PROJECT MANAGEMENT PROCESSES AND PERFORMANCE OF INFRASTRUCTURAL PROJECTS IN MERU COUNTY, KENYA

RATANYA MUTHEE DUNCAN

D53/NYI/PT/37825/2016

A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS, ECONOMICS AND TOURISM IN PARTIAL FULFILMENT FOR THE AWARD OF DEGREE IN MASTER OF BUSINESS ADMINISTRATION (PROJECT MANAGEMENT) OF KENYATTA UNIVERSITY

MAY, 2023

DECLARATION

This project is my original work and has not been submitted for a degree or any other award to any university or other institution of learning.

Signature: …… Date……..

Ratanya Muthee Duncan

D53/NYI/PT/37825/2016

This research project has been submitted with my approval as the university supervisor.

Signature…… Date……

Dr. Lucy Ngugi (PhD)

Department of Management Science

School of Business

Kenyatta University

DEDICATION

To my wife, children, and mother.

ACKNOWLEDGEMENT

I want to express my gratitude to everyone who helped me with this study in whatever manner. I want to start by saying how grateful I am for my supervisor, Dr. Lucy Ngugi, who effectively guided me through every stage of this project. My appreciation goes out to the employees at the Meru County government offices who helped me acquire data on infrastructure projects, which was crucial for our study. I also want to express my thanks to the whole Kenyatta University Library staff, who assisted me in finding the materials I needed for my study. I can't forget about my family, who have prayed for me and inspired me the entire time.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

CDF: Constituency Development Fund

IUCN: International Union for Conservation of Nature

OBG: Oxford Business Group.

PEP: Project Execution Plan

TOC: Theory of Constraints

WBS: Work Breakdown Structure

OPERATIONAL DEFINITION OF TERMS

Infrastructure Projects	Construction projects initiated by county government of Meru that involve development and maintenance of facilities and systems such as roads, building structures and boreholes.
Project Control	Monitoring and evaluation activities conducted to ensure that infrastructure projects initiated by county government of Meru are within time, cost and scope.
Project Execution	The actual carrying out of infrastructure projects initiated by county government of Meru.
Project Initiation	The first stage of project management of infrastructure projects initiated by county government of Meru which comprises of setting up goals and timelines.
Project Management Processes	The activities involved in the project lifecycle of infrastructure projects initiated by county government of Meru comprising of initiation, project planning, implementation and control activities.

Project performance	Extent to which projects initiated by county government of Meru are completed within scope, schedule, quality and cost.
Project planning	The second stage of project management which involves of setting objectives, identifying deliverables and assigning tasks

ABSTRACT

Available data shows poor performance of infrastructure projects globally, regionally and locally. Meru County scores poorly in terms of infrastructure development with a very poor record of project performance. This is the motivation behind this study which sought to establish the relationship of project management processes and performance of projects. The theories that were relevant to this study included the systems theory, theory of constraints and contingency theory. The research design used in this study was a descriptive cross-sectional design with a quantitative approach. In this study, infrastructural projects in Meru County were the units of observation while project management committee members were the units of analysis. While deliberate sampling was used to choose respondents, stratified random sampling was utilized to sample the projects. 140 respondents were selected as a sample from 28 infrastructure projects in Meru County. In order to gather the data for this study, a structured questionnaire was used. A pretest was carried out in Embu County to gauge the viability of the questionnaire used in this study. With the use of SPSS, descriptive statistics, correlation analysis, and regression analysis were used to analyze the data. Tables were used to display the study's findings. Project initiation and project performance both revealed a high positive and significant link, according to correlation analysis, as did project execution and project performance. There was a moderate positive and significant correlation between project planning and project performance. project control had a weak and positive correlation with project performance. According to the regression results, the vast majority of project performance among infrastructure projects in Meru County could be attributed to the project management process. In addition, project initiation and project execution were significant. The study concluded that project execution was the most influencing of the four independent variables. the study recommended that project management tools ought to be used in the execution of the project.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The definition of infrastructure includes the fundamental facilities, such roads, schools, telephone lines, wastewater treatment plants and energy generation that support a government or a community (Locatelli, Invernizzi & Brookes, 2017). It refers to physical constructions which are constructed to provide modern human society with specific comforts (Manggat, Zain & Jamaluddin, 2018). Examples of the infrastructure are roads, trains, airports, dams, offshore oil platforms for petroleum boiling. Infrastructure can be divided into two: hard and soft. According to Morkovkin, Shmanev, and Shmaneva (2017), as a tangible entity supporting information technology, hard infrastructure is critical to both economic growth and a high standard of living. Hard infrastructure includes the physical structures and installations that are important for a country's development. One of the most important and most visible examples of hard infrastructure is roads. Much of government's expenditure goes to roads. Other examples of hard infrastructure include electricity and communication equipment including telephone lines and communication masts. Soft infrastructure on the other hand includes all education, health, finance, law and order, and government systems (Huétink, van der Vooren & Alkemade, 2010). Soft infrastructure, like government, medical, education, financial and legal systems, is an integral part of the economy and quality of life. A good example of soft infrastructure includes the health system comprising hospitals and agencies as well as the financial systems including banks. A characteristic of soft

infrastructure is the service nature of their products and requirement of human skills. (Zhang & Chen, 2013).

The provision of basic infrastructure and communication systems such as road and highway construction, transportation, bridges and ports are what is referred to as infrastructure development (Manggat et al., 2018). Infrastructure development is considered an effective tool to promote economic growth and welfare level within a state or country. Lelei et al. (2020) indicates that the level of quality and reliability of a country's infrastructure is vital to support the sustainable economic growth, productivity, and development of the modern economy. This is achieved through front-to-back connections between the financial system including banks and capital markets, physical infrastructure such as roads, energy, telecommunications, water and waste management, and social infrastructure such as schools, housing and medical facilities. According to Emuze and Smallwood (2012) to enhance client satisfaction project managers are interested on developing good infrastructure projects that meet the needs of the public while keeping the cost down and delivered din good time.

Projects infrastructure upgrades may be financed publicly, privately or via partnerships between public and private entities (Lu et al., 2019). The choice of specific infrastructure performance measures is crucial to the evaluation process. Publicly funded projects are critical because they meet the needs of the citizenry to do business which translates to greater GDP and economic development. In addition, public projects are subject to scrutiny by the public and are often the yard stick used by the members of the public to measure the performance of a particular government. However, public funded projects are notorious for poor performance (Dalsgaard, 2010). The problem of costs overruns is a striking aspect of global infrastructure

projects and the building industry in Kenya is no exception. There is therefore a need to study the complexities which lead to these overruns to identify gaps which if implemented can enhance project performance in the public sector.

1.1.1 Performance of Infrastructural Projects

A project is a unique undertaking consisting of various activities done to reach a target that confirms particular requirements, including time and resource limits (Walker, 2015). Project management consists of the application of procedures, methodologies, competencies, knowledge, and experience in the implementation of the specified parameters in accordance with project acceptance criteria (Oberlender, 2014). Meredith, Shafer and Mantel (2017) explain that the ultimate deliverables of a project of any kind are restricted to a certain time and money. A skilled project manager takes control of an entire project from the beginning to its termination assuring strategic alignment of the activities and goals, stakeholder support and everyone on the same side.

Project performance is a term used to refer to a project that is begun and finished in time within budget and within scope (Cha & Kim, 2018). The scope, time and resource are three main dimensions that define project performance. A highly performing project will therefore achieve its main purpose and objectives using these three parameters. Project management means the creation, implementation and management of projects that contribute the achievement of the goals of the organisation be it a public or private body (Seymour & Hussein, 2014). Performance measurement is a vital aspect in performance optimization. Optimum performance achieves several, often contradictory, objectives in changing situations on a sustainable basis. "A combination of connected activities which is crucial for effective

execution of the project outcomes," defines a project performance domain (Morris, 2011). Measuring performance increases project management and efficiency.' By concentrating on the results, it can define its success early, implement projects that have a greater influence on the specialty crops market and measure and show results more simply (Demirkesen & Ozorhon, 2017).

A county cannot develop with the right infrastructure. For instance, roads are important infrastructure projects that help the movement of goods and services making trade efficient. This leads to better growth of the country in all aspects and most importantly economic development is achieved (Ochenge, 2018). Overall, the lags and cost overruns in new infrastructure projects result in wasteful use of public resources (Bisbey et al., 2020). It was said in Flyvberg et al. (2010) that the cost escalation is a global phenomenon that exists in five continents across 20 nations. In the previous 70 years, cost projections have not improved, and expense increases have not decreased.

Kenya like other developing economies confronting the challenges of poor infrastructure development. The number of development projects on public highways in Kenya is increasing sometimes. Projects in the allotted cost budget and timeline are nevertheless challenging to conclude. Statistics from several reports shows that many counties have failed to monitor and evaluate road developments and therefore have low performance (Wanjiku, 2015). According to Kinuthia (2013), There is still planned lagging of the Kenyan government. Some of the roads have yet to be reached, while the main part of the road network is still temporary in rural areas. Widely must be pooled to build roads in Kenya if the country is really to accomplish the much-

expected 2030 vision. Mutekhele et al. (2017) found poor performance of Projects in Bungoma County.

Various factors are associated with poor project performance. Fundamental causes of failed infrastructure projects include lack of project selection transparency, lack of drafting, a silo approach on the part of the initiating body or agency feasibility analysis, and lack of the competence of the public sector to completely build a bankable project pipeline (Ochenge, 2018). According to McDermot et al. (2020), improper planning, unrealistic projections, poor communication among stakeholders, bureaucracy, inadequate land research and an inadequate framework for project implementation constitute the primary fault elements. Emuze et al. (2012) distinguished deficient coordination between project accomplices may to be sure bring about significant degrees of imperfections, revamp, and non-conformances in development may lead to erratic handling of requests, stockpiling of materials, and helpless stock administration. Aftereffects of past investigations demonstrated that asset activation, project checking and assessment, overall vibes the board and task chances the executives' effects affected the exhibition of street foundation projects.

1.1.2 Project Management Processes

Project management utilises specialized knowledge, abilities, tools and procedures to provide others with value (Kagaari, Munene & Ntayi, 2010). It is also characterized as a collection of demonstrated methodologies for project proposal, planning, implementation, management and evaluation mixed with the art of managing employees. It involves the planning and management of the resources of a corporation in order to complete a particular activity, event or assignment. Project management practices are the core project concerns that need to be preserved to enable teams to

perform efficiently and effectively (Ocharo & Kimuitai, 2018). They need to be careful day by day and work during the project life. Professional project management procedures have thus become an important discipline in current building processes worldwide. Practitioners and researchers view his technique and application as a precedent for the satisfactory provision of devliverables in the construction and infrastructure sectors (Kissi et al., 2013).

Project management is an administrative process for service planning and supervision or project implementation. Project management processes assists anyone who leads an organization project, commission, or team endeavor. Project initiation, planning, execution or implementation and closure comprise the project management lifecycle. (Suk et al., 2017). PM practices could vary between organisations, it has been argued. Notwithstanding, players in the PM discipline contend that, since proficient practice in the structure business is needed to follow the rules and morals, PM rehearses can't really contrast from one association to another and can consequently be founded on explicit natural and social necessities of the task close by (Mir & Pinnington, 2014).

Project initiation, the first stage of the project life cycle involves the conceptualization and design of a project (Mutwiri, Were & Odhiambo, 2018). The principle objective of the commencement stage is to decrease how much vulnerability to a suitable level to go with a last choice regardless of whether to support the venture (Islam, Bhuiyan & Hoque, 2011). This phase frequently starts with a business case that describes the goals, purpose and results of the proposed enterprise. The start phase identifies the company problem and the opportunity, defines a solution, forms a project and appoints a project team to develop and offer solutions to the client. The project charter supporting the strategy for Phase 2 includes key deliverables (Afolabi, 2018). The

charter specifies the deliverables, in addition to defining the initiative's economic worth. The project charter describes the project's objective and needs. Project scope is to identify project objectives, achievements, budget, and timetable. The choice to begin is crucial and the commencement phase was recognized as dominating in deciding the success or failure of any project endeavor (Matu et al., 2020).

Project planning is the next phase in the project life cycle after completion of the project initiation. According to Mwanza, Namusonge and Makokha (2020), project planning is organizing the assembling or putting the required resources such as manpower, time, material, inputs and money to perform the work in the plan. In the context of a project, the project planning process organizes work, determines who, when, how, and for whom it is performed, determines what resources are needed, and assigns responsibility for communication with all people involved in the project, coordinating activities and people. way. Manage relevant progress, predict completion times, and handle unexpected changes. This will improve the purpose of the project collected in the startup phase. In this phase, the steps and activities that will be sued to achieve the purpose and objectives of the project are defined. Allocation of the necessary resources for the project are made in this phase. Based on the project plan, the project manager can transform project requirements into exploded work view (WBS) work list Gantt charts, resource allocations, and risk registers. A complete task plan is made illustrating the undertaking's expense and spending extension, length, required expectations and quality, correspondence, proportions of progress, and a danger the board plan. Ocharo and Kimathi (2018) showed that the undertaking plan addresses the objectives of the task, correspondence grid hazards the executives plan, financial plan, project reports, project checking and execution objectives, and

specifically, the jobs and obligations of every player in the execution cycle. Execution without proper planning is a mirage, and therefore implementation.

After completion of project planning and development of a project plan, the project moves into the main stage, project execution also referred to as project implementation (Kjersem, Jünge & Emblemsvåg, 2017). Project execution activities ought be carried out in compliance with the project baseline, project planning and interface resources, changes to the project, timing, cost, risk, quality, safety and environment management and other contractual criteria. A Project Execution Plan (PEP) empowers the venture director fabricate an effective undertaking plan by giving colleagues moment knowledge into a venture's expected assignments, extent of work, supports, timetable, due dates, status, project goals, and task jobs and obligations (Hellström et al., 2016). The fundamental exercises related with project execution incorporate asset the board, following work, group gatherings, and writing about progress. The project execution phase is the most crucial and longest phase in which you put your plan into action and strive to accomplish expected deliverables. According to Townsend and Gershon (2020), the project is executed both via management and monitoring of the activities planned, and the project plan is updated and revised in accordance with new lessons and/or terms. Key success elements for project implementation include specified project definitions, roles and tasks, organization and team development, and accurate status reports including forecasting and timely decision-making under the direction of internal and external project managers. The implementation phase will disclose unexpected challenges or problems; therefore project managers will have to be prepared to move forward and alter tactics (O'Connor, O'Brien & Choi, 2016).

When significant discrepancies between actual and planned performance occur, project control is a function of project management that entails evaluating actual performance against planned performance and taking corrective measures or instructing others to take corrective measures that will result in the desired project outcome (Olawale & Sun, 2010). Project controls is a collection of tools, procedures and skills for project managers that are utilized together to assist them to make the correct choice in the right moment. Project strategy, methodology, schedule, cost estimate, risk management, documentation of projects, general monitoring, quality and resources are checked by the controls. Parallel to the implementation of the project, surveillance is carried out. Key performance indicators (KPIs) are used by project managers to keep the project on tract. KPIs are relative to the nature of the project and therefore differ from project to project. Ocharo and Kimutai (2018) point out that most companies lack the means and procedures to evaluate how projects are conducted and how the same errors are not repeated in the next project. Most organizations do not have an evaluation system in place. The monitoring and evaluation of the project are sometimes conducted simultaneously and are founded on indicators from project strategy and were based on a sound and thoughtful approach. This requires examination, monitoring, assessment and feedback. Project management guarantees that a series of distinct procedures have been completed successfully.

1.1.3 Infrastructural Projects in Meru County

One of the 47 new counties established by the 2010 constitution is Meru County. It is one of the counties in Kenya's central region known as Mount Kenya. It borders the counties of Isiolo, Tharaka/Nithi, Nyeri, and Laikipia (County Government of Meru, 2018). It is divided into 9 sub counties which have 45 wards. Meru town is the largest

town in this county and serves as the county headquarters. Maua, Nkubu and Timau are some other big towns in the county. The county has a population of 1.5 million people (Kenya National Bureau of Statistics [KNBS], 2020). Meru County is one of the richest and economically important counties in Kenya. KNBS (2017) ranked Meru County 7th in terms of gross domestic product (GDP) which was 229 million Kenya shillings.

Just like any other county, Meru County has launched various projects since the birth of devolution in 2013. These projects range from finance, youth affairs, to health and lands projects which fall under various programs initiated by the office of the governor (County Government of Meru, 2018). A significant number of these projects are infrastructural projects. Majority of infrastructural projects can be found under roads, transport and energy sector projects and lands, planning, urban and rural development, projects to do with water as well as public works to maintain and develop existing infrastructure. Infrastructural projects in the county comprise construction of buildings, roads, boreholes, and various structures serving various needs in the county. However, despite initiation of majority of these projects, very few see completion.

1.2 Statement of the Problem

Project performance in any project is a major aspect and several policies are normally used to achieve better project performance (Meredith et al., 2017). Investing in infrastructure has a strong multiplier impact. They improve accessibility and commerce, increase mobility, provide more jobs and promote overall economic productivity. Infrastructure projects can drive economic growth and productivity and therefore project performance in infrastructure development is vital (Locatelli et al.,

2017). Highly performing infrastructure projects can boost housing development, enhance transport network capacity by or adding to present capacity and support high-quality public services, promote the efficiency and predictability of movement of people and commodities across the country as well as the use of energy and digital networks (Manggat et al., 2017).

Infrastructure projects however, both in cost and schedule performance have historically been linked to poor delivery. Kissi and Ansah (2013) observed that the adaptation of efficient construction project management techniques to many developing nations remains a major issue while professional project management is a growing field. Meru County is one of the areas where infrastructural projects have very low completion and success rate. According to the ICPAK report Meru County was one of just 5 counties with less than 15% growth in infrastructure. Studies conducted by various authors in Meru County such as Kathure (2013), Kimathi (2016), Mutegi (2015) and Nyabera (2015) Showed poor performance of various infrastructural projects in the county such as roads, markets and water project respectively.

Majority of available studies had a narrow focus mainly studying one project at a time. There is a need for a cross sectional view of projects in this area to deepen our understanding of what ails projects in this county. In addition, many of available studies have focused on projects commissioned by the national government, CDF and private projects. However, projects commissioned by county governments significantly differ from those initiated by other agencies in terms of scope, funding and management and therefore a study focusing on county government projects is necessary. A study was therefore necessary.

1.3 Objectives of the Study

1.3.1 General Objective

To determine the influence of project management processes on project performance among infrastructure projects in Meru County, Kenya.

1.3.2 Specific Objectives

i.) To assess the influence of project initiation on project performance among infrastructure projects in Meru County, Kenya.

ii.) To determine the influence of project planning on project performance among infrastructure projects in Meru County, Kenya.

iii.) To establish the influence of project execution on project performance among infrastructure projects in Meru County, Kenya.

iv.) To evaluate the influence of project control on project performance among infrastructure projects in Meru County, Kenya.

1.4 Research Questions

i.) What is the influence of project initiation on project performance among infrastructure projects in Meru County, Kenya?

ii.) What is the influence of project planning on project performance among infrastructure projects in Meru County, Kenya?

iii.) What is the influence of project execution on project performance among infrastructure projects in Meru County, Kenya?

iv.) What is the influence of project control on project performance among infrastructure projects in Meru County, Kenya?

1.5 Significance of the Study

outcomes of this study is therefore of interest to project managers who are the heads of project management teams in finding out how carrying out some processes in project management influences the success of their projects. Results will assist project managers to better prepare themselves for future infrastructure management. They might revise the many procedures and strategies of project management in order to better project success in their future initiatives. Project managers may redirect their limited resources to the proper areas to achieve success with more knowledge of the finest project management procedures, practices and performance measurement. Members of the project management teams will also benefit by learning of how their participation in various project management processes such as project execution influences project performance. It is important to manage the multifaceted project management issues in infrastructural projects, in particular in counties, not only to serve the needs of the people but to enhance the public appreciation of devolution.

1.6 Scope of the Study

The link between project management procedures and project performance was the focus of this study. Initiation, planning, execution, and control were the project management procedures used for this study. Infrastructure projects in Meru County were among the studies that were done for this particular research. The respondents in this study were the project management committee members of the various projects, from whom information was gathered via a questionnaire. Between 2020 and 2022, the study was carried out.

1.7 Limitations of the Study

The nature of this study was descriptive and as such causal inferences cannot be made. There was a limitation of self-report bias that comes with the use of primary data. Another limitation was the fact that some project management committee members are members in more than one project. In addition, some of the project management committee members were illiterate and this complicated the data collection process. Furthermore, Meru County is expansive and some of the projects were located very far which increased data collection expenses and time taken.

1.8 Organization of the Study

There are five chapters in the current study. The subject being studied and the key ideas in the study, such as project management procedures and project performance, are introduced in the first chapter. The motivation behind the study is highlighted in the problem statement. The objectives guiding the study are identified along with research questions formulated to achieve the objectives. The scope of the study is also defined in this chapter. Chapter two is concerned with review of relevant literature to the main concepts in the study. Literature is reviewed from a theoretical and empirical perspective. Also provided in this chapter is a summary wherein the main findings are highlighted, and emerging gaps enumerated. In addition, a conceptual framework is provided illustrating the variables in this study along with their indicators. The methodology employed in study is outlined in chapter three. This comprises the study population, sample strategy, and research methodology. The methodologies and strategies for data analysis are also addressed, along with the tools and processes used for data collecting. Additionally, the study-related ethical values are emphasized. The

study's findings are provided in the chapter. The overview of the findings is offered in chapter five, together with the researcher's conclusions and suggestions.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Project management processes and project performance are discussed in this chapter's literature study. A theoretical and an empirical review are both part of the process. Also included is a conceptual framework.

2.2 Theoretical Review

Von Bertalanffy's systems theory, Goldratt's theory of constraints and Fiedler's contingency theory are selected to anchor this study.

2.2.1 The Systems Theory

The origins of systems theory can be traced to the work of Van Bertalanffy (1950). Von Bertalanffy viewed life of plants and animals as having common dynamics and complexities and therefore sought to develop a theory that was general in nature in that respect. Later Kataz and Khan (1966) introduced the theory to management. Systems Theory is an interdisciplinary investigation of frameworks as they identify with each other inside a bigger, more complicated framework. It is an approach to manage affiliations which looks at the undertaking to a natural element with dependent parts, each with its own specific limit and interrelated liabilities. The indispensable thought of systems theory, paying little notice to which discipline it's being applied to, is that the whole is more important than the measure of its parts (Walker, 2015).

Systems thinking is an approach to manage consolidation that relies upon the conviction that the part divides of a structure will act differently when isolated from

the system's present situation or various bits of the system (Peters, 2014). Remaining as opposed to positivist and reductionist reasoning, frameworks thinking embarks to see frameworks in an all-encompassing way. It follows two fundamental premises, which remember taking a gander at reality for terms of wholes and recognizing that the climate is a fundamental piece of the framework, as it associates with the framework. Frameworks thinking devices have a wide assortment of utilizations. A few instruments are expected as method for working with gatherings of individuals to have a typical comprehension about an issue to provoke further request and activity.

Projects are complex and dynamic in nature. Karayaz, Keating and Henrie (2011) state that because projects have become complex, there has emerged a need to foster methods to deal with that intricacy. Systems thinking is therefore useful in project management. Task the board and frameworks thinking surely cross-over. Nonetheless, Sankaran, Haslett and Sheffield (2010), project directors don't appear to utilize straightforward frameworks thinking devices despite the fact that these give extraordinary advantages in outlining and taking care of issues that emerge according to various viewpoints and connections. Undertakings are complicated likewise in light of the fact that everything, from individuals, organizations and conditions, is interconnected inside and remotely. Likewise, routinely systems are themselves part of more confounded structures concerning the present circumstance errands can be fundamental for programs that can, in their turn, be significant for portfolios which are directed by performing affiliations (Walker, 2015).

A system theory disadvantage indicates that all of the factors have an equal influence and control over the company environment. According to Mutong'wa and Khaemba (2014), it is obvious that this is not the case since certain factors have a higher

influence and degree of control than other variables. According to Sheffield et al. (2012), there are practical problems in applying systems theory to an organization. The problem arises in determining the boundaries of the system and identifying the interrelationships of the various subsystems. The way administrators handle their work is not clearly defined by system theory. Despite these weaknesses, social systems theory is important to project management and helps project managers reach a better understanding of determinants of project performance.

2.2.2 Theory of Constraints

The theory was introduced by Goldratt (1984). According to Gupta, Bhardwaj and Kanda (2010), It is a management paradigm that holds that any management system is constrained by a manageably limited set of constraints that prevent it from achieving more of its objectives. Sometimes called constraint analysis, TOC is a methodical, iterative management technique which focuses on changing company operations to better meet limits or limitations that hinder important objectives. (Izmailov et al., 2016). It is a methodology that seeks out constraints (bottlenecks) from processes, and removes them (Mirzaei & Mabin, 2014.

The Five Focusing Steps for finding and dealing with constraints include identifying, exploiting, subordinating and synchronizing, elevating the performance of the constraint and repeating the process. Thinking measures are incorporated critical thinking devices dependent on thorough circumstances and logical results rationale (Gido & Clements, 2014). They empower us to make advancement arrangements by recognizing, testing and revising unexamined suppositions. Throughput Accounting is a strategy where the essential objective is to augment throughput while at the same time keeping up with or diminishing stock and working expenses. The technique

contrasts from traditional bookkeeping in that plants, stock and structures are viewed as liabilities tying up cash that could be utilized gainfully somewhere else (Kerzner, 2017).

TOC can be used as a method for optimizing project processes to boost overall project performance (Smith, 2012). In project management, TOC is an approach to tackle issues intrinsic in a task that are keeping the venture director from accomplishing the objectives and objectives. Since each venture and its assets are limited, project directors should work with (and around) their cutoff points (Mabin & Balderstone, 2020). The philosophy of the reasoning system, which is designed for large, interdependent projects, is a component of the hypotheses about needs (Naor et al., 2013). Undertaking Management Constraint (PMC) hypothesis is the "distinguishing proof, definition, arrangement, usage, alteration, arranging, execution, and control of task limitations". This implies that in the undertaking the executives setting, the hypothesis of imperatives can be utilized to design all the more proficiently the different exercises that are essential for the creation cycle (Golmohammadi, 2015).

Goldrat's theory of constraints is criticized by some of Goldratt who considers the theory himself to be a product for sale and to be a salesperson. In addition, some people are saying that Goldratt's theory of limitations draws ideas and concepts from prior theories and research (Mabin & Balderstone, 2020). One limitation of TOC is how to identify constraints. Another limitation of the theory of constraints is its lack of consideration of variable factors (Gupta et al., 2010). TOC is a very practical theory that has its involvement around the world despite the few constraints. The weaknesses of their systems or processes are frequently recognized and corrected by small and big multinationals.

2.2.3 Contingency Theory

The Theory was developed by Fred Edward Fiedler, in the mid-1960s, which is the most recent and widely acknowledged theory of organisations (Sawega 2015). Contingency theories (CT) is a kind of behavioral theory which argues that there is no optimal method to organize or to lead that in some conditions organizational leadership is not successful. According to Mutema (2013), CT suggests that an organization's effectiveness depends on the manager taking into account a variety of factors that can negatively or positively affect the organization.

Contingency theory in management is frequently used to build a more effective planning process, which takes into consideration many external circumstances and adjusts them to them (Howell, Windahl & Seidel, 2010). Contingency theory is also useful in project management. Because of the novelty of projects they require another, startling technique on every event, fundamentally because most factors have changed to some degree. CT is based around the likelihood that the work of an endeavour boss is to set up the best fit between the affiliation, its present situation and sub-structures (Hanisch & Wald, 2012). Contingency theory can impact project management methodologies tremendously because this theory is suitable when various evens occur in project management realm.

Contingency theory is criticized for having inadequate literature, being complex, it is difficult to test empirically and it has also been criticized for being reactive rather than proactive (Howell et al., 2010). Critics claim that the approach to contingency does not take account of all parts of systems theory and believe that it has yet to evolve into a real theory (Sawega 2015). The idea is not acknowledged to explain completely why in specific contexts people with certain styles of leadership are more effective. Critics

contend however that contingency is not an option, but just attempts to substitute one set of prescriptions with another (Hanisch & Wald, 2012). Despite these criticisms, contingency theory remains an important management theory that is useful in project management.

2.3 Empirical Review

2.3.1 Project Initiation and Project Performance

Majority of studies show that project initiation is poorly conducted usually skipping key steps and lacking critical support documents and this ultimately affects its performance. For instance, a study by Afolabi (2018) investigated project initiation factors, including social, just as dynamic viewpoints, and how they may be addressed to improve the chance of progress. The eminent hypothesis of IS project inception showed that the components addressed by the subjects should be distinguished during commencement however carried out all through the undertaking lifecycle to guarantee project achievement. The reason for Matu et al. (2020) study was to analyze the impact of partner investment in project commencement on fruition of metropolitan street transport framework projects in Kenya. The investigation set up that there was a positive impact of support in project inception on fulfillment of metropolitan street transport framework projects.

An investigation by Islam et al. (2011) the processes and activities surrounding project initiation in project management in Bangladesh were studies. The researchers contemplated various periods of undertaking inception measure to quantify their consequences for project achievement: project taken dependent on issue and opportunity, direct of achievability study, choice assumed the premise of attainability study, possibility study done by particular firm, having project sanction, project office

and the venture audit. As to every factor other than the venture taken dependent on issue and attainability study done by specific firm there is a positive connection. That each factor contributes fundamentally to the accomplishment of a task. Nonetheless, the outcome for project taken dependent on issue shows a negative connection. This is because of the way that in our country we consider project the board practice works best as far as happenstance and most organizations will in general utilize project the executives viably in the event of benefiting of chance. Venture the executives practice, however utilized for issue, doesn't bring accomplishment because of the idea of issue itself and the absence important to utilize project the board adequately. This outcome is conflicting with the aftereffect of the vast majority of different investigations done in various nations. Comparable to the Feasibility Study done by the specific firms it is seen that the pace of accomplishment of venture is extremely high. In any case, our examination gives a contrary outcomes that is there is a negative.

In another study, Mullaly (2013) investigated how singular entertainers take part in and support the most common way of settling on successful undertaking commencement choices. The outcomes showed that choice viability is an aftereffect of the adequacy of interaction and rule frameworks inside an association, and the organization of individual entertainers supporting the inception cycle. Office addresses the expectation, capacity and ability to act – and the comparing level of mindfulness – inside the standard climate of the association. Organization mirrors the readiness of entertainers to work inside, around or notwithstanding the prevailing principle framework. Office can attempt to help the impacts of interaction adequacy or rule viability, and office can likewise abrogate and make up for authoritative insufficiencies. Office can enhance rule adequacy where needed to help successful

choices in verifiably engaged conditions, and can likewise be compelled in unequivocally engaged conditions that have a solid interaction capacity set up.

Elsewhere, Tabot et al. (2020) study was embraced to inspect what participatory undertaking initiation means for maintainable backwoods the executives in Saboti timberland in Trans-Nzoia County, Kenya. The council individuals are a portrayal of neighborhood variety, and the commitment of all partners is regarded together. The administration perceived the authentic interests and privileges of different partners, and standard investigations are directed with counsel during improvement of planning. The investigation inferred that participatory venture inception had critical impact on reasonable timberland the board. Local area interest during the initiation stage was vital and critical.

2.3.2 Project Planning and Project Performance

Many studies have found that project planning is important and more often than not influences the performance of the project. It also established that resources used in the project are adequate and project managers' experience and skills in planning had an impact on the performance. Likewise planning tools are involved in the project and that estimated period (long term and short term) by managers in planning used in projects influenced, performance of construction projects.

PRM practises were studied by Crispm et al. (2019) in order to identify examples of their acceptance and provide experimental confirmation of the importance of authoritative PRM development for the implementation of risk-related practises and project execution. The varied circumstances of associate PRM development and undertaking complexity affect rehearsals decision, as shown by the differed examples

of hazard practises reception. The PRM rehearses linked with targets are the most used, and those identified with apparatuses and ways are the most un-utilized. As a result of the research, we can say with confidence that project complexity and hierarchical PRM development directly impact the usage of risk management approaches.

Research by Umulisa et al. (2015) emphasized the importance of a robust human resources plan for the success of the assignment. Clearly, the success of the project was influenced by the favorable interaction between the project parts' preparation and collaboration. Moreover, material and time arranging works on, including request situation, put orders checking, and arranged undertakings impacted the accomplishment of the task. The examination featured the various aspects of preparation that could fundamentally impact the accomplishment of development projects.

Amadi (2017) considered the relationship that existed between the inception of the tasks and their exhibition in Kakamega County. Local area Project Planning is a center phase of any improvement project. It is clear in the writing talked about that numerous viewpoints must be taken a gander at including local area interest, assets accessible, abilities required and the supportability of the task in the long haul. This are the fundamental factors that decide the achievement or disappointment of the Community project. In a systematic review of available studies, Serrador (2012) tracked down the relationship between planning and performance. He started by describing what is inferred by the masterminding stage and adventure accomplishment. Then, at that point, they researched composing that questions the advantage of arrangement and writing in the turn of events, programming headway,

and general endeavor the board districts. As a rule, the composing centers to a strong association among masterminding and undertaking a decent result. A rundown of the open examinations shows startlingly consistent accurate results for the relationship of planning and accomplishment. This shows a tremendous impact at whatever point diverged from the declared 20% with 33% effort spent on masterminding.

In a study by Naeem et al. (2018) planning was also explored and the job of venture anticipating the accomplishment of activities, they considered danger the executives' interceding job and culture's directing job. A positive connection between undertaking a good outcome and venture arranging was set up, noticing that powerful task arranging during the underlying phases of the undertaking life cycle essentially impacted the achievement of the said projects. The investigation especially highlights the need to design in the beginning phases of a venture and the requirement for project supervisors to guarantee that the arranging stage isn't neglected and designated adequate time and assets, which focuses the job of hazard the board during the arranging stage successfully.

In an examination by Simiyu (2018) to explore the job of undertaking the board rehearses on the accomplishment of horticultural ventures, it was tracked down that the distinctive task the executives rehearses impacted the achievement of the agrarian activities. The discoveries highlighted the job of undertaking M&E, arranging, execution, correspondence in the accomplishment of the activities. In particular, the arranging exercises completed by the undertaking execution group in the previous periods of the venture life cycle prompted altogether less difficulties as the task advanced. The members recognized that task arranging impacted the achievement of

the ventures by guaranteeing that the undertaking experienced less bottlenecks en route.

Ocharo and Kimathi (2018) study found that majority of electricity power projects had vital designs to direct their venture exercises and vision. Further, majority of these projects had statements of purpose, vision and guiding principle. These were key is deciding venture execution. The examination understood that undertaking arranging calls attention to the venture objectives, correspondence lattice, hazard the board plan, spending plan, project revealing, project checking and execution targets and sets out jobs and commitments of every player in the execution cycle. This was demonstrated by a mean of more than. Because of lack of common sense the undertakings have not been effective and meeting client and financing organization boundaries.

Another study in the construction industry by Ronoh (2020) focused on project planning. In this study as in other studies, project planning was significant. This infers that the achievement of any venture is profoundly impacted by the undertaking group entrusted with conveying it. Indeed, even the best-arranged activities might neglect to meet their targets if the task group doesn't perform as well as could be expected. Arranging was emphatically decidedly identified with project execution with huge impact when contrasted with different factors. The investigation presumed that unmistakably setting jobs and responsibilities regarding the venture group works on the exhibition of the undertaking. The accomplishment of any venture is exceptionally affected by the undertaking group entrusted with conveying it. Indeed, even the best-arranged activities might neglect to meet their targets if the task group doesn't perform as well as could be expected. The compelling turn of events and mix of the venture

group is fundamental in the achievement of a task, as it is the undertaking group who will be liable for the conveyance of the extension all through the undertaking life cycle.

2.3.3 Project Execution and Project Performance

Many researchers consider project execution as the most important stage in the project life cycle. According to multiple studies, failure of most projects can be attributed to poor project execution. An example of such as study is Oboreh (2019) study analyzed the issues and prospects of venture execution in Nigeria: proof from chosen development organizations working in south. Changes in Government strategy and Cultural factor no affected venture execution in Nigeria. The discoveries show that financial elements, political variables, and natural components have measurable critical impact on project execution in Nigeria. The McFadden R.sq of 62.14% demonstrates that there are different factors which have about 37.86% impact on project execution that isn't caught in this examination such like asset designation, project financing and task cost and absence of gifted work force. The consequences of this investigation upheld past examinations on the variables influencing project execution in Nigeria.

A study by Ocharo and Kimathi (2018) study inferred that the power projects in Kenya were not executed on time. The ventures were likewise generally executed far in excess of their arranged financial plan. A couple of them had accomplished undertaking objectives and targets. This shows a shortcoming in the execution of force projects since they didn't meet the planned objectives. It was additionally demonstrated that the activities they carried out were being utilized by the recipients. This infers few the activities were carried out and was the fate of utilization to the

recipients. It was understood that undertaking arranging is fundamental in project execution.

In another study, Matu et al. (2020) analyzed the impact of partner support in project execution on culmination of street projects. The discoveries of the current examination show that greater part of partners didn't partake in observing and controlling of task exercises, even though the public authority organizations liable for land obtaining and movement of administration lines effectively screen the exercises (Statement E-15). It is likewise obvious that the local area individuals are not excited about after up the development exercises hence their inclinations end up not being dealt with. In similar studies, Kweyu (2018) and Mutwiri et al. (2018) found that project execution had a statistically significant relationship with performance in power projects and CDF projects respectively.

2.3.4 Project Control and Project Performance

Project control is also important because it restricts those activities during project execution are being carried out within the parameters set in the initiation and planning phases. However, available studies suggest that project control is poorly conducted, and some projects do not conduct control activities at all. An example of such a study is Akindele (2019) study assessed the level of control practices in the building construction firms. It also analyzed the factors influencing the project control practices in the building construction firms. The results showed that the most prevalent control practices on time and cost by most construction firms in Lagos State is project control practices on planning, while monitoring, analyzing and reporting are not given due considerations. In addition, design changes and inflation price of building materials are the key factors influencing project control in the study area.

Heumann et al. (2015) tracked down that the senior administration level and the task the board level vary in the utilization of control style however not in the utilization of control modes. The recognized a few factors that impact the decision of a specific control style, and they tracked down that ranking director can impact project exercises on lower levels by executing controls that can be promptly copied by project pioneers just as sent through progressive levels with little contortion. An examination by Rezania et al. (2016) investigated the effect of symptomatic frameworks, intuitive frameworks, convictions frameworks and limit frameworks on project execution and investigate the relationship between control switches.

Beck and Schott (2012) utilized an exploratory single-contextual investigation configuration to examine how formal and casual control components and interorganizational learning associate and add to the alleviation of social contrasts in worldwide, multisource, data frameworks improvement reevaluating projects. The key finding was that the impact of casual controls and interorganizational learning on proper controls changes over the long run.

Ndagi et al. (2016) tracked down that the greater part of the activities of this nature didn't fuse observing and assessment rehearses both in the arranging stages and in the field, and that seemed to affect the presentation of these tasks. The discoveries highlighted the job of checking and assessment arranging and the job of including the critical partners in the accomplishment of the ventures. monitoring and evaluation activities vigorously depends on the data from the field just as from the key partners, for example, the ranchers and the missing connection between the execution officials and the ranchers seriously affected the monitoring and evaluation activities arranging measure and therefore project execution. The examination presumed that monitoring

and evaluation activities arranging should be consolidated into the activities, and there ought to be a functioning connection between the key partners.

Phiri's (2015) study explored the job of checking and assessment of the achievement of African Virtual University projects. Phiri noticed that not exclusively was monitoring and evaluation basic in the accomplishment of these ventures, yet the full and efficient execution was expected to understand the possible advantages from these tasks. It was recommended that when foundations execute projects, it is significant that the checking and assessment capacities be done by a set up unit inside the association and not as a transitory capacity of the various ventures being carried out.

Waithera and Wanyoike (2015) recognized the measurably critical impact of M&E activities on the exhibition of the ventures in situations where the adolescents carrying out the tasks had gotten checking and assessment preparing. It was clear that some venture chiefs/groups neglect to carry out monitoring and evaluation activities capacities since they come up short on the imperative information and expertise, and the preparation overcame any barrier and prompted a huge execution help in the activities inspected. In that capacity, when the undertaking group doesn't have qualified staff to do the monitoring and evaluation activities work, offer schooling or preparing on something similar to further develop project execution.

Ngatia's (2016) examination discovered that M&E activities was a significant part of the accomplishment of such undertakings, and there were remarkable difficulties principally attached to the establishments carrying out the activities. The difficulties were ordered as the institutional determinants of viable participatory monitoring and evaluation activities and included lacking assets to pay the monitoring and evaluation

activities board of trustees their stipends and to work with their coordination while moving around the undertaking execution regions. The institutional difficulties seriously debilitated the monitoring and evaluation activities work prompting helpless execution of the M&E activities exercises and therefore influenced the exhibition of the ventures in Kibera.

In Nzigu and Karanja's (2018) study, regardless of the prominent importance, most undertakings did not have a powerful monitoring and evaluation activities work. an assessment of the distinctive gated local area development projects in the district uncovered the way that most undertakings didn't have a financial plan for the monitoring and evaluation activities work. The scientists unequivocally suggested that project proprietors and supervisors ought to incorporate a budgetary allotment for the capacity and the utilization of the generally utilized and suggested monitoring and evaluation activities devices like the financial plan, intelligent structure, and the undertaking's essential arrangement while guaranteeing that the exercises are persistent from the beginning to the furthest limit of the task

From the discoveries of Ocharo and Kimathi (2018), majority of power projects in Kenya were found to have an assessment plan and devices. From the discoveries led, majority of the projects of the undertakings had a checking plan and devices to empower project observing, timetable, financial plan and extension the executives. This empowered supervisors to accomplish project objectives have a serviceable correspondence network, work with project revealing and criticism instrument. Anyway, countless them didn't have a functioning observing arrangement thus project cost invades and rescheduling. Observing was observed to be frail and not foundational among the force project which makes balanced governance not norm.

Triumphs and difficulties were not being imparted in many tasks which influenced the execution of force projects contrarily influenced. Participatory techniques were predominantly used to assessment. Addressing approach was utilized to guarantee consistence and partner trust in working with the tasks. Given the cozy connection among assessment and observing, given helpless checking system, assessment was likewise not given the weight it merited. Appraisal, follow up, assessment and input were not handed-off to the partners, subsidizing offices and even representatives which made it difficult to interest for results and responsibility.

The examination discoveries of Ronoh (2020) because of task observing and assessment on project execution showed that greater part of the respondents were of the assessment that the utilization of the suitable checking apparatuses adds to viable venture time and cost the board. The examination inferred that the utilization of fitting checking devices adds to compelling task time and cost the executives. The observing system is major to the cycle and venture ID just as an urgent expansion to the hierarchical learning and criticism.

2.3.5 Project Management Processes and Project Performance

Most researchers agree that project management process affect project performance. However, researchers are not in agreement on the most important processes and the strength of relationships. One such study was conducted by Kissi and Ansah (2013) who reviewed existing literature on factors influencing the expert undertaking in project management African nations. The arising requirements to improvement of undertaking the executives rehearses in non-industrial nations are misconception of the PM ideas by experts, absence of satisfactory information, high regulatory postponements, political and monetary difficulties, authority and association contrasts

just as absence of suitable programming. Badewi et al. (2016) recommend that a critical extent of associations take on PM and BM simultaneously, SEM was utilized. PM rehearses were found to impact project the board accomplishment as well as to influence project speculation achievement. In any case, BM is observed to be less huge and to a small extent affect project speculation achievement. By and by, the likelihood of venture achievement is upgraded altogether when PM and BM rehearse are joined together. Hence, an administration-based structure is created to reveal the interlacing connection between the two practices.

Fraz et al. (2016) investigation broke down the impact of degree the executives, hr the board, interchanges the executives, partner the board and undertaking anticipating project achievement. The investigation set up that project achievement is emphatically associated with pm rehearses in specially make associations. The private area and public area associations follow the task the board practices in a similar way and there is no huge distinction in the works on being trailed by them

In Ahadzie and Amoa-Mensah (2010), study, the proof accumulated recommends that, proficient task the board administrations, exuding from project initiation to finish might conceivably help in limiting the impacts of a portion of the vital administrative difficulties. Hassan, Ojeniyi and Razalli (2015) investigated project the board procedures in rethinking best practices inside Malaysia fabricating area. The aftereffect of this investigation recognized seven significant undertaking the board procedures for reevaluating best practices in particular correspondence the executives, execution the executives, information moves the executives, relationship the executives, emergency the executives, hazard the board and cost the executives.

Conforto et al. (2014) research paper introduced proof from an exploratory study on the utilization of nimble task the executives (APM) rehearses and the presence of APM empowering agents in 19 medium-and enormous estimated organizations from various industry areas thinking about imaginative undertakings. The outcomes showed that these organizations are perhaps battling to utilize their present administration rehearses even with various task difficulties. Also, the presence of some APM empowering influences shows freedoms to adjust the APM hypothesis for various organizations other than those in programming advancement. The reason for Kagaari et al. (2010) study was to set up the connection between execution the board rehearses, worker mentalities and oversaw execution. The paper uncovered that presentation the executive's practices and worker mentalities are urgent for accomplishment of oversaw execution in state funded colleges.

Njiru (2018) investigation set up a positive and huge connection between partner cooperation, authority backing, correspondence and asset portion and undertaking execution. The investigation infers that local area support during execution of undertakings in assembling organizations is an imperative as it prompts better results for all partners, partner proprietorship and lower project costs. Administration support is viewed as one of the basic achievement factors in project execution, compelling leader contribution can essentially further develop project achievement. Keeping up with open, ordinary and exact channels of correspondence with all degrees of task staff and partners is fundamental to guaranteeing the viable execution of capital consumption projects. Portion of assets assists administrators with uniting more useful and powerful venture groups and workgroups and empowers them to evaluate their timetables and effectively gauge asset accessibility continuously

An investigation by Bakar et al. (2011) study examines project the board best practices took on by project chiefs in Penang, Malaysia. This investigation set up 28 undertaking the executive's best practices that are altogether connected with the presentation of tasks took care of by lodging designer firms in Penang. It suggests a few significant ventures the executives best practices that project administrator ought to embrace when undertaking projects. The main practices identify with scope the executives and time usage which contribute essentially to diminish surrender of lodging projects and can help in lessening disappointments in project fruition and along these lines, contribute being developed of the lodging business. The result of this examination shows that, to accomplish unrivaled task execution in lodging improvement, accentuation should be given to scope the board and using time productively because it is an upstream action that influences other downstream exercises and venture yield. The one-of-a-kind task the executive's best practices to be taken on in lodging improvement projects are those identifying with hazard the board. Lodging engineer firms need to control work the executives' hazard and power asset supply hazard. The suggested project the board best practices might fill in as a manual for project directors to further develop their lodging advancement project execution in Penang

2.4 Summary of Gaps

All reviewed studies agreed that project management processes affect performance of the projects but the way in this effect occurred was varied. Some studies suggest that project execution is the most affecting of the project management processes while others identify project initiation as the most critical. The main gap identified in review of literature is the fact that majority of existing studies were conducted in private

companies and many of them outside Kenya. In addition, only a few of them were conducted in the construction field and majority were in the information technology, health and community development projects. The researcher did not come across any study conducted in infrastructural projects in county governments.

Table 1.1 Summary of Gaps

Author	Focus of the study	Findings of the study	Knowledge gap	Filling the knowledge gap
Afolabi (2018)	Complexities in initiation of information system projects	Project initiation was significant	The focus of this study was projects in the information, communication technology sector	This study focuses on infrastructure projects
Islam et al. (2011)	Effect of project initiation on project success in Bangladesh.	Project initiation has a strong positive effect on project success	Only projects in Bangladesh were used.	This study will be conducted among projects in Kenya
Mullaly (2013)	Exploring the personal dynamics of project initiation decisions	Agency influenced project initiation	Link between project initiation and project performance not investigated	One of the objectives of this study is to find the influence between initiation and performance
Serrador (2013)	Systematic review on project planning	There was a strong link between planning and project success.	Secondary data from past studies was used	This study relies on primary data
Amadi (2017)	Association of planning in Community Projects and their performance	Project Planning is a core stage of any development project.	The focus of this study as community projects	This study focuses on infrastructure projects
Nadeem et al. (2018)	Relationship between planning and success	Planning and performance of projects have a positive and significant relationship	This study was conducted among construction businesses of Pakistan and the UK	This study will be conducted among projects in Kenya
Ronoh (2020)	Effect of PM practices on performance	Project planning is influential on project performance	Only residential construction projects were included in this study	This study focuses on all infrastructure projects
Matu et al. (2020)	Role of stakeholders in project initiation	Stakeholder participation was significant	The dependent variable was project initiation	The study will determine the relationship between project execution and project performance.

Kweyu (2018)	Project management of projects initiated by Kenya power	Project execution was significant	This study was conducted in the energy sector	This study focuses on public infrastructure projects
Mutwiri et al. (2018)	Project management and success of CDF projects	Project execution was significant	This study was conducted among CDF projects which differ greatly from those initiated by counties	This study focuses infrastructure projects executed by a county government
Ndagi et al. (2016)	Effect of M&E on public project performance	M&E was significant	Counties were not included among public organisation projects	This study focuses infrastructure projects executed by a county government
Phiri (2015)	Effect of M&E on university project performance	M&E was significant.	The projects in this study were initiated by a private company	This study focuses infrastructure projects executed by a county government

2.5 Conceptual Framework

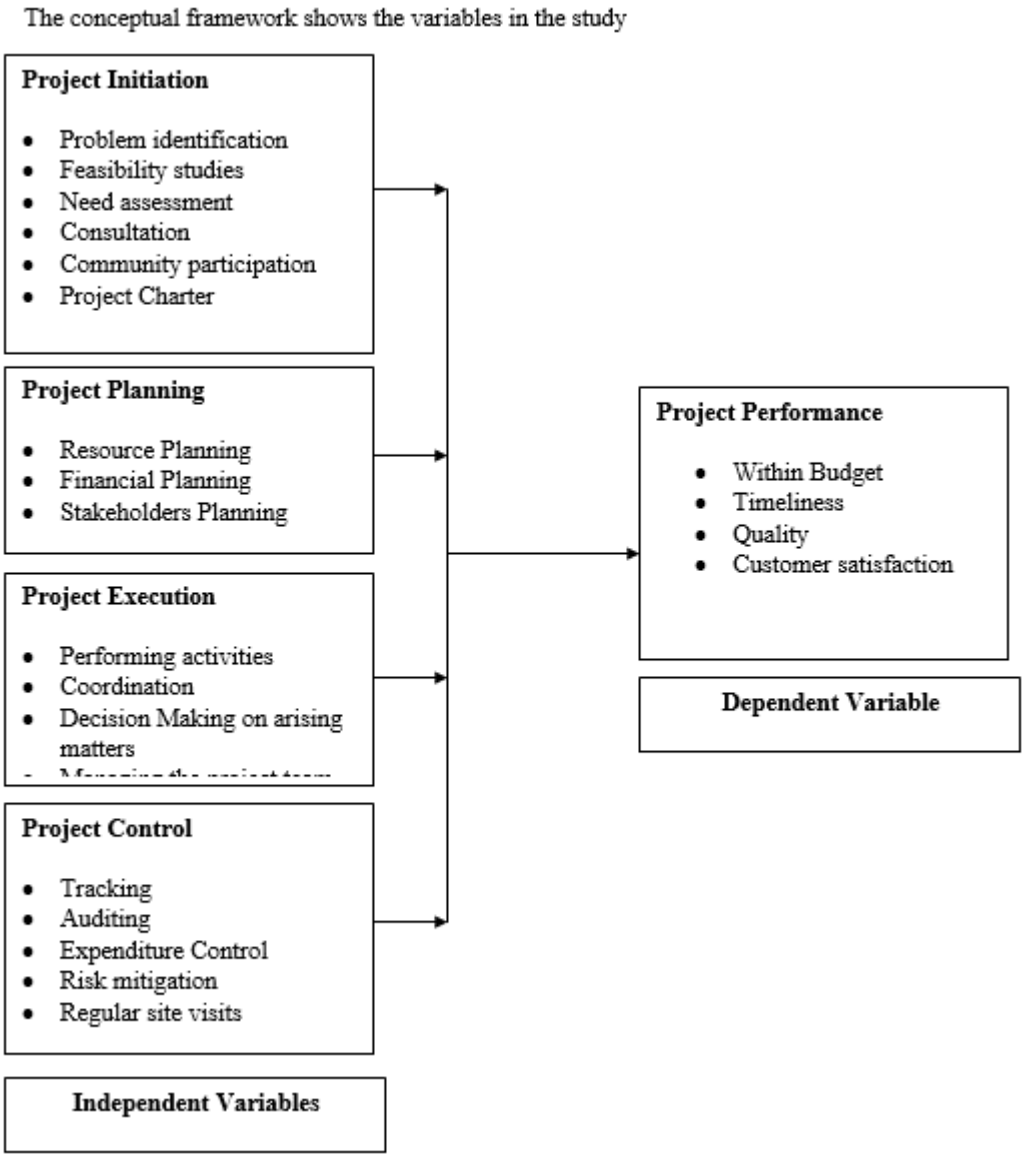

Figure 1.1 Conceptual Framework

This study is concerned with project management processes and how the said processes influence performance of projects. Project management processes selected for this study include initiation, planning, execution, and control and therefore comprised the independent variables while project performance is the dependent variable. Management of projects begins with the launch of a project. First, the project

stakeholders come together to discuss the project's aims, results and criteria for project success. A primary goal of this investigation is to determine how initiation and performance are linked.

The ideation phase of a project is a crucial part of the overall project management process (Islam et al., 2011). Using a project plan, project managers may predict the amount of time they'll need to complete the project, and then prepare appropriately. Effective project planning improves the overall efficiency of a company, decreases risk, and enhances project performance when it is done correctly (Matu *et al.*, 2020). This study will investigate the link between performance and execution.

As a part of the project life cycle, project execution plays a critical role (Crispm et al., 2019). It is at this phase of a project's life cycle that the project's plan is put into action. As at this point in the project cycle, the planning phase has come to an end (Serrador, 2013). Multiple studies have found that project execution is both the most time-consuming and the most critical stage of a project.

Project control is project management process that involves comparison of the observed performance with what was planned for in the project initiation and planning stages and taking corrective actions where necessary (Mishakkova *et al.,* 2016). Project controls may vary by industry and organization but always give a method to successfully finish a project and to deliver cost, time, and performance advantages (Azimi *et al.*, 2012). According to multiple authors, project controls provide a comprehensive overview of the projects and can constructively influence time and cost outcomes.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter includes the research design, the study population and sampling designs. It also includes data collection instruments and procedures are also highlighted along with analysis methods and techniques. In addition, ethical principles relevant to the study are highlighted.

3.2 Research Design

The study's design outlines the methods that will be utilized to effectively gather and analyze data in order to meet the study's objectives (Kumar, 2018). According to Flick (2015), research design is essential because it enables the smooth operation of the many research activities, allowing for the most effective and efficient use of resources (effort, time, and money) while still producing the greatest amount of information. The current study used a descriptive cross-sectional design to carry it out. The current study used a quantitative methodology. This design was chosen because it offers the researcher ease, cheap cost, and quick results (Nayak & Singh, 2021).

3.3 Target Population

Target population comprises people or objects who are being investigating and from whom conclusions are drawn (Burns, 2010). This study targeted infrastructural projects in Meru County. In this study, infrastructural projects in Meru County were the units of observation while project management committee members were the units of analysis. There were 94 infrastructural projects going on in the county of Meru as shown in Table 3.1 (County Government of Meru, 2021).

Table 0.1 Target Population

Type of Project	Number
Roads	38
Housing	29
Water	17
Information communication and technology	7
Electricity	3
Total	94

Source: County Government of Meru (2021)

3.4 Sampling Design

Sampling is a process of picking individual members or a population subset to produce statistical conclusions and assess the characteristics of the entire population (Taherdoost, 2016). The goal of the sample is to represent key characteristics of a larger group in order for researchers to draw conclusions about a larger population (Etikan & Bala, 2016). While deliberate sampling would be utilized to identify respondents, stratified random sampling (SRS) was used to sample the projects. Acharya et al. (2013) indicates that SRS involves division of the population into sections or categories known as strata and then sampling from each strata to ensure that groups, persons or objects in each strata are represented in the final sample. In this study, the type of project comprised the strata from which 30% in each strata will be used as advised by Mugenda and Mugenda (2012).

Table 0.2 Sampling Frame

Type	Population	Sample)
Roads	38	11
Housing	29	9
Water	17	5
ICT	7	2
Electricity	3	1
Total	94	28

As shown in Table 3.2, 28 projects were used in the study. The 28 projects were selected by lottery method using Microsoft excel. From the selected projects, 5 project management committee members including the project manager, technical lead, monitoring and evaluation officer, administration representative as well as one other stakeholder such as a community remember were purposefully recruited in the study. This study thus had 140 respondents.

3.5 Data Collection Instruments

Data in this study was conducted using a structured questionnaire. The questionnaire was both self and interviewer- administered. The questionnaire was developed by the principal investigator and contained several parts according to the variables of the study. The researcher found it simpler to collect data quickly from a large number of people by using a questionnaire.

3.5.1 Pretesting

Pretesting is a step-in investigation is to verify the reliability and validity, before the final distribution, of survey instruments, by the examination questions and questionnaires on the members of study population (Hilton, 2017). In this study, a pretest was conducted in infrastructure projects in Embu County. Embu County was selected for this exercise due to the similarities in the type and nature of projects

initiated in the two counties. It is recommended that the number of respondents in a sample be a tenth of the main sample (Grimm, 2010). The researcher therefore used 9 infrastructural projects in Embu County and had a sample of 45 respondents.

3.5.2 Instrument Validity

Cohen, Manion and Morrison (2017), validity is essential since it selects the survey questions to employ and helps to make sure that researchers utilize topics that really assess relevant issues. There are many types of validity and the most appropriate types of validity in this study included face, content and construct validity are the most appropriate. To ensure that the questionnaire in the study meets these types of validity, expert judgment was sought.

3.5.3 Instrument Reliability

Reliability involves the consistency and repeatability of data collected. To establish reliability in this study, data collected in the pre-test was analysed using SPSS. Cronbach's alpha indicated the level of reliability. This is a statistical coefficient used in scale analysis that measures the internal consistency of items in the questionnaire and can therefore be used to measure reliability. Many authors such as Bonett and Wright (2015), Eisinga et al. (2013) and Heale and Twycross (2015) recommend a threshold of 0.7. Therefore, in this study, a Cronbach's alpha coefficient of 0.7 and above was used to indicate reliability. Items below this score were rephrased or deleted. An average coefficient of 0.73 was obtained from analysis as shown in Table 3.3.

Table 0.3 Reliability Results

Variable	Number of items	Cronbach's alpha coefficient
Project performance	4	0.77
Project initiation	8	0.74
Project planning	8	0.71
Project execution	8	0.73
Project control	6	0.71
Total	**30**	**0.732**

3.6 Data Collection Procedure

Necessary permits to conduct the study from the necessary bodies were sought. The researcher obtained the contacts of project managers of participating projects who were contacted to inform them of the study. The researcher then looked for the project managers and distributed questionnaire and administer questionnaires where appropriate. Five research assistants were employed to help the researcher get data from all of the respondents in a timely manner. The assistants aided the researcher in collecting data as well as data entry. To train the assistants, the researcher involved them in the pretest. Once a potential respondent was identified, the researcher or the research assistant informed them of the study including the purpose of the study and the procedure involved. During this process, the researcher answered any questions posed to him by the respondent. The researcher asked the respondent to provide consent where once granted, they were asked whether they prefer to fill the questionnaire themselves or with help from the researcher. Due to distance considerations, some questionnaires were sent electronically via email for respondents living very far. The data collection process took 2 months.

3.7 Data Analysis and Presentation

Descriptive and regression analyses were used to examine the data acquired for this investigation. Use of descriptive statistics like percentages, mean values, and standard deviation was depended upon for analysis of the kind and degree to which projects carry out project start and control. The multiple linear regression model was employed to determine the link between PMPs and project performance. The study's model is depicted in the table below.

$$\mathbf{Y= \beta_0+ \beta_1 PI_1 + \beta_2 PP_2 + \beta_3 PE_3 + \beta_4 PC_4+ \varepsilon}$$

Where: Y represents the dependent variable which in this study was project performance of infrastructural projects, β_0 stands for constant which represents what project performance would be if project management processes were not implemented. β is the mathematical symbol for beta value which is the average weight of each of the predictors. In this study, the beta value indicated how much each variable contributes to project performance. Also known as the residual, ε is the mathematical symbol for error term. It indicates the level of uncertainty in the model. In this study, the error term represented other factors affecting project performance which are not accommodated in the model. Analysis was conducted using SPSS at 5% level of significance.

Diagnostic tests namely normality, multicollinearity and autocorrelation were conducted to ensure that the data meets the assumptions of regression. Normality is a property of a random variable that is distributed according to the normal distribution (Veroniki et al., 2022). In this study, normality was assessed using skewness and kurtosis. Linearity refers to the fact that the connection between the predictors and the result variables in a regression analysis is linear (Chung et al., 2020). Scatter plots

were used to assess linearity in this investigation. "Multicollinearity" refers to an instance in which several regression models contain correlated predictors, which suggests that two or more explanatory variables are highly linearly connected (Nattino et al., 2020). Using variance inflation factor (VIF) values, we'll be able to test for multicollinearity in this study. An autocorrelation test was performed using the Durbin-Watson test.

3.8 Ethical Consideration

The study was approved by the school of business of Kenyatta University. A research permit allowing the researcher to conduct the study was sought from the NACOSTI. The county government of Meru was also contacted to obtain permission to collect data. The study was conducted on a voluntary basis subject to providing verbal consent. Respondents were assured of anonymity and confidentiality. The results of the study are meant for academic purposes.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The findings of this study, which looked at how project management practices affected the performance of infrastructure projects in Meru County, are presented in this chapter along with a summary of the study's methodology.

4.2 Response Rate

Figure 4.1 shows the response rate.

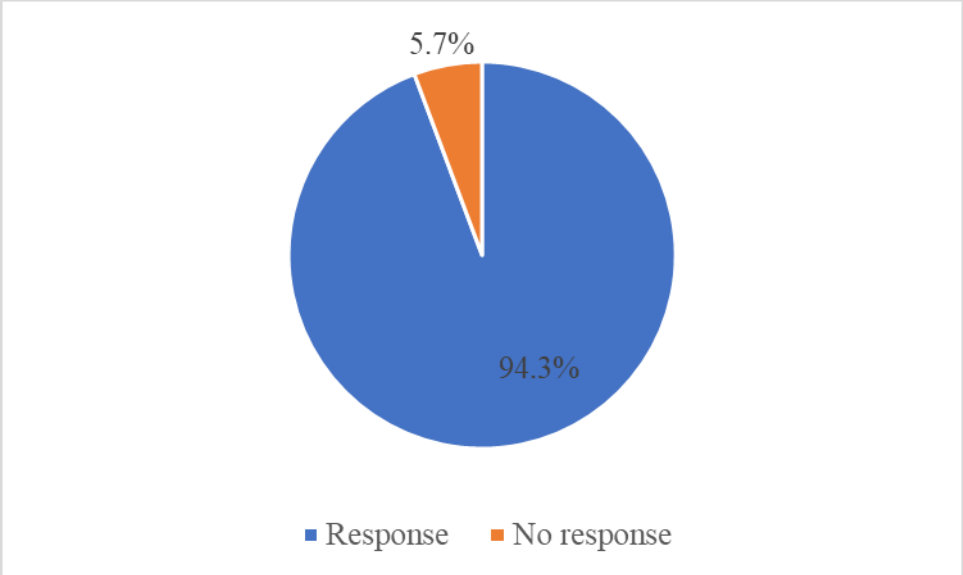

Figure 0.1 Response Rate

Source: Research Data (2021)

A total of 132 respondents were involved in the study which represents a response rate of 94.3%. This is an acceptable response rate since its higher than Mugenda and Mugenda (2010) recommendation of 70%.

4.3 Demographic Characteristics of Respondents

Demographic information on the study's respondents was gathered. This covered things like gender, age, educational attainment, and employment history.

4.3.1 Distribution of Respondents by Gender

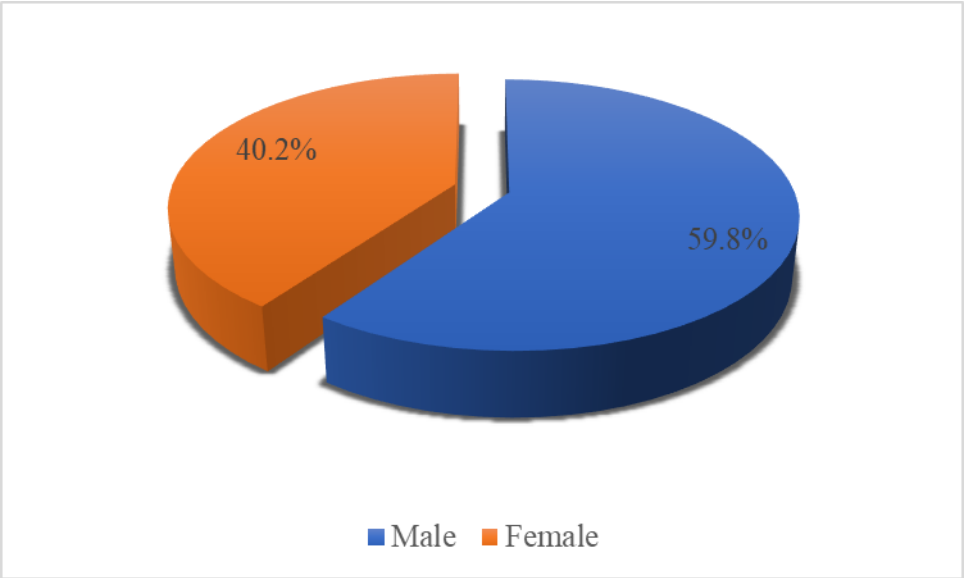

Figure 0.2 Distribution of Respondents by Gender

Source: Research Data (2021)

Slightly above half (59.8%) of the respondents in the study were male while 40.2% were female. This shows that the sample included both men and women. The results show that the composition of project management committee members in Meru County had a gender parity where men far outnumbered the women.

4.3.2 Distribution of Respondents by Age

Figure 4.3 shows the respondents' age.

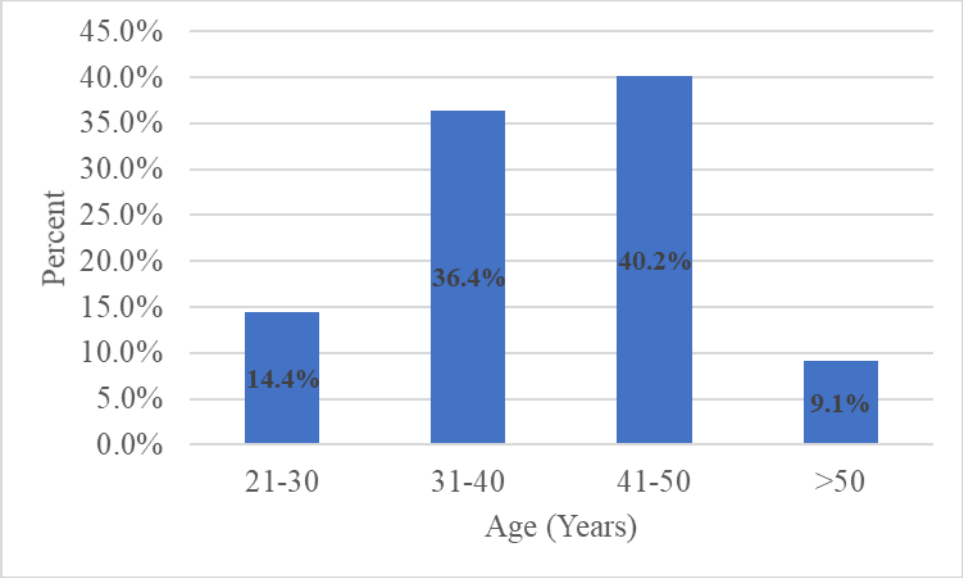

Figure 0.3 Distribution of Respondents by Age

Source: Research Data (2021)

Figure 4.3 shows that 40.2% of respondents were aged 41-50, whereas 36.4% were between the ages of 31- 40. These results therefore show that the sample included members of varying age groups with a majority being middle aged.

4.3.3 Distribution of Respondents by Level of Education

The respondents' greatest degree of schooling is represented in Table 4.1.

Table 0.1 Distribution of Respondents by Level of Education

Level of Education	Frequency	Percent
Secondary	45	34.1
College diploma	66	50.0
Bachelor's degree	12	9.1
Post graduate degree	9	6.8

Source: Research Data (2021)

The data show that 50 percent of the respondents had a diploma, while 34.1 percent had completed secondary education. According to the findings, all of the participants in the study had at least a basic education, allowing them to react creatively to the questions posed in the study.

4.3.4 Distribution of Respondents by Working Experience

In order to determine respondents' employment experience, the survey asked them to specify how long they had been employed. Figure 4.4 presents the findings.

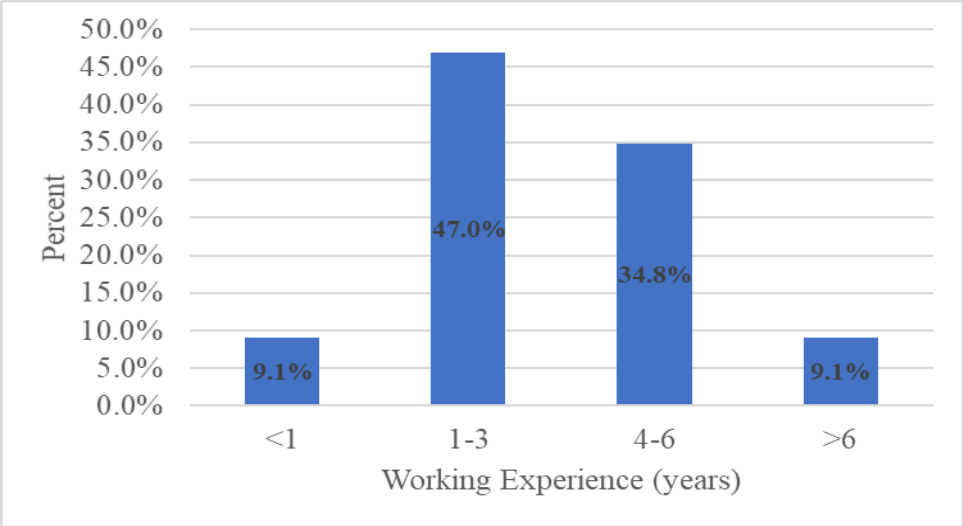

Figure 0.4: **Respondent's by Working Experience**

Figure 4.4's findings demonstrate that 47 percent of respondents had between one and three years' experience, while 34.8% had between four and six. The results in this

section therefore show that the respondents were well educated and experienced to enable them to provide resourceful information regarding project management processes and project performance. among infrastructure projects in Meru County.

4.4 Descriptive Statistics for the Study Variables

4.4.1 Project Performance

The researcher tried to gauge how well the initiatives included in the study were doing in order to make it possible to attain this goal.

4.4.1.1 Type of Projects

Figure 4.5 shows the type of projects from where the respondents were drawn.

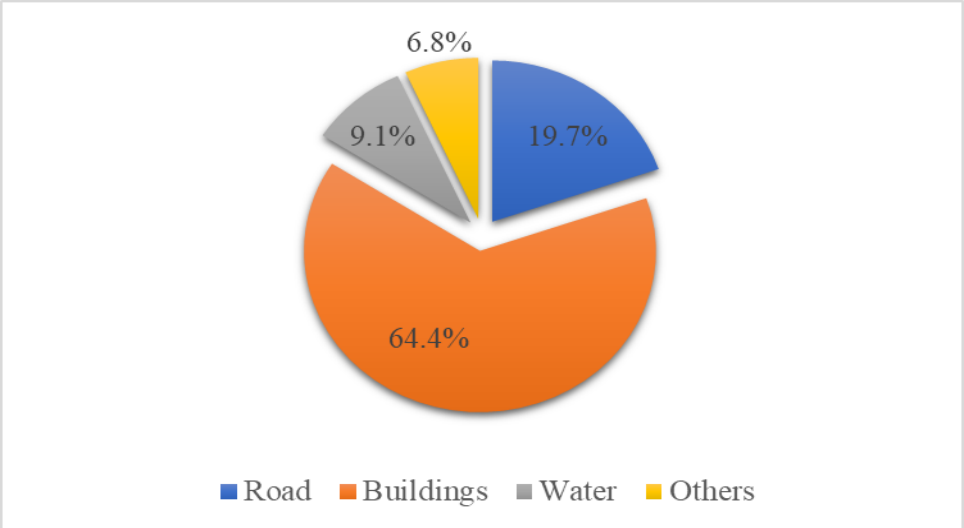

Figure 0.5: Type of Projects

Majority (64.4%) of the projects in the study were buildings. As shown in Figure 4.2, 19.7% were road constructions while 9.1% were water related projects.

4.4.1.2 Beginning of Project

The researcher was interested in learning the start date of the project that the respondent was working on.

Table 0.2: Beginning of Project

Number of years	Frequency	Percent
1-5	17	12.9
6-10	58	43.9
11-15	46	34.8
Over 15	11	8.3
Total	132	100.0

Source: Research Data (2021)

Slightly below half (43.9%) of the respondents indicated that their project had begun between 6 and 10 years while 34.8% indicated that their project had begun between 11 and 15 years ago. The mean number of years was 8.

4.4.1.3 Completion of Project

The researcher was interested in learning when the project the responder was working on was finished.

Table 0.3 Completion of Project

Number of years	Frequency	Percent
1-3	29	60.4
4-6	19	39.6
Total	48	100.0

As shown in Table 4.3, only 48 (36.4%) were completed. Among the completed projects, majority (60.4%) had been completed between 1 and 3 years prior to the study. The mean number of years was 3.

4.4.1.4 Adherence to Budget

The study sought to find out if the project in which the respondent was involved adhered to the budget.

Table 0.4 Adherence to Budget

Budgeted Amount	Actual Amount
110.45M	162.43M

Source: Research Data (2021)

The mean budgeted amount for the projects was KES 110.45M while the actual amount was KES 162.43M. This shows that there was a budget overrun in the county projects.

4.4.1.5 Project Performance

Several questions about the projects they were participating in were posed to study respondents in order to gauge how well the projects in the research were performing. Table 4.5 presents the findings.

Table 0.5: Project Performance

Statement	SA	A	U	D	SD	M	StdD
The project was completed within the provided budget.	14.4	18.2	9.1	33.3	25.0	3.36	1.405
The project was completed within the scheduled time	12.9	7.6	4.5	42.4	32.6	3.74	1.334
The project was completed within the desired quality	16.7	11.4	6.1	50.8	15.2	3.36	1.332
The projects met customer ‘s satisfaction.	17.4	12.9	4.5	40.2	25.0	3.42	1.436
Average						**3.47**	**1.377**

Results from Table 4.5 show that 25% of respondents strongly disagreed with the statement that the project was finished within the allocated budget, with a mean of 33.3% disagreeing and a standard deviation of 1.405. With a mean of 3.74 and a standard deviation of 1.334, the results suggest that 42.4% disagreed and 32.6% strongly disagreed that the projects were finished on time. With a mean of 3.36 and a standard deviation of 1.332, slightly more than half (50.8%) disputed that the project was performed within the specified quality. In addition, a mean score of 3.42 and a standard deviation of 1.436 were reported, with 40.2% disagreeing and 25% strongly disagreeing that projects had met customers' expectations. The average mean was 3.47, and the standard deviation was 1.377, which points to a discrepancy with the table's components that indicate subpar performance. Items in Table 4.5 were tallied up to determine how well the initiatives performed.

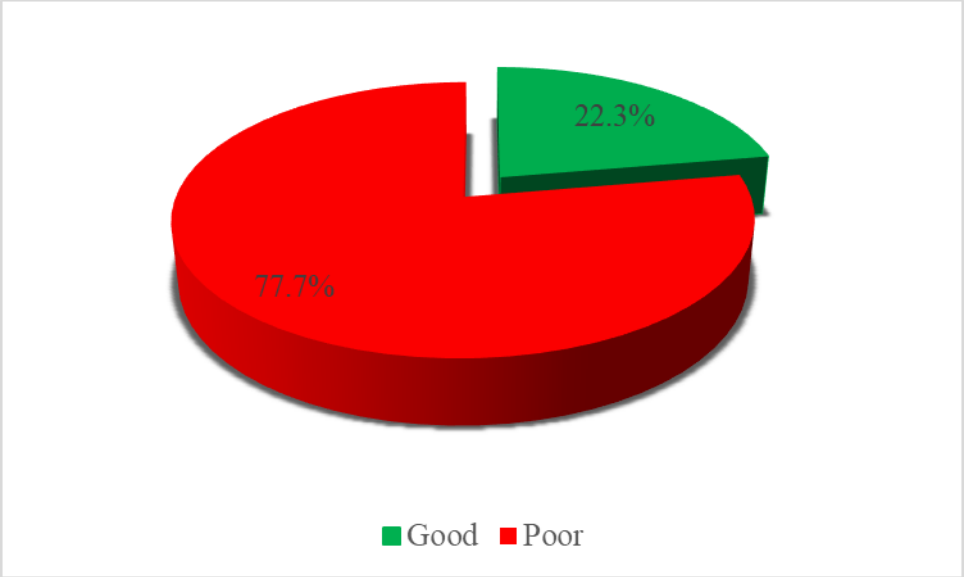

Figure 0.6 Project Performance

Source: Research Data (2021)

Results in Figure 4.3 show that the majority (77.7%) of the projects had poor performance. This result agrees with findings of other studies carried out in other counties which found poor performance of most county funded projects (Kimanthi, 2016; Otieno (2017) Kithinji, 2017); Kariithi and Mbugua, 2018)

4.4.2 Project Initiation

In order to ascertain how project beginning affects project performance across infrastructure projects in Meru County, Kenya, the study set out to develop best practices for project initiation. Table 4.6 provides the findings.

Table 0.6 Project Initiation Practices

Statement	SA	A	U	D	SD	M	StdD
Project feasibility studies were done	44.7	33.3	4.5	9.8	7.6	1.93	1.305
Objectives determined	35.6	38.6	7.6	7.6	10.6	2.14	1.211
Project scope determined	50.0	30.3	1.5	10.6	7.6	1.67	1.109
Financial resources allocated	37.9	28.0	6.8	15.9	11.4	2.67	1.413
Stakeholders identified	59.8	24.2	9.1	3.0	3.8	1.79	1.333
Meetings held	62.9	19.7	4.5	6.8	6.1	1.66	1.506
Risks Identified	30.3	16.7	3.0	29.5	20.5	3.61	1.971
Project charter developed	17.4	19.7	7.6	35.6	19.7	3.54	1.818
Average						**2.38**	**1.458**

Source: Research Data (2021)

According to the results in Table 4.6, 44.7 percent of respondents strongly agreed, whereas 33.3 percent agreed that project feasibility studies were conducted, this recorded a mean of 1.93 and a SD of 1.305. Similarly, 35.6 percent of respondents strongly agreed, and 28.6 percent agreed that the project's objectives were met during its start phase, a mean of 2.14 and a SD of 1.211 was recorded. As seen in Table 4.6, half of respondents (50 percent) strongly agreed, and 30.3 percent agreed that the scope of the project was decided at the commencement phase. According to the results, 37.9 percent of respondents strongly agreed and 28% agreed that appropriate financial resources were set aside during the project's start phase, a mean of 2.67 and a std deviation 1.413 was recorded. Slightly more than half of respondents (59.8 percent) strongly agreed that stakeholders were identified prior to the project's start. Additionally, the majority (62.9 percent) of respondents reported that regular meetings with structured agendas were planned prior to the project's start. According to the results, 30.3 percent of respondents strongly agreed that the project team recognized all potential hazards that may jeopardize its success, whereas 29.5 percent disagreed. Additionally, the results indicate that 35.6 percent of respondents disagreed, and 19.7 percent strongly disagreed that a project charter was established.

The average mean of 2.38 and SD of 1.458 shows a agreement with project initiation items. This suggests that the vast majority project initiation activities were carried out. This finding is therefore in disagreement with findings of multiple studies such as Islam et al. (2011), Mullaly (2013), Afolabi (2018) and Mutwiri et al. (2018) which show that project initiation is poorly conducted usually skipping key steps and lacking critical support documents and this ultimately affects its performance.

4.4.3 Project Planning

The study assessed project planning activities in order to learn how project planning impacted the accomplishment of infrastructure projects in Kenya's Meru County. The results are presented in Table 4.7.

Table 0.7 Project Planning Practices

Statement	SA	A	U	D	SD	M	StdD
Project requirements were determined at the planning stage	37.1	28.8	7.6	14.4	12.1	2.5	1.952
Stakeholders were involved in all stages of planning	28.8	31.1	9.1	16.7	14.4	2.8	2.101
The budgeted price tag to be incurred at the completion of the plan was specified	65.9	29.5	4.5	0.0	0.0	1.4	1.306
Resource requirements needed in execution were planned for	54.5	31.1	3.0	6.1	5.3	1.6	1.589
All procurement needs were conducted	32.6	37.1	0.0	14.4	15.9	2.1	1.817
Action plans designed	37.1	29.5	1.5	16.7	15.2	1.9	1.703
Possible risks and mitigation strategies were evaluated	28.0	15.2	16.7	21.2	18.9	3.0	2.208
A project plan was developed	17.4	32.6	3.0	26.5	20.5	2.1	1.877
Average						**2.18**	**1.819**

According to the results, 37.1 percent of respondents strongly agreed, and 28.8 percent agreed that project needs were established during the planning stage, this recorded a mean of 2.5 and SD of 1.952. Similarly, 31.1 percent agreed, and 28.8 percent strongly agreed that stakeholders were included in all stages of planning, a mean of 2.8 and SD of 2.101 was recorded. The majority (65.9 percent) of respondents responded that the budgeted cost associated with the plan's completion was mentioned. Slightly more than half (54.5 percent) of respondents believed that execution resource needs were anticipated. The results indicate that 37.1 percent of respondents agreed, and 32.6 percent strongly agreed that all procurement requirements were met prior to the project's execution. 37.1 percent of respondents strongly agreed, and 29.5 percent agreed that action plans were created during the planning stage. The results indicate that 28% of respondents strongly agreed, while 21.2 percent disagreed, that potential risks and mitigation methods were considered. According to the results, 32.6 percent of respondents agreed, and 26.5 percent disagreed that a project plan was prepared. At the planning stage, obstacles such as a lack of financial resources, ineffective budgeting, and conflicting stakeholder interests were discovered.

The average mean of 2.18 and a SD of 1.819 indicates a high agreement with items in Table 4.7. This means that respondents agreed to most of the project planning indicators. This implies that project planning activities were extensively carried out in the projects taking part in the study. Activities to which majority of respondents agreed to included designing of action plans, development of a project plan and specification of budgeted price tag to be incurred at the completion of the plan. These results therefore show good project planning practices. This is in line with the findings of Crispm et al. (2019) and Mwanza et al. (2020), who demonstrated

effective project planning activity execution. The outcome contrasts with research by Umulisa et al. (2015), Amadi (2017), and Simiyu (2018), which identified inadequate project planning procedures.

4.4.4 Project Execution

In order to determine the impact of project execution on project performance among infrastructure projects in Meru County, Kenya, project execution procedures were evaluated for the study. Table 4.8 provides the findings.

Table 0.8 Project Execution and Project Performance

Statement	SA	A	U	D	SD	M	StdD
Required resources were procured	68.2	20.5	0.0	6.8	4.5	1.49	1.417
During the project's execution, human resources are well coordinated.	58.3	18.2	3.0	12.9	7.6	1.66	1.503
The available funds for the project's implementation are being managed properly.	29.5	22.7	11.4	16.7	19.7	1.89	1.901
Project progress information was made available to stakeholders	16.7	15.9	15.9	23.5	28.0	3.61	2.103
Different third parties are paid on schedule.	9.8	6.1	10.6	44.7	28.8	4.31	1.602
Various partners are properly coordinated during the implementation.	36.4	23.5	9.1	18.2	12.9	2.13	1.804
Various project management tools are used in the execution of the project	38.6	14.4	6.1	22.0	18.9	2.04	2.119
Average						**2.45**	**1.778**

Source: Research Data (2021)

A mean of 1.49 and a standard deviation of 1.417 were reported, with the majority of respondents (68.2 percent) strongly agreeing that the required resources were acquired. A little over half of respondents (58.3%) strongly concurred that human

resources were well coordinated throughout the project's execution. According to the findings, 22.7 percent and 29.5 percent of respondents, respectively, agreed and strongly agreed that the funds made available for the project's execution were managed appropriately. According to the findings, 28% of respondents strongly disagreed and 23.5% disputed that stakeholders were informed about the project's development. 44.7 percent of people disagreed, while 28.8 percent strongly disagreed. Results show that 36.4 percent of respondents and 23.5 percent of respondents, respectively, agreed that different stakeholders are appropriately coordinated during implementation. Similarly, when asked if different project management tools are used during the project's execution, 38.6 percent of respondents strongly agreed with this statement, while 14.4 percent strongly disagreed. Challenges at this period included slow work progress, delayed product purchases and deliveries, and issues with suppliers.

The average mean of 2.45 and standard deviation of 1.778 suggests a high agreement with items in Table 4.8. This implies a high implementation of many of the project execution activities. Activities that saw a high implementation included procurement of resource, coordination of human resources and good financial management. However, there was poor progress information to stakeholders' lack of payment of various third parties. This result differs with findings of past studies including Ocharo and Kimathi (2018) Kweyu (2018), Mutwiri et al. (2018) Oboreh (2019) and Matu et al. (2020) who established poor execution of the projects in their studies.

4.4.5 Project Control

The researcher initially evaluated project control procedures before evaluating the impact of project control on project performance across infrastructure projects in Meru County. The findings are displayed in 4.9.

Table 0.9 Project Control Practices

Statement	SA	A	U	D	SD	M	StdD
Scope achievements properly tracked	39.4	18.9	9.8	22.0	9.8	2.13	2.419
Controls in place	37.1	12.1	6.1	23.5	21.2	2.84	2.101
Daily site checks conducted	27.3	13.6	7.6	28.8	22.7	3.22	1.909
There is proper control of expenditure in line with the budget	33.3	12.9	8.3	22.0	23.5	2.67	2.303
There is efficient use of time when completing various tasks.	22.0	12.9	6.1	38.6	20.5	3.86	1.971
There is regular auditing of activities and expenditures	22.0	22.0	6.1	31.1	18.9	3.46	2.37
Average						**3.03**	**2.179**

Majority (39.4 percent) of respondents strongly agreed that scope successes are adequately measured against stated output targets, whereas 22 percent disagreed, a mean of 2.13 and a std deviation of 2.419 was recorded. Likewise, 37.1 percent of respondents strongly agreed that risk assessment controls are in place to monitor the project, whereas 23.5 percent disagreed. The results indicate that 28.8 percent of respondents disagreed, and 22.7 percent strongly disagreed that daily site inspections are conducted to monitor the project's progress. It is found that although 33.3 percent of respondents strongly agreed that expenditures are well controlled in accordance with the budget, 23.5 percent of respondents strongly disagreed and 22% of respondents disagreed. Additionally, a mead of 3.86 and standard deviation of 1.971

respondents said that 38.6 percent disagreed, and 20.5 percent strongly disagreed that time is efficiently used when accomplishing various jobs. Additionally, the results indicate that 22% of respondents agreed and an equal number (22%) strongly agreed that activities and expenditures were audited on a regular basis. During the project control stage, difficulties were encountered due to a lack of expertise, experience, and the high expense of specialists.

A significant degree of disagreement with the items in Table 4.9 is shown by the average mean of 3.03 and the standard deviation of 2.179. This demonstrates a lack of project management in Meru County's infrastructure projects. The investigation discovered that the project's time was squandered on multiple tasks, that activities and expenses were audited inconsistently, and that daily site visits to check on the project's progress were not made. According to Ngatia (2016), Kenya's government initiatives have various shortcomings in their monitoring and assessment, which if not corrected might have a significant impact on the program's success and performance. This result is also in tandem with a lot of studies such as Heumann et al. (2015), Rezania et al. (2016), Nzigu and Karanja (2018) as well as Akindele (2019) which suggested that project control is poorly conducted, and some projects do not conduct control activities at all.

4.5 Inferential Statistics

Inferential statistics were used to examine how project management practices affected the performance of infrastructure projects in Meru County, Kenya. Correlation and regression analysis were included in this. This section presents the findings.

4.5.1 Diagnostic Tests

Diagnostic tests namely normality, multicollinearity, homoscedasticity, and autocorrelation were conducted to ensure that the data meets the assumptions of regression.

4.5.1.1 Normality

To test normality, skewness and kurtosis of data were checked. The results are presented in Table 4.10

Table 0.10: Skewness and Kurtosis

	Number of items	Skewness	Kurtosis
Project Initiation	8	0.437	1.182
Project Planning	8	1.042	0.137
Project Execution	7	0.734	0.805
Project Control	6	0.623	1.054
Project Performance	4	0.808	1.113

Table 4.10's findings show that skewness and kurtosis values were between -2 and 2, indicating that the study's data was regularly distributed.

4.5.1.2 Multicollinearity

Variance inflation factor was examined to look for multicollinearity. Table 4.12 presents the findings.

Table 0.11: Multicollinearity

Variable	Tolerance	VIF
Project Initiation	0.141	7.101
Project Planning	0.468	2.138
Project Execution	0.457	2.187
Project Control	0.948	1.054

Source: Research Data (2021)

Table 4.12 demonstrates that the tolerance value of the variables is less than 1.0 and that the VIF value is between 1 and 10. Therefore, it may be said that the independent variables do not exhibit multicollinearity.

4.5.1.3 Heteroscedasticity

Levene's test was used to test for heteroscedasticity.

Table 0.12 Levene's Test

Variable	Levene Statistic	df1	df2	Sig.
Project Initiation	0.499	1	130	0.481
Project Planning	0.684	1	130	0.410
Project Execution	0.592	1	130	0.443
Project Control	0.814	1	130	0.368

Results in Table 4.12 indicate that the Levene's statistic was not significant for any of the four study variables. These results therefore demonstrate the absence of homoscedasticity in the data.

4.5.2 Correlation Analysis

Correlation analysis of the independent variables with project performance among infrastructure projects in Meru County was carried out. The results are as shown in Table 4.13.

Table 0.13 Correlation Analysis

		Project Initiation	Project planning	Project Execution	Project Control	Project Performance
Project Initiation	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	132				
Project planning	Pearson Correlation	.397	1			
	Sig. (2-tailed)	.000				
	N	132	132			
Project Execution	Pearson Correlation	.436	.516	1		
	Sig. (2-tailed)	.000	.000			
	N	132	132	132		
Project Control	Pearson Correlation	.671**	.418	.368	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	132	132	132	132	
Project Performance	Pearson Correlation	.614**	.593**	.759**	.144	1
	Sig. (2-tailed)	.000	.000	.000	.099	
	N	132	132	132	132	

Table 4.13's findings reveal that among infrastructure projects in Meru County, there was a high positive and significant association between project beginning and project performance (r=0.614, p=0.000). This is consistent with the findings of Islam et al. (2011), who discovered that the majority of factors involved in the project initiation process have a significant positive correlation with project success, with the exception of projects chosen based on an opportunity and feasibility study carried out by a specialized firm. It also supports the findings of Simiyu et al. (2018) that the success of construction projects is significantly and favorably influenced by the project commencement procedure.

Infrastructure projects in Meru County showed a somewhat favorable and substantial connection (r=0.593, p=0.000) between project planning and project performance.

This finding is congruent with Serrador (2012), who found a consistent empirical relationship between planning quality and success through a systematic study. Elsewhere, Laird (2016) discovered a favourable association between the employment of many individual planning tools and project effectiveness. However, Murithi et al. (2017) revealed a negative association between the performance of public building projects and project planning.

In Meru County, there was a high positive and statistically significant association between project execution and project performance (r=0.759, p=0.000). This results is congruent with that of Nyakundi (2015), who found that the project's outcome was positively impacted by the execution strategy. This is also in line with the research of Simiyu et al. (2018), who found a link between project implementation and the success of agricultural projects.

There was a weak and positive correlation (r=0.144, p=0.09) between project control and project performance among infrastructure projects in Meru County. This finding contrasts with that of Nyakundi (2015), who found that monitoring and control had a substantial effect on project outcomes when a regression model is used. It contradicts Murithi et al. (2017), who discovered a strong correlation between project monitoring and timely project completion. Additionally, it conflicts with Kweyu's (2018) findings that project control and performance have a statistically significant link.

4.5.3 Multiple Linear Regression Analysis

Multiple regression analysis was also conducted to determine the influence of project management processes on project performance among infrastructure projects in Meru County. The results are presented in this section.

4.5.3.1 Model Summary

The model summary output is presented in Table 4.14.

Table 0.14 Model Summary

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	F	Sig.
1	.951[a]	.904	.900	.340	237.810	.000

According to the results, 90.4% of project performance among infrastructure projects in Meru County could be attributed to project initiation, planning, execution and control. Therefore, project management processes are vital for achievement of project performance. This result agrees with PMI (2013) assertion that Successes and satisfaction for stakeholders are the outcome of continuous and organized performance brought about by PM.

4.5.3.2 ANOVA Output

Table 4.15 shows the ANOVA output.

Table 0.15 ANOVA Output

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	137.190	5	27.438	237.810	.000[b]
	Residual	14.538	126	.115		
	Total	151.727	131			

Results in Table 4.15 indicates that the model is significant (p=0.000) in predicting the association between performance and the predictors. These results also imply that at least one of the independent variables is significant. This result lends support to

results of earlier studies which also found an association between PMPs and project performance (Ahadzie and Amoa-Mensah, 2010; Kissi and Ansah, 201; Ojeniyi and Razalli. 2015; Badewi et al., 2016; Njiru, 2018)

4.5.3.3 Regression Coefficient Results

Table 4.16 presents the regression coefficients.

Table 0.16 Regression Coefficient Results

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	0.042	0.138		0.302	0.764	0.030	0.049
	PPE	0.524	0.059	0.390	8.919	0.000	0.318	0.602
	PPE2	0.062	0.092	0.245	0.673	0.504	0.041	0.071
	PPE3	0.905	0.086	0.528	10.461	0.000	0.070	0.941
	PPE4	0.041	0.211	0.174	0.196	0.846	0.022	0.431

Using the unstandardized coefficients in Table 4.16, the new model is: Y= 0.042 + 0.524 PI1 +0.062 PP2 + 0.905 PE3 + 0.041PC.

Where: Y represents the dependent variable which in this study was project performance of infrastructural projects. The project management processes in this study were indicated by PI, PP, PE and PC which are the abbreviations for the independent variables. According to the new model, without the independent variable, project performance would be 0.070. However, the plus sign in front of all the variables shows that project management processes enhance project performance. Project execution has the biggest beta value (0.973) indicating it is the most important in the model.

4.5.3.3.1 Project Initiation and Project Performance

The goal of the study was to evaluate how project beginning affected project performance. Project beginning was significant, according to Table 4.16's findings (=0.524, p=0.000). This is in line with the findings of Islam et al. (2011), who found that, with the exception of projects chosen based on an opportunity and feasibility study carried out by a specialized firm, the majority of factors involved in the project initiation process have a significant positive correlation with project success. Additionally, it supports the findings of Simiyu et al. (2018.) that the success of building projects is significantly and favorably influenced by the project beginning procedure.

4.5.3.3.2 Project Planning and Project Performance

The results show that project planning was not significant (β =0.062, p=0.504). This finding contradicts Serrador (2012), who demonstrated a consistent empirical relationship between planning quality and success through a comprehensive study. Similarly, Khanzada et al. (2018) found that project planning is positively related with project success in their study. Elsewhere, Laird (2016) discovered a favorable association between the employment of many individual planning tools and project effectiveness. However, Murithi et al. (2017) revealed a negative association between project performance and project planning for public building projects.

4.5.3.3.3 Project Execution and Project Performance

The study sought to establish the influence of project execution on project performance. Project execution was significant (β=0.905, p=0.000). Consequently, project execution is the most important of the 4 project management processes

selected for this study. This is consistent with the findings of Nyakundi (2015) determined that the execution method has an effect on the project's outcome.

4.5.3.3.4 Project Control and Project Performance

The study evaluates the influence of project control on project performance. Project control was not significant (β= 0.041, p=0.846). This finding is consistent with Ngatia (2016), who discovered significant shortcomings in the monitoring and assessment of government initiatives in Kenya, which, if not corrected, will have a negative impact on the program's success and performance. This conclusion, however, varies from that of Nyakundi (2015), who found that monitoring and control have a substantial effect on project outcomes when a regression model is used. It contradicts Murithi et al. (2017), who discovered a strong correlation between project monitoring and timely project completion. Additionally, it contradicts Kweyu (2018), who discovered a statistically significant relationship between project control and performance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study's findings are summarized in this chapter. Also given are the researcher's findings and suggestions for legislation and practice.

5.2 Summary

5.2.1 Project Initiation and Project Performance

The primary aim of the study was to ascertain the impact of project beginning on project performance in infrastructure projects in Meru County. According to the study, the majority of project beginning tasks were finished. For infrastructure projects in Meru County, the correlation analysis found a strong, significant relationship between project beginning and project performance. The project's start was also important in the regression analysis.

5.2.2 Project Planning and Project Performance

The second goal of the study was to determine how project planning affected the success of infrastructure projects in Meru County. The study discovered that project planning activities were carried out substantially in the projects examined. Association research revealed a somewhat favorable and substantial correlation between project planning and project performance for infrastructure projects in Meru County. However, in the regression analysis, project planning was not significant.

5.2.3 Project Execution and Project Performance

Determining the impact of project execution on project performance in infrastructure projects for Meru County was the third objective of the study. According to the inquiry, the vast majority of project execution activities were completed satisfactorily. There was a strong positive and significant correlation between infrastructure projects in Meru County's execution and performance. The project's execution was a significant component of the regression analysis as well. Project execution is the most crucial of the four project management practices examined in this study.

5.2.4 Project Control and Project Performance

The fourth aim was to determine the effect of project control on project performance in Meru County's infrastructure projects. The analysis discovered a lack of project control in Meru County's infrastructure projects. The findings indicated that there was inefficient time management while performing various duties, inconsistent auditing of activities and expenditures, and a failure to conduct daily site checks to ensure the project's effectiveness. Between project control and project performance, there was a modest and positive association between infrastructure projects in Meru County. Additionally, the control of the project was not significant in the regression analysis.

5.3 Conclusion

5.3.1 Project Initiation and Project Performance

Project initiation significantly influences project performance among infrastructure projects in Meru County. Specifically, good project initiation results in greater project performance. Majority of projects in the study identified stakeholders before

commencement of the project, determined the scope during the initiation phase and organized frequent meetings. However not all potential risks that posed a threat to its success were identified and project charters were not developed.

5.3.2 Project Planning and Project Performance

Project planning has a significant influence on project performance. Projects that adhered to project planning steps were more likely to have achieved required performance. In most projects, the anticipated cost associated with the plan's completion was mentioned, as were the resource required for execution. However, a project plan was not developed in most projects and possible risks and mitigation strategies were not evaluated.

5.3.3 Project Execution and Project Performance

There is a significant influence between project execution and project performance. Project execution was found to be the most influencing of the four independent variables in this study. Most projects successfully purchased essential resources and handled available cash and human resources for project implementation. However, stakeholders were not informed of project progress. Additionally, only a few projects make use of a variety of project management tools during the project's execution.

5.3.4 Project Control and Project Performance

Project control did not influence project performance in this study. Daily site checks to ensure the project's success were not conducted, according to the report. There was ineffective budgetary management and irregular audits of operations and expenditures.

5.4 Recommendations

Considering the study objectives, the following actions are recommended to enhance the performance of the infrastructure project in Meru County in line with the findings:

Every project should have a project plan. This will aid in the documentation of planning assumptions and choices, as well as the facilitation of communication among project stakeholders. It will also serve to establish approved scope, cost, and schedule baselines. This will enable better planning and more involvement from stakeholders throughout the project.

Project management tools ought to be used in the execution of the project. This will aid project managers in completing tasks on schedule and balancing worker workloads for effective time management. This will eventually result in improved project performance.

There is need for better monitoring and evaluation of projects. This will enable identification of pitfalls early on to protect against budget overruns and enhance project performance.

5.5 Suggestion for Further Studies

A similar study ought to be carried out on project management processes in other types of projects.

REFERENCES

Abdulrahman, A. (2017). *Determinants of Implementation of County Government Projects: a Case of Infrastructural Projects in Kilifi County, Kenya* (Doctoral dissertation, University of Nairobi).

Acharya, A. S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: Why and how of it. *Indian Journal of Medical Specialties*, *4*(2), 330-333.

Afolabi, J. O. (2018). *Initiating factors affecting information systems project success* (Doctoral dissertation, Walden University).

Ahadzie, D. K., & Amoa-Mensah, K. (2010). Management practices in the Ghanaian house building Industry. *Journal of Science and Technology (Ghana)*, *30*(2).

Akindele, E. O. (2019). *Assessment of project control practices on the performance of building construction firms in Lagos state, Nigeria* (Doctoral dissertation, Federal University of Technology, Akure).

Al-Hajj, A. (2018). The impact of project management implementation on the successful completion of projects in construction. *International Journal of Innovation, Management and Technology*, *9*(1), 21–27.

Ali, A. M., & Yusof, H. (2011). Quality in qualitative studies: The case of validity, reliability and generalizability. *Issues in Social and Environmental Accounting*, *5*(1), 25-64.

Alias, Z., Zawawi, E. M. A., Yusof, K., & Aris, N. M. (2014). Determining critical success factors of project management practice: A conceptual framework. *Procedia-Social and Behavioral Sciences*, *153*, 61-69.

Aljohani, A. (2017). Construction projects cost overrun: what does the literature tell us? *International Journal of Innovation, Management and Technology*, *8*(2), 137–143.

Amadi, J. O. (2017). The Role of Planning on Performance of Community Projects in Kenya. *Developing Country Studies*, *7*(1), 1-7.

Ameh, O. J., Soyingbe, A. A., & Odusami, K. T. (2010). Significant factors causing cost overruns in telecommunication projects in Nigeria. *Journal of Construction in Developing Countries*, *15*(2), 49–67.

Apolot, R., Tindiwensi, D., & Alinaitwe, H. (2013). Investigation into the causes of delays and cost overruns in Uganda's public sector construction projects. *Journal of Construction in Developing Countries*, *18*(2), 33–47.

Aslami, M. J. (2019). The Effect of Project Management on Organizational Performance–The Case of NGOs In Afghanistan. *Available at SSRN 3395721*.

Awan, A. G., & Anum, V. (2014). Impact of infrastructure development on economic growth: A case study of Pakistan. *International Journal of Economics and Sustainable Development*, *2*(5), 1-15.

Azimi, R., Lee, S., & AbouRizk, S. M. (2012). Applying basic control theory principles to project control: Case study of off-site construction shops. *Journal of computing in civil engineering*, *26*(6), 681-690.

Badewi, A. (2016). The impact of project management (PM) and benefits management (BM) practices on project success: Towards developing a project benefits governance framework. *International Journal of Project Management*, *34*(4), 761-778.

Bakar, A. H. A., Ramli, M., Tufail, M. A., & Jyue, L. (2011). Project management best practices for achieving better housing development project performance: The case of Penang, Malaysia. *International Journal of Construction Project Management*, 3(2), 127-143.

Beck, R., & Schott, K. (2012). The interplay of project control and interorganizational learning: mitigating effects on cultural differences in global, multisource ISD outsourcing projects. *Business & Information Systems Engineering*, *4*(4), 183-192.

Bisbey, J., Nourzad, S. H. H., Chu, C. Y., & Ouhadi, M. (2020). Enhancing the efficiency of infrastructure projects to improve access to finance. *Journal of Infrastructure, Policy and Development*, *4*(1), 27-49.

Bonett, D. G., & Wright, T. A. (2015). Cronbach's alpha reliability: Interval estimation, hypothesis testing, and sample size planning. *Journal of organizational behavior*, *36*(1), 3-15.

Borzouei, A. (2014). A study on the successful implementation of infrastructure projects through BOT. *European Online Journal of Natural and Social Sciences*, *2*(3(s)), 3198–3209.

Calderon, C. A., & Servén, L. (2004). The effects of infrastructure development on growth and income distribution. *Available at SSRN 625277*.

Cha, H. S., & Kim, K. H. (2018). Measuring project performance in consideration of optimal best management practices for building construction in South Korea. *KSCE Journal of Civil Engineering*, *22*(5), 1614-1625.

Chen, H. L. (2011). Predictors of project performance and the likelihood of project success. *Journal of International Management Studies*, *6*(2), 1-10.

Cohen, L., Manion, L., & Morrison, K. (2017). Validity and reliability. In *Research methods in education* (pp. 245-284). Routledge.

Conforto, E. C., Salum, F., Amaral, D. C., Da Silva, S. L., & De Almeida, L. F. M. (2014). Can agile project management be adopted by industries other than software development?. *Project Management Journal*, *45*(3), 21-34.

County Government of Meru (2021) *On-going projects/programmes*.

Dalsgaard, P. (2010, November). Challenges of participation in large-scale public projects. In *Proceedings of the 11th Biennial Participatory Design Conference* (pp. 21-30). ‘

Demirkesen, S., & Ozorhon, B. (2017). Impact of integration management on construction project management performance. *International Journal of Project Management*, *35*(8), 1639-1654.

Doloi, K. (2011). Understanding stakeholders’ perspective of cost estimation in project management. *International Journal of Project Management*, *29*(5), 622-636

Dube, N. (2016). *Evaluating the impact of the project implementation profile (PIP) tool on interface management in public sector projects: case study KZN Department of Health Facilities*. University of Cape Town.

Eisinga, R., Te Grotenhuis, M., & Pelzer, B. (2013). The reliability of a two-item scale: Pearson, Cronbach, or Spearman-Brown?. *International journal of public health*, *58*(4), 637-642.

Elfil, M., & Negida, A. (2017). Sampling methods in Clinical Research; an Educational Review. *Emergency* 5(1), 43-52.

Emuze, F., & Smallwood, J. (2012). Infrastructure project performance in the South African construction sector: Perceptions from two provinces. *Acta Structilia*, *19*(2), 1-20.

Escamilla, E. (2011). *Investigation of project management planning practices for renovation of historical buildings in urban contexts located in Texas*. Texas A&M University.

Etikan, I., & Bala, K. (2017). Sampling and sampling methods. *Biometrics & Biostatistics International Journal*, *5*(6), 00149.

Faniran, O. O., & Smith, J. (2000). Effective front-end project management – a key element in achieving project success in developing countries. *Cib*, (Faniran 1999), 1–7.

Fernandes, G., Moreira, S., Araújo, M., Pinto, E. B., & Machado, R. J. (2018). Project management practices for collaborative university-industry R&D: a hybrid approach. *Procedia computer science*, *138*, 805-814.

Flick, U. (2015). Introducing research methodology: A beginner's guide to doing a research project.

Fraz, A., Waris, A., Afzal, S., Jamil, M., Shah, S. T. H., & Sultana, S. (2016). Effect of Project Management Practices on Project Success in Make-to-Order Manufacturing Organizations. *Indian Journal of Science and technology*, *9*(21), 1-8.

Gacheru, E. N., (2015). *An investigation into the national construction authority's challenges in regulating building contractors: the case of Mombasa County*, (Unpublished Doctoral dissertation). Jomo Kenyatta University of Agriculture and Technology.

Gido, J., & Clements, J. (2014). *Successful project management*. Cengage Learning.

Golmohammadi, D. (2015). A study of scheduling under the theory of constraints. *International Journal of Production Economics*, *165*, 38-50.

Government of Kenya. *Sessional Paper No. 10. (1965).* African Socialism and its application in Kenya.

Grimm, P. (2010). Pretesting a questionnaire. *Wiley International Encyclopedia of Marketing*.

Gupta, A., Bhardwaj, A., & Kanda, A. (2010). Fundamental concepts of theory of constraints: An emerging philosophy. *International Journal of Economics and Management Engineering*, *4*(10), 2089-2095.

Hand, A., Zuo, J., Xia, B., Jin, X., & Wu, P. (2015). Are green project management practices applicable to traditional projects?. In *Proceedings of the 19th International Symposium on Advancement of Construction Management and Real Estate* (pp. 291-301). Springer, Berlin, Heidelberg.

Hanisch, B., & Wald, A. (2012). A bibliometric view on the use of contingency theory in project management research. *Project Management Journal*, *43*(3), 4-23.

Hassan, M. G., Ojeniyi, A., & Razalli, M. R. (2015). Practices project management strategies in outsourcing best practices. *Jurnal Teknologi*, *77*(5).

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-based nursing*, *18*(3), 66-67.

Hellström, M., Wikström, R., Gustafsson, M., & Luotola, H. (2016). The value of project execution services: a problem and uncertainty perspective. *Construction Management and Economics*, *34*(4-5), 272-285.

Heumann, J., Wiener, M., Remus, U., & Mähring, M. (2015). To coerce or to enable? Exercising formal control in a large information systems project. *Journal of information technology*, *30*(4), 337-351.

Hilton, C. E. (2017). The importance of pretesting questionnaires: a field research example of cognitive pretesting the Exercise referral Quality of Life Scale (ER-QLS). *International Journal of Social Research Methodology*, *20*(1), 21-34.

Howell, D., Windahl, C., & Seidel, R. (2010). A project contingency framework based on uncertainty and its consequences. *International Journal of Project Management*, *28*(3), 256-264.

Huétink, F. J., van der Vooren, A., & Alkemade, F. (2010). Initial infrastructure development strategies for the transition to sustainable mobility. *Technological forecasting and social change*, *77*(8), 1270-1281.

Hussein, B. A., Ahmad, S. B. S., & Zidane, Y. J.-T. (2015). Problems associated with defining project success. *Procedia Computer Science*, *64*, 940–947. https://doi.org/10.1016/J.PROCS.2015.08.611

Idoro, G. I. (2012). Influence of the monitoring and control strategies of indigenous and expatriate Nigerian contractors on project outcome. *Journal of Construction in Developing Countries*, *17*(1), 51–69.

Iha, S. K. (2014). *Factors influencing project initiation in Kenya: a case of bible translation and literacy projects in coast region*.

Institute of Certified Public Accountant of Kenya. (2014) *A baseline survey on devolution in Kenya with respect to public financial management systems.* Nairobi: ICPAK

Irefin, A. I. (2013). Effect of project management on the performance of a construction firm in nigeria. *American International Journal of Contemporary Research*, *3*(6), 54–58.

Islam, S., Bhuiyan, N. U., & Hoque, M. (2011). The association between project success and project initiation phase: a study on some selected projects in Bangladesh. *European Journal of Business and Management*, *3*(12), 60–68.

Jamshidian, M., & Jalal, S. (2010). Tests of homoscedasticity, normality, and missing completely at random for incomplete multivariate data. *Psychometrika*, *75*(4), 649–674. Doi: 10.1007/s11336-010-9175-3

Kagaari, J., Munene, J. C., & Ntayi, J. M. (2010). Performance management practices, employee attitudes and managed performance. *International Journal of Educational Management*.

Karayaz, G., Keating, C. B., & Henrie, M. (2011, January). Designing project management systems. In *2011 44th Hawaii International Conference on System Sciences* (pp. 1-10). IEEE.

Kathure. M. (2013). *State of stalled project in Meru County.* Standard Digital.

Kerzner, H. (2017). *Project management: a systems approach to planning, scheduling, and controlling*. John Wiley & Sons.

Kihuga, A. G. (2018). *Project initiation process, monitoring and evaluation team capacity, compliance with legal framework and building projects success : the case of building projects in Roysambu Constituency, Nairobi County, Kenya.* University of Nairobi

Kim H. Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. *Restorative dentistry & endodontics*, *38*(1), 52–54. doi:10.5395/rde.2013.38.1.52

Kimathi.K. (2016). *Briefing on Meru County Projects.* Daily nation.

Kinuthia, B. E. N. J. A. M. I. N. (2013). *The effect of road infrastructural improvements on performance of the matatu industry in Kenya. A Case study of Thika super-highway* (Doctoral dissertation, Master's Thesis). Kenyatta University, Nairobi, Kenya.

Kissi, E. (2013). *Empirical understanding of the status of professional project management practices in the Ghanaian building industry* (Doctoral dissertation).

Kjersem, K., Jünge, G. H., & Emblemsvåg, J. (2017, September). Project execution strategy and planning challenges. In *IFIP International Conference on Advances in Production Management Systems* (pp. 243-250). Springer, Cham.

Kumar, R. (2018). *Research methodology: A step-by-step guide for beginners*. Sage.

Kureshi, N. (2013). Project performance and contingency theory. *Journal of Strategy and Performance Management*, *1*(2), 46.

Kweyu, F. (2018). Influence of Project Management Processes on Performance of Kenya Power Last Mile Connectivity Projects in Nakuru County, Kenya. University of Nairobi

Kweyu, F. X. (2018). *Influence of project management processes on performance of Kenya Power last mile connectivity projects in Nakuru County, Kenya* (Doctoral dissertation, University of Nairobi).

Laird, D. J. (2016). *The impact of planning and other organizational factors on the success of small information technology projects.*

Lelei, L. K. (2020). *Effect of government infrastructure development expenditure on performance of manufacturing in Kenya* (Doctoral dissertation, Kenyatta University).

Locatelli, G., Invernizzi, D. C., & Brookes, N. J. (2017). Project characteristics and performance in Europe: An empirical analysis for large transport infrastructure projects. *Transportation research part A: policy and practice*, *98*, 108-122.

Love, P. E., Irani, Z., Smith, J., Regan, M., & Liu, J. (2017). Cost performance of public infrastructure projects: the nemesis and nirvana of change-orders. *Production Planning & Control, 28*(13), 1081-1092.

Lu, P., Cai, X., Wei, Z., Song, Y., & Wu, J. (2019). Quality management practices and inter-organizational project performance: Moderating effect of governance mechanisms. *International Journal of Project Management, 37*(6), 855-869.

Mabin, V. J., & Balderstone, S. J. (2020). *The world of the theory of constraints: a review of the international literature*. CRC Press.

Magassouba, S. M., Tambi, A. M. B. A., Alkhlaifat, B., & Abdullah, A. A. (2019). Influence of Stakeholders Involvement on Development Project Performance in Guinea. *International Journal of Academic Research in Business and Social Sciences*, *9*(1), 1111-1120.

Mahianyu, J., & Njeru, D. A. (2016). Factors influencing project implementation in the department of public health in Kiambu County. *The Strategic Journal of Business and Change Management, 3*(4), 1291–1301.

Manggat, I., Zain, R., & Jamaluddin, Z. (2018). The impact of infrastructure development on rural communities: A literature review. *International Journal of Academic Research in Business and Social Sciences*, *8*(1), 647-658.

Martinez Abrahamsson, M. (2011). Contextual influences on Project Planning.

Matu, J., Kyalo, D. N., Mbugua, J., & Mulwa, A. S. (2020). Stakeholder participation in project initiation: a foundation to completion of Urban road transport infrastructure projects, Kenya. *Journal of Civil, Construction and Environmental Engineering*, *5*(1), 11-19.

Maunda, F. M., & Moronge, M. (2016). Influence of project life cycle management on completion of public projects in Kenya: a case of Makueni constituency. *Strategic Journal of Business & Change Management, 3*(4) 15-27

Mavuti, B. M., Kisingu, T. M. & Oyoo, J. J. (2019). Effect of project management practices on implementation of Kenya Ports Authority funded projects. *The Strategic Journal of Business & Change Management,* 6 (2), 1110 – 1129.

McDermot, E., Agdas, D., Rodríguez Díaz, C. R., Rose, T., & Forcael, E. (2020). Improving performance of infrastructure projects in developing countries: an Ecuadorian case study. *International Journal of Construction Management*, 1-15.

Mensah, S. B. (2009). *The effect of project management practices on building project performance: the case of three organizations* (Doctoral dissertation).

Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

Ministry of Transport and Infrastructure (2014). *The ministry of transport and infrastructure*, Government Printers, Kenya.

Mir, F. A., & Pinnington, A. H. (2014). Exploring the value of project management: linking project management performance and project success. *International journal of project management*, *32*(2), 202-217.

Mirza, E., & Ehsan, N. (2017). Quantification of project execution complexity and its effect on performance of infrastructure development projects. *Engineering Management Journal*, *29*(2), 108–123. https://doi.org/10.1080/10429247.2017.1309632

Mkutano, S. M. & Sang, P. (2018). Project management practices and performance of non-governmental organizations projects in Nairobi City County, Kenya. *International Academic Journal of Information Sciences and Project Management*, 3(3), 1-22

Morkovkin, D., Shmanev, S., & Shmaneva, L. (2017, December). Problems and trends in innovative transformation of Russian economy and infrastructure development. In *Proceedings of the 3rd International Conference on Economics, Management, Law and Education (EMLE 2017)* (Vol. 32, p. 10).

Morris, P. W. (2011). A brief history of project management. In *The Oxford handbook of project management*.

Mulalo, R., Ibrahimu, K., & Nwobodo-anyadiegwu, E. (2018). *Project cost overrun in the South African construction sector : a case study of Johannesburg metropolis.* Conference Proceedings of the International Conference on Industrial Engineering and Operations Management Pretoria / Johannesburg, South Africa, October 29 – November 1, 2018

Mullaly, M. E. (2012). *Exploring the personal dynamics of project initiation decisions* (Doctoral dissertation, Bond University).

Murithi, S. H., Makokha, E. N., & Otieno, C. (2017). Factors affecting timely completion of public construction projects in Trans-Nzoia County. *International Journal of Scientific and Research Publications*, *7*(4), 404.

Mutekhele, B., Rambo, C., Omollo, O., & Nyonje, R. (2017). Data Dissemination And Use And Performance Of Educational Building Infrastructural Projects: A Case Of Bungoma County, Kenya.

Muthomi, N. M. (2015). *Influence of project management practices on implementation of donor funded education projects in Kajiado County, Kenya.*

Mutwiri, F. R., Were, S., & Odhiambo, R. (2018). Project Identification and Initiation Practices on the Success of CDF Construction Projects in Kenya. *Journal of Entrepreneurship & Project Management*, *2*(2), 47-56.

Mwanza, P. W., Namusonge, G. S. & Makokha, E. N. (2020) Influence of project planning practice on performance of construction projects in Kenya. International Journal of Social Sciences and Information Technology, 5(5)

Naeem, S., Khanzada, B., Mubashir, T., & Sohail, H. (2018). Impact of Project Planning on Project Success with Mediating Role of Risk Management and Moderating Role of Organizational Culture. *International Journal of Business and Social Science*, 9(1), 88-98.

Naor, M., Bernardes, E. S., & Coman, A. (2013). Theory of constraints: is it a theory and a good one?. *International Journal of Production Research*, *51*(2), 542-554.

National Assembly. (2016). *Delayed completion of Nkubu -Mikumbune road*. Nairobi: Hansard

Nayak, J. K., & Singh, P. (2021). *Fundamentals of Research Methodology Problems and Prospects*. SSDN Publishers & Distributors.

Ndagi, V. M. et al., (2016). Role of monitoring and Evaluation on performance of public organization projects in Kenya: A case of Kenya Meat Commission. International Journal of Innovative Development & Policy Studies, 3(3), 12-27.

Ngatia, W. (2016). Institutional determinants of participatory monitoring and evaluation systems implementation among community-based development projects in Kibera Slum, Kenya. International Journal of Economics, Commerce and Management, 3(11), 375.

Nibyiza, F. (2015). *Analysis of project scope change management as a tool for project success: A Case Study of Akazi Kanoze Projects*. Jomo Kenyatta University of Agriculture and Technology (Kigali Campus).

Njiru, S. G. (2018). Project management practices and implementation of projects in manufacturing companies in Nairobi City County, Kenya. *Kenyatta University*.

Njoro, W. M. (2016). Impact of infrastructure development on economic competitiveness in Kenya. *University of Nairobi*.

Nyakundi, N. N. (2015). *Influence of project management processes on outcomes: Case of public sector infrastructure projects at telkom Kenya limited*. University of Nairobi.

O'Connor, J. T., O'Brien, W. J., & Choi, J. O. (2016). Industrial project execution planning: Modularization versus stick-built. *Practice periodical on structural design and construction*, *21*(1), 04015014.

Oberlender, G. D. (2014). *Project management for engineering and construction*. McGraw-Hill Education.

Obiero, A. (2017). *Public sector project implementation in Botswana*. University of Nairobi

Oboreh, L. E. (2019). Problems and prospects of project execution in Nigeria: a study of construction companies operating in Delta state. *E3 Journal of Business Management and Economics., 10*(1), 009-016.

Ocharo, R. N., & Kimutai, G. (2018). Project management practices and implementation of power projects in Kenya. *International Academic Journal of Information Sciences and Project Management*, *3*(1), 28-46.

Ochenge, M. D. (2018). *Project Management Practices and Performance of Road Infrastructure Projects Done By Local Firms in the Lake Basin Region, Kenya* (Doctoral dissertation, Doctoral dissertation, Kenyatta University).

Ogero, D. K. (2014). *Influence of project management information system on project performance in the construction industry: a case of Nairobi County, Kenya.* University of Nairobi.

Olawale, Y., & Sun, M. (2015). Construction project control in the UK: Current practice, existing problems and recommendations for future improvement. *International journal of project management*, *33*(3), 623-637.

Orodho, J. A. (2009). *Elements of education and social science research methods*, Second Edition. Maseno: Kanezja.

Owusu-Manu, D. G., Jehuri, A. B., Edwards, D. J., Boateng, F., & Asumadu, G. (2019). The impact of infrastructure development on economic growth in sub-Saharan Africa with special focus on Ghana. *Journal of Financial Management of Property and Construction*.

Peters, D. H. (2014). The application of systems thinking in health: why use systems thinking?. *Health research policy and systems*, *12*(1), 1-6.

Phiri, M. (2015). How evaluation and monitoring influence performance of project in African Virtual University (AVU), Kenya. International Journal of Innovative Development & Policy Studies, 3(3), 12-27.

Rezania, D., Baker, R., & Burga, R. (2016). Project control: an exploratory study of levers of control in the context of managing projects. *Journal of Accounting & Organizational Change*.

Ronoh, d. k. (2020). Project management practices and performance of residential construction projects in Nairobi City County, Kenya.

Sambasivan, M., & Soon, Y. W. (2007). Causes and effects of delays in Malaysian construction industry. *International Journal of Project Management, 25 (5), 517-526*

Sankaran, S., Haslett, T., & Sheffield, J. (2010). Systems thinking approaches to address complex issues in project management. Paper presented at PMI® Global Congress 2010—Asia Pacific, Melbourne, Victoria, Australia. Newtown Square, PA: Project Management Institute.

Saraf, D. D. (2013). Study of factors affecting performance of construction project. *International Journal of Science and Research*, *14*(5).

Sefhemo, M. L (2016). *Public sector project implementation in Botswana.* Masters of Public Administration Thesis. University of South Africa.

Serrador, P. (2012). *The importance of the planning phase to project success*. Paper presented at PMI® Global Congress 2012—north America, Vancouver, British Columbia, and Canada. Newtown Square, PA: Project Management Institute.

Serrador, P. (2013). The Impact of Planning on Project Success - A Literature Review. *The Journal Of Modern Project Management, 1*(2). doi:10.19255/30

Seymour, T., & Hussein, S. (2014). The history of project management. *International Journal of Management & Information Systems (IJMIS)*, *18*(4), 233-240.

Simiyu, N. R. Ngugi, L. & Minja, D. (2018) Project monitoring, evaluation and communication as factors in performance of community based agricultural projects in Bungoma County, Kenya. *International Journal of Academic Research and Development* 3(6), 18-23

Simiyu, N. R. Ngugi, L. & Minja, D. (2018) The Influence of Project Planning and Implementation on the Performance of Agricultural Projects by Community Based Organizations in Bungoma County, Kenya. *European Journal of Business and Management*, 10(28), 11-16

Smith, D. G. (2012). *Theory of constraints project management: Improving cost, schedule, performance, and overall effectiveness* (Doctoral dissertation, Northcentral University).

Suk, S. J., Chi, S., Mulva, S. P., Caldas, C. H., & An, S. H. (2017). Quantifying combination effects of project management practices on cost performance. *KSCE Journal of Civil Engineering*, *21*(3), 603-615.

Suresh, K., Thomas, S. V., & Suresh, G. (2011). Design, data analysis and sampling techniques for clinical research. *Annals of Indian Academy of Neurology*, *14*(4), 287–290. doi:10.4103/0972-2327.91951

Tabot, A., Owuor, O., & Migosi, J. (2020). Influence of Participatory Project Initiation on Sustainable Forest Management in Saboti, Trans-Nzoia County, Kenya. *International Journal of Forestry Research*, *2020*.

Taherdoost, H. (2016). Sampling methods in research methodology; how to choose a sampling technique for research. *How to Choose a Sampling Technique for Research (April 10, 2016)*.

Too, E. G., & Weaver, P. (2014). The management of project management: A conceptual framework for project governance. *International Journal of Project Management*, *32*(8), 1382-1394.

Townsend, R., & Gershon, M. (2020). Attaining successful construction project execution through personnel and communication. *Journal of Construction Engineering and Management*, *146*(9), 04020101.

Umulisa, A., Mbabazize, M., & Shukla, J. (2015). Effects of Project Resource Planning Practices on Project Performance of Agaseke Project in Kigali, Rwanda. International Journal of Business and Management Review, 3(5), 29-51.

Waithera, S. L., & Wanyoike, D. M. (2015). Influence of project monitoring and evaluation on performance of youth funded agribusiness projects in Bahati Sub-County, Nakuru, Kenya. International Journal of Economics, Commerce and Management, 3(11), 375.

Walker, A. (2015). *Project management in construction*. John Wiley & Sons.

Walker, A. (2015). *Project management in construction*. John Wiley & Sons.

Wanjiku, S. M. (2015). Monitoring and Evaluation: Factors Influencing the Performance of Road Infrastructural Projects: A Case Study of Nyandarua County, Kenya.

Weninger, C. (2012). *Project initiation and sustainability principles: what global project management standards can learn from development projects when analyzing investment?* Paper presented at PMI® Research and Education Conference, Limerick, Munster, Ireland. Newtown Square, PA: Project Management Institute.

Wera, H. (2016). *Influence of project identification process on project performance: a case of African inland child and community agency for development, vocational training project, Kibra constituency, Kenya*. University of Nairobi.

Wickramasinghe, V., & Liyanage, S. (2013). Effects of high-performance work practices on job performance in project-based organizations. *Project Management Journal*, *44*(3), 64-77.

Yang, L. R., Huang, C. F., & Wu, K. S. (2011). The association among project manager's leadership style, teamwork and project success. *International journal of project management*, *29*(3), 258-267.

Yoo, W., Mayberry, R., Bae, S., Singh, K., Peter He, Q., & Lillard, J. W., Jr (2014). A study of effects of multicollinearity in the multivariable analysis. *International journal of applied science and technology*, *4*(5), 9–19.

Zhang, X., & Chen, S. (2013). A systematic framework for infrastructure development through public private partnerships. *IATSS research*, *36*(2), 88-97.

APPENDICES

Appendix I: Questionnaire

Dear respondent,

This questionnaire aims to collect data on the project management processes to find out gaps and how these processes impact the performance of these projects. You are kindly requested to take part in the study by ticking (✓) or putting an x next to your preferred answer or by writing your answer in the spaced provided where necessary. Your participation in this study will yield confidential information that will only be utilized for academic purposes. Do not mention your identity or the name of your project for your own safety. The survey won't last more than 20 minutes. Thankyou

Section A: Background Information

1. Indicate your gender?

- ☐ Male
- ☐ Female

2. Indicate your age

……. years

3. Indicate your highest level of education?

……..

4. Indicate how long you have been involved in county projects?

……. years

Section B: Project Initiation

5. Indicate your agreement or lack thereof to the questions in the table using the scale provided below:

Statement	1	2	3	4	5
Project feasibility studies were done					
Determination of all objectives of the project was done during the project initiation phase					
Project scope was determined during the initiation phase					
Adequate financial resources were set aside during the initiation phase of the project					
All stakeholders were identified before commencement of the project					
Frequent meetings were organized with structure agendas before commencement of the project					
The project team identified all potential risks that posed a threat to its success					
A project charter was developed					

6. State some of the project initiation challenges faced by this project

……

…

……

…

……

…

Section C: Project Planning

7. Indicate your agreement or lack thereof to the questions in the table using the scale provided below:

	1	2	3	4	5
Project requirements were determined at the planning stage					
A project charter was prepared					
Stakeholders were involved in all stages of planning					
The budgeted price tag to be incurred at the completion of the plan was specified					
Resource requirements needed in execution were planned for					
All procurement needs were conducted prior to execution of the project					
Action plans were designed during the planning stage					
Possible risks and mitigation strategies were evaluated					
A project plan was developed					

8. What challenges did you experience during project planning?

……

…

……

…

……

…

Section D: Project Execution

9. Indicate your agreement or lack thereof to the questions in the table using the scale provided below:

	1	2	3	4	5
Required resources were procured					
During the project's completion, human resources are well coordinated.					
The available funds for the project's implementation are being managed properly.					
Project progress information was made available to stakeholders					
Different third parties are paid on schedule.					
Various partners are properly coordinated during the implementation.					
Various project management tools are used in the execution of the project					

10. What challenges did you experience during project execution?

……

…

……

…

……

…

Section E: Project Control

11. Indicate your agreement or lack thereof to the questions in the table using the scale provided below:

	1	2	3	4	5
The scope achievements are properly tracked against the defined output goals.					
Risk assessment controls are in place to keep an eye on the project.					

Daily site checks are made to keep track of the project's success.					
There is proper control of expenditure in line with the budget					
There is efficient use of time when completing various tasks.					
There is regular auditing of activities and expenditures					

12. What challenges did you experience in project control?

……

…

……

…

……

…

Section F: Project Performance

13. Which of the below describes the project you are involved in ?

- ☐ Road/Bridge/Drainage
- ☐ Construction of a building or a structure
- ☐ Water (Dam/Borehole)
- ☐ Others (please specify)

……

…414. Project status?

☐ Initiation phase

☐ Planning phase

☐ Execution phase

☐ Completed

15. Indicate the year when the project started?

……

…

16. Indicate the value of money budgeted for and the actual spent amount

Budget…… Actual spending so far……

17. For questions in the table, tick in the box corresponding to your preferred answer:

Statement	1	2	3	4	5
The projects is completed within the provided budget.					
The projects is completed within the scheduled time					
The projects is completed within the desired quality					
The projects meets customer‘s satisfaction.					

18. What recommendations do you have that may be utilized to improve the effectiveness of projects in this county?

_____

Appendix II: Letters of Authorization

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 4150

Internal Memo

FROM: Dean, Graduate School DATE: 7th October, 2021

TO: Ratanya Muthee Duncan
C/o Management Science Dept.

REF: D53/NYI/PT/37825/2016

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 29th September, 2021 approved your Research Project Proposal for the MBA Degree Entitled, **"Project Management Processes and Performance of Infrastructural Projects in Meru County, Kenya".**

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

ELIJAH MUTUA
FOR: DEAN, GRADUATE SCHOOL

c.c. Chairman, Management Science Department.

Supervisor:

1. Dr. Lucy Ngugi
C/o Department of Management Science
Kenyatta University

EM/enj

COUNTY GOVERNMENT OF MERU

DEPARTMENT OF LEGAL AFFAIRS, PUBLIC SERVICE MANAGEMENT AND ADMINISTRATION

Email: metucounty@meru.go.ke
When replying please quote

Meru County Headquarters
P.O Box 120-60200
MERU

Ref: CGWPSAC/1/114 (107)

November, 30th 2021

RE: AUTHORITY TO CONDUCT RESEARCH
RATANYA MUTHEE DUNCAN

Reference is made to your letter dated 7th October, 2021 and addressed to the above mentioned.

This is to inform you that you have been allowed to conduct research on Project Management Processes and Performance of Infrastructural Projects in Meru County for the period ending from December 2021 to March 2022.

Haron Kanathi

Chief Officer —Legal Affairs, Public Service Management and Administration

cc:

County Secretary and Head of Public Service

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **795269**

Date of Issue: **11/November/2021**

RESEARCH LICENSE

This is to Certify that Mr.. DUNCAN MUTHEE RATANYA of Kenyatta University, has been licensed to conduct research in Meru on the topic: PROJECT MANAGEMENT PROCESSES AND PERFORMANCE OF INFRASTRUCTURAL PROJECTS IN MERU COUNTY, KENYA for the period ending : 11/November/2022.

License No: **NACOSTI/P/21/13826**

795269

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR
SCIENCE,TECHNOLOGY &
INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.