (2004), "Key performance indicators for measuring construction success", *Benchmarking: An International Journal*, Vol. 11, No. 2, Pages 203-221.
- Beatham S., Anumba C., Thorpe T. and Hedges I. (2004), "KPIs: a critical appraisal of their use in construction", *Benchmarking: An International Journal*, Vol. 11, No. 1, Pages 93-117.
- Chan APC, Scott D, Chan APL (2004). Factors affecting the success of a construction project. *J Construct Eng Manage* 2004;130(1):153–5
- Cooke-Davis, T. (2002). The 'real' success factors on projects. *International Journal of Project Management*, Vol. 20, pp 185-190
- H. M. Al-Tabtabai (2002), "Causes for delays in construction projects in Kuwait," *Engineering Journal of University of Qatar*, vol. 15, pp. 19-37, 2002
- Robert Loo, (2002). Working towards best practices in project management a Canadian study. *International journal of project management* 20 (2002)93-98
- project performance.(2002) In: Greenwood, D (Ed.), 18th Annual ARCOM Conference, 2-4 September 2002, University of Northumbria. *Association of Researchers in Construction Management*, Vol. 2, 545-55.
- Roshana Takim and Akintola Akintoye (2002). A Performance indicator for successful construction

Bassioni, H. A., Price, A. D. & Hassan, T. M. (2004). Performance measurement in construction. *Journal of management in engineering*, 20, 42-50.

Larry Richman (2002). Project Management Step-by-Step

Takim, R., & Akintoye, A. (2002). Performance indicators for successful construction project performance. *Paper presented at the 18th Annual ARCOM Conference*.

Daniel B, Andrew D.F. Priceb (2001) Modelling global risk factors affecting construction cost performance, *International Journal of Project Management* 21(2003) 261–269

O. Jackson and O. Steven,(2001) "Management of cost overrun in selected building construction project in Ilorin," *Review of Business and Finance*, vol. 3, 2001.

Chan, A.P. and Tam, C.M. (2000), "Factors Affecting Quality of Building Projects in Hong Kong", *International Journal of Quality & Reliability Management*, Vol.17 No. 4/5, PP.423-441.

Chan, E.H.W., Chan, A.T.S., (2000). Imposing the ISO 9000 quality assurance system on statutory agents in Hong Kong. *J. Constr. Eng. Manage.* 1254, 285–291.

Mbugua, L., Harris, P., Holt, G. & Olomolaiye, (1999). P. A framework for determining critical success factors influencing construction business performance. *Proceedings of the Association Researchers in Construction Management 15th Annual Conference*, 255-64.

Dissanayaka, S. M.; Kumaraswamy, M. M. (1999). Comparing contributors to time and cost performance in building projects, *Building and Environment* 34: 31–42.

Evbuomwan N, Anumba C. (1998).. An integrated framework for concurrent life-cycle design and construction. *Adv Eng Software*. 29:587597.

Lechler, T. (1997). Erfolgsfaktoren des projektmanagements, *Frankfurt am Main*, Germany

Kumaraswamy, M.M. and Thorpe, A. (1996) Systematizing construction project evaluations. *ASCE Journal of Management in Engineering*, 12(1), 34–9

Neely A., Mills J., Gregory M. and Platts K. (1995), "Performance measurement system design – a literature review and research agenda", *International Journal of Operations and Production Management*, Vol.15, No.4, Pages 80-116.

Wang, T. H. (1994). The Malaysian Construction Industry, its trend of growth-past, present & future, *The Master Builders Journal*, pp 3-7

Flynn, B. B., Schroeder, R. G., and Sakakibara, S. (1994). "A framework for quality management research and an associated measurement instrument." *J. Oper. Manage.*, 11(4), 339–366.

Freeman, M, and Beale, P. (1992). "Measuring project success." *Project Manage. J.*, 23(1), 8–17.

Pinto JK, & Slevin DP.(1989). Critical success factors in R&D projects. *Res Technol Manage* 1989;1(January–February):31–5

Appendix

Questioner

Dear Sir/ Madam,

I, Tinsae Getachew, am a graduate student pursuing a Master of Arts in project management at Addis Ababa University's School of Commerce. Currently, I am conducting research on assessing factors that affect project performance in the case of the PepsiCo expansion project in Ethiopia.

The purpose of the research is to identify factors that affect the project performance. Therefore, I would appreciate it if you could take a few moments to answer the following questions. All information provided will be used only for academic purposes, and the confidentiality of all respondents will be respected. Your assistance will be greatly appreciated.

Thank you in advance

Yours sincerely,

Tinsae Getachew

Section 1: General Information

1. Type of Organization you work: Please select the option from the list below if it is applicable.

Owner

Consultant

Contractor

1. What is your profession? Please select the option from the list below if it is applicable:

Project Manager

Project Engineer

Sector Engineer

Site engineer

Office

Engineer

Other

Architect

General

Foreman

Resident Engineer

2. Experience of Work in years:

0 - 5

5 - 10

10 - 15

15 - 20

20 and above

3. Company Size (Number of employees)

Less than 50

From 50 to 100

100 to 250

More than 250

Section 2: Factors That Affect Construction Performance

The following questions focus on the possible factors that have been identified from the literatures that affect project performance on the construction project. Based on your experience with the PepsiCo expansion construction project, please indicate your level of agreement with the following statements relating to the current PepsiCo’s project performance?

1=Strongly Disagree, 2=Disagree, 3=Neutral, 4= Agree and 5= Strongly Agree

Managerial Factors	1	2	3	4	5
Throughout the course of the project's implementation, poor communication amongst project stakeholders was observed.					
Poor planning and stakeholders’ inappropriate project scheduling affected the smooth execution of the project.					
The project design documents adhered to the building standard codes, and any design issues that arose over the course of the project were not quickly resolved.					
Payment delays during the execution period affected the contractor's and consultant’s productivity.					
Insufficient stakeholder experience, as well as a lack of technology and local capabilities to complete the essential duties, challenged the project's success.					
Labor market inefficiency in supplying qualified employees affected the project's progress in meeting its objectives.					
Scope change management practices were not flexible to get approvals for procedures easily.					
The site supervision and monitoring procedures in place were inadequate to properly manage the project activities.					
The client’s support in providing an effective decision-making process was time taking and unsatisfactory.					

Project Team Performance Factors	1	2	3	4	5
The leadership skills of the project’s core team throughout the project were unsatisfactory.					
The project team’s competency in cost estimation was not precise and didn’t show its ability to predict the quantity, cost, and price of the resources required to complete a job within the project scope.					
The project team has insufficient top management support throughout the project.					
The procurement and sourcing techniques of the project team influenced project in meeting its objectives.					
The project team's lack of skills in organization, coordination, and planning supported in completing tasks efficiently.					

The project team's inefficient experience, lack of technical knowledge, and project management abilities had a negative impact on the project's success.					
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Risk Management Performance Factors	1	2	3	4	5
The effectiveness of the risk management plan's implementation in each project phase wasn't efficient.					
Implementation of safety and health practices at the project site is inadequate and increases human-related health risk factors.					
A risk mitigation plan was not communicated among the project team.					
Risk identification and assessment processes in the project were not analysed using proper methods.					
Proper risk responses were not implemented to tackle threats.					
In Risk management process both quantitative and qualitative risk analysis wasn't performed using the proper techniques.					

External Factors	1	2	3	4	5
The political instability of the area influenced the project activities of the project.					
Government regulations caused complicated processes and procedures in the application for building permits.					
The issuance of permits by the respective authorities resulted in a longer process and a stoppage of work.					
Weather condition affected the project implementation.					
The fluctuation in currency rates increased the cost of the materials.					
The project's implementation was influenced by community involvement.					

Performance Indicators For The Expansion Project

Please indicate your level of agreement with the following statements relating to the overall cost time and quality performance:

1=Strongly Disagree, 2=Disagree, 3=Neutral, 4= Agree and 5= Strongly Agree

Cost Performance	1	2	3	4	5
The project' cost overrun indicator of poor performance					
The actual cost is not under budget					
The actual cost of the project is not equivalent to cost limit					
The project cost escalated and consumed the contingency budget.					
Effective Cost control method was not implemented, and variation orders were not covered through the initial project cost.					

Time Performance	1	2	3	4	5
The project is not completed according to the project schedule.					
The project is suffering a delay of more than 6 months.					
The project team spent most of its time waiting for approval for design issues instead of doing technical.					
Considering the tasks, scheduling estimates were not accurate.					
Most project milestones were not accomplished according to the timeline.					
The project is not completed prior to the schedule.					

Quality Performance	1	2	3	4	5
The quality of the work is according to the required standard.					
The project quality of work is below the requirement.					
The quality of the work exceed expectation.					
Testing for quality assurance was conducted, and the results were satisfactory.					
The quality control measurements, standards, and guidelines eased the quality inspection procedures.					
The in-place quality control procedures adhere to high quality standards.					