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Examining Effectiveness of Project Management Methodologies in Enhancing Project Performance: A Case Study of the Mongu-Kaoma Road Construction Project

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Abstract
Despite the efforts of all players in the construction industry, many construction projects run a high risk of poor performance by well-being over the budget and significantly late. The construction industry has a reputation for time and cost overruns. One of the reasons of the bad performance is that the construction industry is one of riskiest of all business types (Clough *et al* 2015). Within the sphere of a given project there are several project management activities. Several ways of carrying out these activities emerge and become accepted as day to day practices. Personnel involved in project management may also adopt certain PM practices and stick to them for purposes which may however not relate to the project success. Several practices are therefore carried out in the management of projects but not recognized as PM practices. The aim of the study was to examine effectiveness of Project Management Methodologies in enhancing Project Performance. This is case study of the Kaoma-Mongu dual road construction project. The basic research design employed in this study was a case study design. The choice of this design was chosen due to the fact that it enriches the data collection. The research design adopted in this study will be carefully planned, so as to be able to obtain accurate and complete information about the research project being used. Population is basically the universe of unit from which the sample is to be selected. According to Babbie (2019), a study population is the aggregation of element from which the sample elements actually selected. The project manager needs to ensure that the project is progressing in a manner consistent with its objectives, or the project can be modified with minimum upset if the objectives (scope) have changed. Continued monitoring, reporting and forecasting must take place during project implementation and the forecasts compared to the project plan. Deviations must immediately receive attention, in order to assess the impact on any of the three-dimensional goals (time, cost and performance).

Keywords: Project, Cost, Management, Completion, Performance

1. Introduction

Project Management involves the undertaking of routine tasks that constitute the project management phases of Initiating and Planning; Executing, Monitoring and Controlling; and Closing (Project Management Institute, 2023). Project Implementation entails activities that must be accomplished within competing constraints of time, budget, scope, quality, risks and resources (Atkinson, 1999). Organizations are increasingly investing more resources in projects such as new product development, process improvement and design of new services. However, studies show that these projects fail to meet the budget and time constraints, or they fail to satisfy customer expectations and company objectives (Sauser, Reilly, & Shemar, 2019).

Application of project management methodologies in Africa shows positive effective on project outcomes in the continent, especially in the private sector and in Non-Governmental Organizations (NGOs). Research into Nokia projects in Africa (Sheiki, 2024) revealed a positive correlation between proper Earned Value Management (EVM) and project success. The study established that planning phase and initial assumptions made influence the way EVM can be handled, hence impacting on project outcome. According to Price Waterhouse Coopers (PWC) survey, capital projects and infrastructure delivered expected benefits to stakeholders (Price Water house Coopers, 2024).

According to the PMI's PMBOK, projects are temporary endeavors undertaken to meet unique goals and objectives

within a definite scope, timeframe and budget. The project therefore follows a logical sequence made up of five stages namely; Initiation, planning, execution, monitoring and controlling and the closure stage (PMI, 2023). On the other hand, Projects In a controlled environment, version 2 (PRINCE2) is a process-based structured project management methodology that is logical organized and follows a defined sequence. This methodology stipulates that projects must have organized and controlled start, middle and end. The processes in PRINCE 2 define the key inputs, outputs, activities and specific objectives (ILX Group, 2015). Project activities are undertaken to realize targeted project goals in a determined schedule with finite resources. While project management mainly focuses on the triple constraints of cost, budget and time; there exist organizational constraints that impact the project management processes. Therefore, improving the management of the constraints will enable organizations to achieve their business goals.

The UC Santa Cruz ITS PMG adopted a project methodology comprising of five project management phases. At the definition phase where the project dimension is determined and a project proposal prepared based on rough estimates and Go/No Go decision is made. The second stage is planning which involves scoping where a project plan is drawn detailing timelines, the budget and required resources. At launch, a specific project governance structure is established. The project team holds a kick-off meeting where members are assigned responsibilities and deliverables. The managing is the 10 fourth stage that involves project execution by implementing tasks defined. In this stage, effective communication and regular reporting of the project status is critical in managing the expectations of the relevant stakeholders. The last stage is project closure which requires appropriate sign off, knowledge transfer and documentation. While the description is sequential, in practice, the phases can overlap or run simultaneously (ITS Project Management Group, 2018).

Project success can be determined if the success criteria are defined from the start and based on three tiers. First, the project completion success can be based on the triple constraint of time, cost and scope. Secondly, success can be defined by how well a product or service is received by the intended final user. Service uptime, reliability and customer satisfaction are some metrics that can be used to measure success. Finally, project success can be determined by using a criterion that measure the value a product or service brings to an organization and the strategic or financial benefits it brings (PM Stack Exchange, 2017).

1.2 Statement of the Problem

Success in construction projects is indicated by its performance in the achievement of project time, cost, quality and environmental sustainability objectives (Zhou *et al* 2017). Despite the efforts of all players in the construction industry, many construction projects run a high risk of poor performance by well-being over the budget and significantly late. The construction industry has a reputation for time and cost overruns. One of the reasons of the bad performance is that the construction industry is one of riskiest of all business types (Clough *et al* 2015). Within the sphere of a given project there are several project management activities. Several ways of carrying out these activities emerge and become accepted as day to day practices. Personnel involved in project management may also adopt certain PM practices and stick to them for purposes which may however not relate to the project success. Several practices are therefore carried out in the management of projects but not recognized as PM practices. The need to obtain successful projects calls for the need to also undertake optimum practices. Knowing the success, or outcome or performance of a project has a great deal of relevance to knowing the optimum practices. The effort put into the measurement of project performance in the country has portrayed little or no help in this direction. The possible, simple and most understanding way of measuring project performance with hard data is therefore needed in this regard. Performance of group of projects managed by an organization may differ from performance of another group of projects with similar characteristics but managed by another organization. The kind of PM practices carried out by the different organizations for achieving project success may also influence variation in the performance of the projects. The significance of such differences in performance of the groups of projects is therefore necessary for determination of the characteristics of influential PM practices. There is a relationship between PM practices and project performance (Ramabadron *et al*., 2017). Certain PM practices adopted do not necessarily have a significant satisfactory influence on projects performance whilst some have.

1.3.1 General Objective

The aim of the study is to examine effectiveness of Project Management Methodologies in enhancing Project Performance. This is case study of the Kaoma-Mongu dual road construction project.

1.3.2 Specific Objectives

i) To establish project management methods used in road construction.
ii) To analyze effectiveness of project management methods used in road construction.
iii) To assess limitations of project management methods used in road construction.
iv) To ascertain project policy interventions that will enhance completion

1.4 Research Question

i) What project management methods used in road construction.
ii) How effective are project management methods used in road construction.
iii) What are the limitations of project management methods used in road construction.
iv) What are the project policy interventions that enhance completion

Theoretical Framework-Using the Project Management Competency Theory. The work of (McClelland &McBer 1980) established the competence theory. The authors defined competency as the underlying characteristic of an individual that is causally related to criterion-referenced effective and/or superior performance in a job or situation. Since then a number of competency frameworks have been developed by different project management institutes. Crawford (as cited in Boyatzis, 1982 & Spencer, 1993), puts a model of competence that integrates knowledge, skills, demonstrable performance, and core personality characteristics, noting the last, personality characteristics, as challenging to develop and assess through training. The basis for the functioning of modern economies is the competencies of human capital at organisational, positional and individual levels. Resources and

competencies create strategic opportunities for companies, providing them with the ability to take on tasks which are difficult for competitors to imitate. Managers cannot efficiently manage a company and creatively manage employees without theoretical and practical knowledge, experience, skills and commitment in this regard. Competencies are a component of human capital; they are one of the most important assets of a company. Competencies are assigned an important role in strengthening the company's position on a competitive market. Investing in competency development increases the organization's ability to grow and compete through innovations (Baruk, 2012; Loewe & Dominiquini, 2006; Rakowska, 2007; Schumpeter, 2002).

Definitions of Key Terms

Project. A project is a temporary organization to which resources are assigned to do work to deliver beneficial change (Turner *et al*, 2010:14).

Project management. Project management is the process by which projects are defined, planned, monitored, controlled, and delivered such that the agreed benefits are realized, (APM BoK, 2006).

Project Management Maturity. Project Management Maturity is defined as 'The degree to which an organization practices project management measured by the ability of an organization to successfully initiate, plan, execute, monitor and control individual projects' (Project Management Institute, 2003).

Literature Review

Project Management Methods used in Road Construction

Studies have identified several project management practices that influence the success of projects. This encompasses stakeholder participation, executive support, communication, resource allocation, integrated change control management, and sustainability practices. One of the highly cited practices is stakeholder participation and leadership support are critical for project implementation (Jessica, 2023). The study highlighted that the success of projects is dependent on how the projects are managed but she cautioned that it is not guaranteed that project management practices will result in the success of projects. Another study by Wong *et al*. (2023) stated that the best practices are for improving project mindset, processes, and culture. The study revealed that open and regular communication with the project team and stakeholders is important for the success of projects. Wekesa and Kimutai (2023) highlighted that project management practices that are critical include funding, risk management, ICT adoption, and training. Ferrarez *et al*. (2023) added that the right resource allocation will assist in better teamwork and resource availability. The findings of the study by Ferrarez *et al*. (2023) further revealed that good project management for project success includes funding, risk management, technology adoption, and training. The paper discusses five key practices for incorporating sustainability in project management: environmental efficiency, compliance, social responsibility, continuous improvement, lessons learned, and project success. Berssaneti, and Carvalho (2015) added that project management maturity is significantly related to project success. This includes time, cost, and technical performance dimensions of success. The study by Giles and Cormican (2014) focused on practices at the front end of the innovation process in a large organization. The study revealed that practices relating to strategy, resources, process, and climate are very important at the front end. Therefore, there are several best practices, but it is not clear which are the top practices that contribute to the success of projects. The Project Management Institute (PMI) provides best practices and guidelines for successful project management. The PMBOK guide is a clear and complete resource for good project management best practices. The five process groups stated encompass guidelines and practices on project initiating, planning, executing, monitoring, controlling, and project closing. There are ten knowledge areas incorporated. The PMBOK Guide also guides project management tools and techniques, such as the critical path method, earned value management, and project charters (PMBOK Guide, 2021).

To Analyze Effectiveness of Project Management Methods Used in Road Construction

Project Management Body of Knowledge (PMBOK) is a collection of processes and knowledge areas accepted as best practice for the project management profession (Pastor, Oleos & Fuente, 2018). It provides the fundamentals of project management, irrespective of the type of project be it construction, software, engineering, automotive. PMBOK recognizes five basic process groups and ten knowledge areas typical of almost all projects. Basic Knowledge Areas in the PMBOK The basic concepts are applicable to projects, programmes and operations. The five basic process groups are Initiating, Planning, Executing, Monitoring and Controlling and Closing (Kerzner & Kerzner, 2017). (a) Project Initiation This process includes the basic groundwork necessary to create the project and define the guidelines and criteria under which it will operate (Kliem & Ludin, 2019).

Authorizations from the performing organization are given and funding is put in place. An initial scope statement can be made because executives generally have an idea what the project should accomplish when they authorize it. Any initial project boundaries are determined and stakeholders identified. All this information gets placed into a document called a project charter. The purpose of this document is to commission the project and authorize the project manager to initiate the project. (b) Project Planning Upon authorization of the project, the project must be planned. This phase produces a document called a project management plan. Master planning document which establishes stakeholder expectations and makes it clear how the project will be managed. In the PMBOK, all ten knowledge areas are covered within the planning phase (Rosenberger & Tick, 2018). It should outline the project's scope, cost, deadlines, milestones, communication needs and anything else that shows the stakeholders how the project will be managed. It is highly specific to individual industries and organizations. The project should be distributed to major project stakeholders, including the project sponsor. This phase is usually the most underrated and underutilized. Planning is the most intense part of the project management process, because a lack of planning can result in cost and schedule overruns as well as other project changes which look bad on the project manager and sponsor (Simonette).

2.3 Limitations of Project Management Methods Used in Road Construction

It has been observed in past studies in Africa that poor prioritization of developmental projects is one of the problems affecting planning. Several times either none important or urgent projects are fronted instead of crucial ones which might address the outstanding problems. Worse off it was recorded that sometimes a same project might have parallel

implementing structures resulting in duplication and this has mainly been the case with donor funded projects (Byakika, 2012). The common professional practice in project selection is to prioritized economic investment based on road deterioration and traffic demand. According to the case study on the RDA it was revealed that Zambian road project selection is mostly based on population density and poverty levels. Areas with low population density were prioritized between 2008 and 2011 and also areas with higher poverty rating were considered priority this led to low road infrastructure development in areas with higher economic activities such as Copperbelt (Raballand, 2013). 20 Oppong's (2014) study on infrastructure development in Africa concluded that most governments do not set the right priorities in project selection. It further went to state that most projects were ad hoc and misplaced. Good project planning efforts entail that selected projects meet intended objectives and expectations of the general public rather than being white elephants. An increase in rehabilitation projects is an indication enough that extra efforts are required in maintenance of infrastructure. It is generally observed in Sub-Saharan region that maintenance projects have little perceived benefits and therefore they don't receive adequate support for funding by both executives and parliaments. The general conclusion is that in environments of weak governance practices and politically dominated budgeting processes, maintenance of infrastructure is not prioritized. Zambia is ranked amongst the three countries with high spending on road infrastructure rehabilitation along with the Democratic Republic of Congo and Ethiopia whose amounts are about 15 times higher than those of middle income countries (Briceño-Garmendia *et al*., 2008). The SADC infrastructure report of 2011 listed Zambia amongst the countries which have allowed 30 to 60 percent of their infrastructure stocks to drop into the poor condition category. The report alluded his to funding deficiencies as well as implementation of maintenance works (Ranganathan & Forster, 2011).

Methods ABD Procedures

3.0. Overview

Data is not just mere information, it is information gathered by investigation with the aid of their instruments, techniques and means. However, research method has to do with methods adopted by the researcher to collect data, which are relevant to the problem under consideration, the researcher of this project will make use of personal interviews and data questionnaire.

3.1 Research Design

The basic research design employed in this study was a case study design. The choice of this design was chosen due to the fact that it enriches the data collection. The research design adopted in this study will be carefully planned, so as to be able to obtain accurate and complete information about the research project being used.

3.2 Target Population

Population is basically the universe of unit from which the sample is to be selected. According to Babbie (2019), a study population is the aggregation of element from which the sample elements actually selected. The target population for this research will be road construction company in Mongu.

3.3 Sampling Design

In determining those that make up the sample size, the researcher will use judgmental technique. Both Interview and questionnaire methods will be used to collect data (Roa, 2014).

Sampling

The sampling design for this study will employ a purposive sampling technique. This method will involve the deliberate selection of specific individuals or groups from the target population Purposive sampling will enable the study to focus on key informants or participants who possess specialized knowledge or experience related to the research topic, ensuring that the data collected is highly relevant to the research objectives and providing valuable insights into the study's subject matter.

3.3.1 Interview Method

The interview method of collecting data involves presentation of oral-verbal stimuli and reply in terms oral-verbal responses (Gujarati, 2010). This method will be used through personal interviews. Both structured and unstructured questions will be administered to the respondents. The questions will be open and flexible so as to allow greater opportunity for an individual. A set of predetermined questions will be used to guide the respondent in order to provide the necessary information to meet the research objectives. The questions will be distributed to road construction companies in on the site.

Questionnaires Method

This method of data collection is quite popular, particularly in case of enquires. It is being adopted by private individual's research workers, private and public organizations and even by governments. In this method, questionnaires will be sent to the person's concerned with a request to answer the questions and turn to the questionnaires. A questionnaire consists of number of questions printed or typed in a definite order on a form or set of forms. The respondents had to answer the questions on their own.

3.4 Sample Size Determination

3.4.1 Sample size

Sample size refers to the number of items to be selected from the universe to constitute the sample, and this answer how many sampling units should be surveyed and interviewed (Kothari 2010). Large sample give more reliable results than small samples. The sample size of One Hundred (100) in number will be used.

Sample Size (Sloven's formula)

$n = N/ (1+Ne^2)$

Where;

n is the sample size.

N is the population size

e is the margin of error

$n = 116/ (1+ [116] \times [0.05]^2)$

$n = 100/1.29$

$n = 99.92$

$n = 100$

3.4.2 Data Collection Methods

The major source of data in this work will be mainly through primary and secondary sources of data collection. The primary sources are data collected at first hand from original sources for the user's express purpose. Such data are usually

collected from oral interview, questionnaires and face to face observation of the respondents. The secondary data are simple data collected on a secondhand base. This type of data was obtained through the use of textbooks, seminar papers, journals, newspapers, internet and magazines collected mostly from university, public and specialized libraries (Gujarati, 2017).

The research study will employ the combination of different data collection methods. This will include primary data and secondary data collection method. This enhanced the validity and reliability of data. Secondary data may either be published or unpublished data. Usually published data are available in various publications of the central state or local government or various publications of foreign governments or international bodies and their subsidiaries organizations, technical and trade journals, books magazines and newspapers, reports and publications of various associations connected with business and industries, banks, stock exchanges etc. Report prepared by research scholars, universities, economists etc. (Leo, 2019). In this work, the researcher will use many books, construction policy and other important articles to collect data which include Zambia Road construction companies' policy, Zambia construction act policy and Zambia economic bulletin to collect secondary data.

The policy of construction affects Zambia as a whole but because of the vast nature of Zambia. The study will be conducted in Mongu district which is located in Western province. The reason for this location is the prescience of good number of road construction companies. Also, this area will purposely be selected as representative sample of road construction companies due to accessibility, convenience to the researcher. This will help in minimizing time and other financial demand in terms of expenses (Leo, 2019).

3.5 Data Analysis

The data collected will be both qualitative and quantitative in nature, however, data processing and analysis will include computation, classification and tabulation to enable the analysis to be done well. Quantitative data will be presented using descriptive statistic methods including table and charts. Qualitative techniques will be used to analyze qualitative data from the views of respondents. This will increase the validity and reliability of information. Therefore, data will be entered using Microsoft Excel, and statistical analysis will be performed using the Statistical Package for the Social Sciences (SPSS) version 26. Descriptive statistics, including frequencies, percentages, and means, will be used to summarize the data

3.6 Triangulation

Triangulation refers to the use of multiple methods or data sources in qualitative research to develop a comprehensive understanding of phenomena (Patton, 2019). Triangulation also has been viewed as a qualitative research strategy to test validity through the convergence of information from different sources. Denzin (2018) and Patton (2019) identified four types of triangulations: (a) method triangulation, (b) investigator triangulation, (c) theory triangulation, and (d) data source triangulation. This research presented the four types of triangulations followed by a discussion of the use of focus groups (FGs) and in-depth individual (IDI) interviews as an example of data source triangulation in qualitative inquiry.

3.7 Ethical Considerations

Informed Consent: When involving human participants, such as project managers, designers, or construction workers, obtain informed consent. Clearly explain the research purpose, procedures, and any potential risks or benefits, and ensure participants voluntarily agree to participate. Confidentiality: Safeguard the confidentiality of sensitive information. Ensure that any data collected, especially personal or proprietary project data, is anonymized and stored securely to protect participants' identities and proprietary information. Data Privacy: Comply with data protection regulations and policies. If you collect and store personal data, ensure it is handled in accordance with applicable data protection laws and guidelines. Respect for Autonomy: Respect the autonomy and decisions of project participants. If they choose not to participate or withdraw from the study, honor their choices without repercussions. Accuracy and Integrity: Maintain the accuracy and integrity of your research findings. Avoid misrepresentation or manipulation of data, and report your findings honestly, even if they do not align with your initial hypotheses. Transparency: Be transparent about your research methods, sources of funding, and potential conflicts of interest in your research publications and reports. Community and Cultural Sensitivity: Be culturally sensitive when conducting research in a specific community or region. Respect local customs, traditions, and values, and seek permission from relevant authorities if necessary. Environmental Responsibility: If your research involves environmental impacts, take measures to minimize harm to the environment. Follow relevant environmental regulations and consider sustainability practices. Responsible Reporting: Report your findings responsibly, ensuring that they are not sensationalized or misrepresented in a way that could lead to misinterpretation or harm. Feedback and Collaboration: Encourage feedback and collaboration with stakeholders, including project managers, construction companies, and government agencies. Ensure that their perspectives and concerns are considered in your research.

Presentation of Findings and Discussions

Demographic Characteristics of Respondents

This section presents the demographic profile of the respondents who participated in the study. Understanding respondents' backgrounds, including gender, age, roles, and professional experience, is vital in contextualizing the perspectives and insights provided on project performance. The results gathered reflects the diversity and experience within the project workforce, which offers meaningful grounding for the study's findings.

Table 5.1: Demographic Characteristics of Respondents

Demographic Characteristic	Category	Frequency	Percent (%)
Gender	Male	78	78.0
	Female	22	22.0
Age	20 – 30 years	22	22.0
	31 – 40 years	40	40.0
	41 – 50 years	29	29.0

	Above 50 years	9	9.0
Role in Road Project	Project manager	15	15.0
	Engineer	30	30.0
	Supervisor	25	25.0
	Technician	20	20.0
	Support Staff	10	10.0
Years of Experience in Road Construction	Less than 3 years	18	18.0
	3–5 years	32	32.0
	6–10 years	30	30.0
	More than 10 years	20	20.0

The demographic data reveal a male-dominated workforce, with 78% of respondents being male and only 22% female. Age-wise, the majority (40%) of respondents were between 31–40 years, suggesting a workforce in its prime productive years, followed by 29% aged 41–50 years, and 22% in the 20–30 years range. Only 9% were above 50 years. In terms of project roles, Engineers (30%), Supervisors (25%), and Technicians (20%) made up the bulk of the workforce, suggesting the survey targeted those with direct operational input. Project Managers comprised 15%, and Support Staff made up 10%. Regarding professional experience, a significant portion had between 3–5 years (32%) and 6–10 years (30%) of experience in road construction. A smaller group (20%) had more than 10 years of experience, while those with less than 3 years comprised 18%.

Objective 1

Objective 1: To establish project management methods used in road construction.

Prevalence and Rationale of Project Management Methodologies in the Mongu-Kaoma Road Construction Project

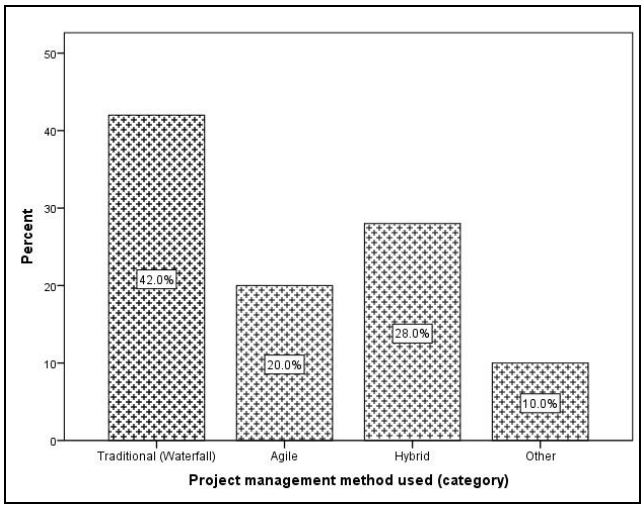

Fig 4.5.1: Project Management Method Used

The findings revealed that a significant portion of the project stakeholders (42%) reported using the Traditional (Waterfall) project management method. This suggests a continued reliance on structured and sequential processes, likely due to the nature of road construction which benefits from clear planning and linear progression. A notable proportion (28%) indicated the use of a Hybrid approach, integrating both agile and traditional elements, possibly as an adaptation to the dynamic field conditions and stakeholder demands. Only 20% utilized Agile methods, which, although more flexible, may be less suited to the rigid requirements of large-scale infrastructure. The remaining 10% selected other methods, likely context-specific or customized strategies developed internally.

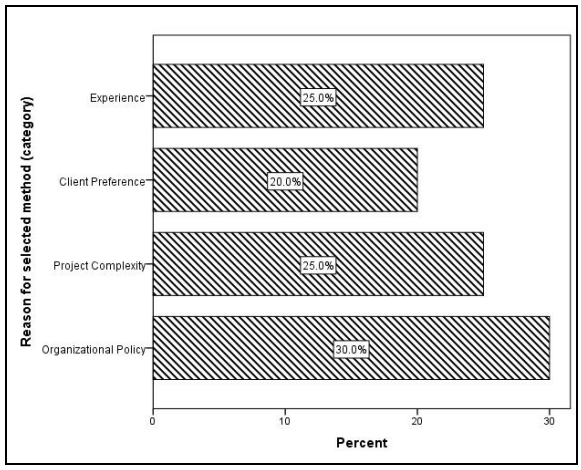

Fig 4.5.2: Reason for Selected Method

In terms of rationale for choosing specific methodologies, Organizational Policy was the most cited reason at 30%, indicating institutional influence in shaping project execution standards. This was closely followed by Project Complexity (25%) and Experience (25%), emphasizing the importance of adaptability and past practical knowledge. Client Preference accounted for 20%, reinforcing the role of stakeholder expectations in method selection.

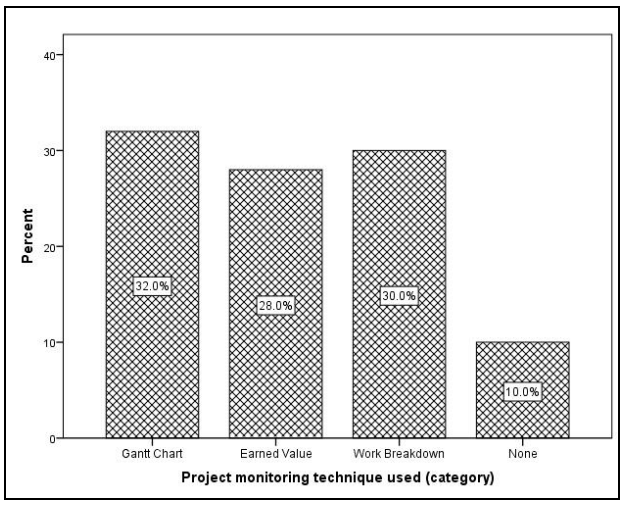

Fig 4.5.3: Project Monitoring Technique Used

Respondents often stressed the importance of "clarity in planning" and "ease of communication across departments" as drivers behind method selection and monitoring tool adoption, echoing practical alignment with site realities and client deliverables.

Differentiated Utilization and Perceived Effectiveness of Project Management Methods in Road Construction Projects

Table 5.2: Cross tabulation between Project management method used Role in the Road Project

Crosstab								
			Role in the Road Project					Total
			Project Manager	Engineer	Supervisor	Technician	Support Staff	
Project management method used	Traditional (Waterfall),	Count	15	27	0	0	0	42
		Expected Count	6.3	12.6	10.5	8.4	4.2	42.0
	Agile	Count	0	3	17	0	0	20
		Expected Count	3.0	6.0	5.0	4.0	2.0	20.0
	Hybrid	Count	0	0	8	20	0	28
		Expected Count	4.2	8.4	7.0	5.6	2.8	28.0
	Other	Count	0	0	0	0	10	10
		Expected Count	1.5	3.0	2.5	2.0	1.0	10.0
Total		Count	15	30	25	20	10	100
		Expected Count	15.0	30.0	25.0	20.0	10.0	100.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	233.443[a]	12	.000
Likelihood Ratio	203.737	12	.000
Linear-by-Linear Association	86.407	1	.000
N of Valid Cases	100		

a. 11 cells (55.0%) have expected count less than 5. The minimum expected count is 1.00.

The chi-square analyses revealed statistically significant associations between project roles and the project management methods applied in the Mongu-Kaoma Road Construction Project ($\chi^2 = 233.443$, df = 12, $p < .001$). The cross-tabulations show that project managers (100%) and engineers (90%) predominantly used the traditional (Waterfall) method, while supervisors (68%) and technicians (100%) primarily adopted hybrid approaches, and support staff (100%) reported the use of "other" unspecified methods. This alignment is particularly telling: one engineer remarked, *"The Waterfall model helps us keep the sequence clear and budget under control, which suits high-level planning." Conversely, a technician explained, "We needed a more flexible method that allowed us to adapt as situations on-site changed – the hybrid approach gave us that."*

Table 5.3: Cross tabulation between Project management method used Effectiveness of method used

Crosstab								
			Effectiveness of method used					Total
			Very Ineffective	Ineffective	Neutral	Effective	Very Effective	
Project management method used	Traditional (Waterfall),	Count	5	10	20	7	0	42
		Expected Count	2.1	4.2	8.4	16.8	10.5	42.0
	Agile	Count	0	0	0	20	0	20
		Expected Count	1.0	2.0	4.0	8.0	5.0	20.0
	Hybrid	Count	0	0	0	13	15	28
		Expected Count	1.4	2.8	5.6	11.2	7.0	28.0
	Other	Count	0	0	0	0	10	10
		Expected Count	.5	1.0	2.0	4.0	2.5	10.0
Total		Count	5	10	20	40	25	100
		Expected Count	5.0	10.0	20.0	40.0	25.0	100.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	123.482[a]	12	.000
Likelihood Ratio	139.585	12	.000
Linear-by-Linear Association	62.888	1	.000
N of Valid Cases	100		

a. 12 cells (60.0%) have expected count less than 5. The minimum expected count is .50.

Regarding the perceived effectiveness of the applied methods, another significant chi-square result ($\chi^2 = 123.482$, df = 12, $p < .001$) highlights variation in outcomes across different management styles. Agile and hybrid methods were overwhelmingly viewed as effective, with 100% of Agile users rating it as "effective," and 53.6% of hybrid users deeming it "very effective." In contrast, the traditional method had the weakest perception of effectiveness, with only 16.7% of its users rating it "effective" and none rating it "very effective." A significant 35.7% of traditional method users rated it either "ineffective" or "very ineffective." One supervisor affirmed this perception gap by stating, "*Agile practices made coordination smoother, but were less known at the managerial level. Hybrid methods allowed for both planning and on-the-ground flexibility.*" Meanwhile, a respondent using traditional methods noted, "*We stuck to one plan from start to finish, but it didn't always match the realities on-site.*"

Objective 2

Objective 2: To analyze effectiveness of project management methods used in road construction.

Perceived Effectiveness and Impact of Project Management Methods on Road Construction

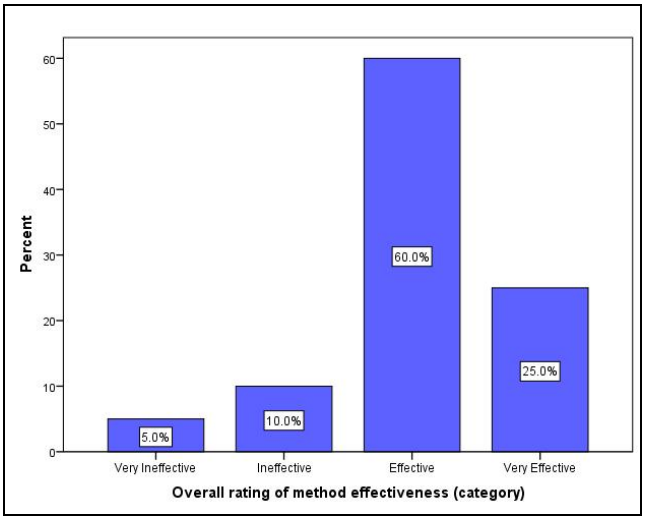

Fig 5.4: Overall Rating of Project Management Method Effectiveness

The findings from the analysis reveal that a significant majority of respondents (60%) rated the project management methods used in the Mongu-Kaoma Road Construction Project as "Effective", while 25% found them "Very Effective" (see Figure 1). Only a small proportion of respondents expressed dissatisfaction, with 10% rating the methods as "Ineffective" and 5% describing them as "Very Ineffective." This suggests an overall positive perception of the applied methodologies among project personnel. As one site supervisor noted, "*We've seen tangible improvements in delivery timelines since introducing hybrid methods that suit both the office and the field*."

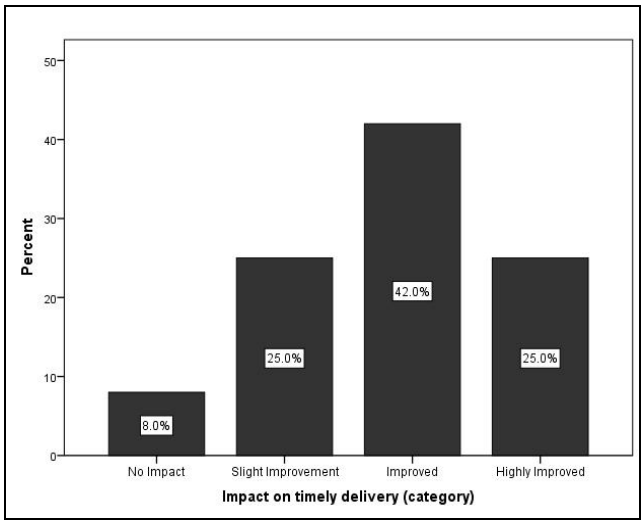

Fig 5.5: Impact of Project Management Methods on Timely Delivery

In evaluating the impact of these methods on timely delivery, 42% of the respondents reported that delivery timelines had "Improved," while 25% stated that delivery had "Highly Improved." Furthermore, 25% noted only a "Slight Improvement," and 8% believed there was "No Impact" (see Figure 2). These results reinforce the earlier finding that a majority view the methodologies not just as effective in theory, but as practically beneficial to project outcomes. Echoing this, a project engineer shared, "*We no longer experience the delays we used to. Coordinating teams has become easier with the method we now use*."

Comparative Effectiveness of Project Management Methods in Road Construction Projects

Table 5.4: Kruskal-Wallis Test on the Effectiveness of Project Management Methods

Ranks			
	Project management method used	**N**	**Mean Rank**
Impact on timely delivery	Traditional (Waterfall),	42	25.04
	Agile	20	54.50
	Hybrid	28	72.45
	Other	10	88.00
	Total	100	
Overall rating of method effectiveness	Traditional (Waterfall),	42	32.11
	Agile	20	45.50
	Hybrid	28	68.27
	Other	10	88.00
	Total	100	
Method helped in managing cost	Traditional (Waterfall),	42	24.67
	Agile	20	58.00
	Hybrid	28	69.61
	Other	10	90.50
	Total	100	

Test Statistics[a,b]			
	Impact on timely delivery	**Overall rating of method effectiveness**	**Method helped in managing cost**
Chi-Square	73.211	58.236	75.293
df	3	3	3
Asymp. Sig.	.000	.000	.000

a. Kruskal Wallis Test
b. Grouping Variable: Project management method used

The Kruskal-Wallis test results provide statistically significant evidence that the type of project management method used has a strong influence on key project performance indicators - namely timely delivery, method effectiveness, and cost management. All three variables reported p-values of .000, indicating that differences in outcomes across methods are not due to chance. On timely delivery, respondents using traditional (Waterfall) methods had the lowest mean rank (25.04), suggesting minimal impact on speed of delivery. In contrast, hybrid methods (72.45) and other adaptive methods (88.00) were rated much higher, implying superior performance in ensuring timely completion. One project engineer highlighted, "*Hybrid models allowed more flexibility, which was crucial when we faced unexpected delays due to logistics*." Similarly, regarding overall effectiveness, Waterfall again showed the lowest perceived effectiveness (mean rank = 32.11), while hybrid (68.27) and other approaches (88.00) were seen as more impactful. A project manager observed, "*Traditional methods worked for planning but not execution. Agile-based tracking boosted our productivity*." When examining whether the method helped manage project cost, Waterfall lagged (24.67), with hybrid (69.61) and other methods (90.50) again outperforming. Agile ranked moderately (58.00). One respondent stated, "*We cut back on unnecessary expenses using agile tools that highlight resource waste in real-time*."

Objective 3

Objective 3: To assess limitations of project management methods used in road construction.

Assessing Constraints Undermining Project Management Methodologies in Road Construction

Descriptive Statistics					
	N	Mean	Std. Deviation	Minimum	Maximum
Limited access to financial/human resources	100	2.28	.712	1	3
Delays due to method used	100	2.12	.715	1	3
Difficulty in managing changing project scope	100	2.10	.772	1	3
Limited stakeholder engagement in method	100	1.95	.744	1	3
Challenges in using digital tools in project delivery	100	2.18	.770	1	3
Regulatory and quality compliance issues	100	2.03	.745	1	3

Ranks	
	Mean Rank
Limited access to financial/human resources	4.01
Delays due to method used	3.53
Difficulty in managing changing project scope	3.47
Limited stakeholder engagement in method	3.02
Challenges in using digital tools in project delivery	3.71
Regulatory and quality compliance issues	3.26

Test Statistics	
N	100
Chi-Square	89.189
df	5
Asymp. Sig.	.000

a. Friedman Test

The Friedman Test results provide critical insights into the limitations associated with the project management methods employed in the road construction project. Based on the ranking results, limited access to financial and human resources emerged as the most pressing challenge, with the highest mean rank of 4.01. One participant emphasized, "*At times, we had the plans in place, but lacked the manpower or funds to follow through on schedule.*" This was followed closely by challenges in using digital tools in project delivery, ranked second with a mean of 3.71, suggesting that technological adoption remains a significant hurdle. This could reflect infrastructural or capacity-related gaps among teams, a concern supported by one field engineer who noted, "*Most of the tools were new to our team, and training was not always available.*" Delays attributed to the methods used ranked third (3.53). Similarly, difficulty in managing changing project scope (mean rank 3.47) and regulatory and quality compliance issues (3.26) also surfaced as recurring barriers, pointing to procedural rigidity and bureaucratic delays. Lastly, limited stakeholder engagement ranked lowest (3.02), though still a significant concern. The Friedman Test yielded a Chi-square value of 89.189 ($df = 5$, $p < 0.001$), confirming statistically significant differences among the perceived limitations. These findings collectively highlight the multifaceted challenges confronting the effectiveness of project management methods, with respondents pointing to resource constraints, digital adaptation issues, and scope management as dominant factors limiting their success.

Limitations in Stakeholder Engagement, Technological Integration, and Compliance across Project Management Methods

Table 5.7: Limited Stakeholder Engagement in Project Management Methods

Crosstab						
			Limited stakeholder engagement in method			Total
			Always Engaged	Sometimes Engaged	Rarely Engaged	
Project management method used	Traditional (Waterfall),	Count	30	12	0	42
		Expected Count	12.6	18.9	10.5	42.0
	Agile	Count	0	20	0	20
		Expected Count	6.0	9.0	5.0	20.0
	Hybrid	Count	0	13	15	28
		Expected Count	8.4	12.6	7.0	28.0
	Other	Count	0	0	10	10
		Expected Count	3.0	4.5	2.5	10.0
Total		Count	30	45	25	100
		Expected Count	30.0	45.0	25.0	100.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	109.048[a]	6	.000
Likelihood Ratio	124.491	6	.000
Linear-by-Linear Association	70.325	1	.000
N of Valid Cases	100		

a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 2.50.

The Chi-square test result ($\chi^2 = 109.048$, $df = 6$, $p = .000$) indicates a statistically significant association between the project management method used and the extent of stakeholder engagement. A majority (71.4%) of respondents who reported being "always engaged" were working under the Traditional (Waterfall) method. However, Hybrid and Other methods reflected weak engagement patterns, with 53.6% of those under Hybrid and all (100%) under other methods indicating they were "rarely engaged." No respondents under Agile methods reported being always engaged. One participant noted, "*With hybrid approaches, communication gets complicated - roles and expectations aren't always clear.*"

Table 5.8: Challenges in Using Digital Tools across Project Management Methods

Crosstab						
			Challenges in using digital tools in project delivery			Total
			No Challenges	Some Challenges	Major Challenges	
Project management method used	Traditional (Waterfall),	Count	22	20	0	42
		Expected Count	9.2	16.0	16.8	42.0
	Agile	Count	0	18	2	20
		Expected Count	4.4	7.6	8.0	20.0
	Hybrid	Count	0	0	28	28
		Expected Count	6.2	10.6	11.2	28.0
	Other	Count	0	0	10	10
		Expected Count	2.2	3.8	4.0	10.0
Total		Count	22	38	40	100
		Expected Count	22.0	38.0	40.0	100.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	115.575[a]	6	.000
Likelihood Ratio	142.329	6	.000
Linear-by-Linear Association	72.992	1	.000
N of Valid Cases	100		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is 2.20.

The association between project management methods and challenges in digital tool use was statistically significant (χ^2 = 115.575, df = 6, p = .000). The Hybrid model stood out as the most affected, with all respondents (100%) indicating they experienced major challenges using digital tools. In contrast, the Traditional method had 52.4% reporting no digital tool challenges, suggesting reliance on conventional, less tech-dependent approaches. Respondents in hybrid settings echoed concerns such as, "*Digital integration sounds good in theory, but we lack the infrastructure and training on-site to make it work*." The Agile method presented mixed outcomes, with 90% facing some challenges.

Table 5.9: Regulatory and Quality Compliance Issues

Crosstab						
			Regulatory and quality compliance issues			Total
			No Problem	Minor Problem	Serious Problem	
Project management method used	Traditional (Waterfall),	Count	26	16	0	42
		Expected Count	10.9	18.9	12.2	42.0
	Agile	Count	0	20	0	20
		Expected Count	5.2	9.0	5.8	20.0
	Hybrid	Count	0	9	19	28
		Expected Count	7.3	12.6	8.1	28.0
	Other	Count	0	0	10	10
		Expected Count	2.6	4.5	2.9	10.0
Total		Count	26	45	29	100
		Expected Count	26.0	45.0	29.0	100.0

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	105.264[a]	6	.000
Likelihood Ratio	122.725	6	.000
Linear-by-Linear Association	69.093	1	.000
N of Valid Cases	100		

a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 2.60.

A significant relationship also emerged between project methods and compliance issues (χ^2 = 105.264, p = .000). Traditional methods showed the highest compliance, with 61.9% of respondents indicating no problem. Conversely, Hybrid methods showed the greatest vulnerability, with 67.9% reporting serious problems, possibly due to the complexity of integrating multiple frameworks and actors. Respondents under the Hybrid model highlighted coordination breakdowns, saying, "*We often miss regulatory steps because the process isn't clearly structured - it's like we're trying to follow two playbooks at once*."

Objective 4

Objective 4: To ascertain project policy interventions that will enhance completion

Stakeholder Perceptions of Policy Interventions and Their Influence on Project Completion

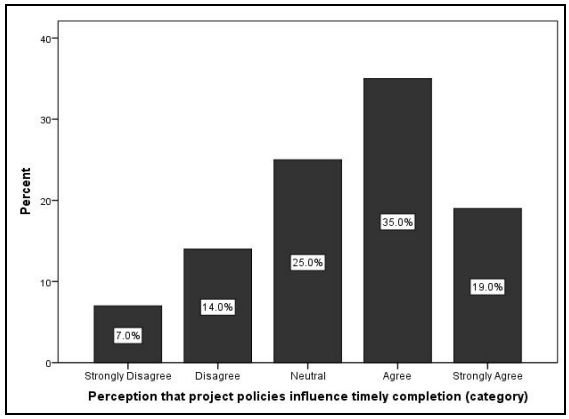

Fig 5.6: Stakeholder Perceptions of Policy Influence on Project Completion

The results in (see Figure 5.6) highlight how respondents perceive the influence of project policy interventions on the timely completion of road construction projects. A combined 54% of participants either agreed (35%) or strongly agreed (19%) that the policies in place contribute positively to project completion timelines. This finding suggests a fair level of confidence in the effectiveness of existing policy frameworks in guiding construction progress. However, 25% of respondents remained neutral, indicating a potential gap in awareness or mixed experiences with the operationalization of these policies. Meanwhile, a smaller proportion - 14% disagreed and 7% strongly disagreed - expressed skepticism about the practical effectiveness of these policies in enhancing completion. This signals a level of dissatisfaction or perceived disconnect between policy design and field-level implementation. One participant shared, "*The policies are there, yes, but enforcement and follow-through are often lacking on the ground, which delays progress*.

Prioritizing Effective Policy Interventions for Project Completion

Table 5.10: Friedman Test Summary of Policy Interventions Supporting Timely Project Completion

Descriptive Statistics					
	N	**Mean**	**Std. Deviation**	**Minimum**	**Maximum**
Regular review of project policies	100	3.36	1.040	1	5
Presence of active monitoring and evaluation systems	100	1.33	.473	1	2
Adequate budg*et al*located for policy implementation	100	3.20	1.214	1	5
Policies supported by legal enforcement mechanisms	100	1.40	.492	1	2
Extent of stakeholder involvement in policy formulation	100	3.26	1.070	1	5

Ranks	
	Mean Rank
Regular review of project policies	4.08
Presence of active monitoring and evaluation systems	1.58
Adequate budg*et al*located for policy implementation	3.79
Policies supported by legal enforcement mechanisms	1.65
Extent of stakeholder involvement in policy formulation	3.91

Test Statistics	
N	100
Chi-Square	350.791
df	4
Asymp. Sig.	.000

a. Friedman Test

The Friedman Test results presented in Table 2 (see Figure 2) reveal statistically significant differences ($\chi^2 = 350.791$, df = 4, $p < .001$) in how respondents ranked the influence of various project policy interventions on project completion. The analysis was based on five key policy factors rated by 100 participants. Among the interventions, "Regular review of project policies" received the highest mean rank (4.08), suggesting that a majority of respondents view consistent policy evaluation as a critical enabler of timely project delivery. Closely following were "Extent of stakeholder involvement in policy formulation" (Mean Rank = 3.91) and "Adequate budg*et al*located for policy implementation" (Mean Rank = 3.79) - both emphasizing the perceived value of participatory approaches and financial backing in ensuring policy effectiveness.

In contrast, "Presence of active monitoring and evaluation systems" (Mean Rank = 1.58) and "Policies supported by legal enforcement mechanisms" (Mean Rank = 1.65) were ranked significantly lower. While these mechanisms are typically essential for accountability, their low ranks suggest they may be either underutilized or not well integrated into actual project processes. A respondent noted, "We have policies written down, but unless there's a regular review and budget to support them, they remain theoretical. Monitoring is weak and rarely followed up." This sentiment aligns with the statistical finding that practical and financial aspects of policy interventions (e.g., reviews and budgeting) are prioritized over structural enforcement and oversight mechanisms.

Table 5.12: Relationship between Awareness of Policy Provisions and Perception of Their Influence on Project Completion

Awareness of project policy provisions * Perception that project policies influence timely completion Crosstabulation								
			Perception that project policies influence timely completion					**Total**
			Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**	
Awareness of project policy provisions	Yes	Count	7	14	25	32	0	78
		Expected Count	5.5	10.9	19.5	27.3	14.8	78.0
	No	Count	0	0	0	3	19	22
		Expected Count	1.5	3.1	5.5	7.7	4.2	22.0
Total		Count	7	14	25	35	19	100
		Expected Count	7.0	14.0	25.0	35.0	19.0	100.0

Chi-Square Tests			
	Value	**df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	84.016[a]	4	.000
Likelihood Ratio	84.906	4	.000
Linear-by-Linear Association	42.034	1	.000
N of Valid Cases	100		

a. 3 cells (30.0%) have expected count less than 5. The minimum expected count is 1.54.

The results from the Chi-Square test reveal a statistically significant association between awareness of project policy provisions and the perception that such policies influence the timely completion of projects ($\chi^2(4) = 84.016$, $p = .000$). This strong significance implies that respondents' level of awareness directly affects how they perceive the role of policy interventions in driving project outcomes. A breakdown of the cross-tabulation results shows that among the 78 respondents who reported awareness of project policy provisions, 41% agreed and 0% strongly agreed that these

policies influence timely project completion. Interestingly, despite being informed, a substantial proportion (32%) of these respondents remained neutral, suggesting a level of uncertainty or perhaps perceived inadequacy in the implementation of these policies. Meanwhile, 9% and 18% of this group disagreed and strongly disagreed, respectively, which may reflect dissatisfaction with the enforcement or relevance of current policy mechanisms.

Conversely, among the 22 respondents who lacked awareness of the policies, none disagreed or remained neutral. Notably, 86% (n=19) of this subgroup strongly agreed that policies influence timely completion. This may suggest that even without specific policy awareness, there is a general belief in the potential power of policy frameworks - possibly shaped by expectations or previous experiences in similar contexts. One respondent emphasized, "*We may not know all the policies in detail, but when they are followed, the work finishes faster*."

Discussions

Objective 1: To establish project management methods used in road construction.

Prevalence and Rationale of Project Management Methodologies in the Mongu-Kaoma Road Construction Project

The findings revealed that a significant portion of the project stakeholders (42%) reported using the Traditional (Waterfall) project management method. This suggests a continued reliance on structured and sequential processes, likely due to the nature of road construction which benefits from clear planning and linear progression. A notable proportion (28%) indicated the use of a Hybrid approach, integrating both agile and traditional elements, possibly as an adaptation to the dynamic field conditions and stakeholder demands. Only 20% utilized Agile methods, which, although more flexible, may be less suited to the rigid requirements of large-scale infrastructure. The remaining 10% selected other methods, likely context-specific or customized strategies developed internally.

Objective 2

Objective 2: To analyze effectiveness of project management methods used in road construction.

Perceived Effectiveness and Impact of Project Management Methods on Road Construction

Figure 5.4: Overall Rating of Project Management Method Effectiveness

The findings from the analysis reveal that a significant majority of respondents (60%) rated the project management methods used in the Mongu-Kaoma Road Construction Project as "Effective", while 25% found them "Very Effective" (see Figure 1). Only a small proportion of respondents expressed dissatisfaction, with 10% rating the methods as "Ineffective" and 5% describing them as "Very Ineffective." This suggests an overall positive perception of the applied methodologies among project personnel. As one site supervisor noted, "We've seen tangible improvements in delivery timelines since introducing hybrid methods that suit both the office and the field."

Figure 5.5: Impact of Project Management Methods on Timely Delivery

In evaluating the impact of these methods on timely delivery, 42% of the respondents reported that delivery timelines had "Improved," while 25% stated that delivery had "Highly Improved." Furthermore, 25% noted only a "Slight Improvement," and 8% believed there was "No Impact" (see Figure 2). These results reinforce the earlier finding that a majority view the methodologies not just as effective in theory, but as practically beneficial to project outcomes. Echoing this, a project engineer shared, "We no longer experience the delays we used to. Coordinating teams has become easier with the method we now use."

Objective 3

Objective 3: To assess limitations of project management methods used in road construction.

Assessing Constraints Undermining Project Management Methodologies in Road Construction

The Friedman Test results provide critical insights into the limitations associated with the project management methods employed in the road construction project. Based on the ranking results, limited access to financial and human resources emerged as the most pressing challenge, with the highest mean rank of 4.01. One participant emphasized, "At times, we had the plans in place, but lacked the manpower or funds to follow through on schedule." This was followed closely by challenges in using digital tools in project delivery, ranked second with a mean of 3.71, suggesting that technological adoption remains a significant hurdle. This could reflect infrastructural or capacity-related gaps among teams, a concern supported by one field engineer who noted, "Most of the tools were new to our team, and training was not always available." Delays attributed to the methods used ranked third (3.53). Similarly, difficulty in managing changing project scope (mean rank 3.47) and regulatory and quality compliance issues (3.26) also surfaced as recurring barriers, pointing to procedural rigidity and bureaucratic delays. Lastly, limited stakeholder engagement ranked lowest (3.02), though still a significant concern.

The Friedman Test yielded a Chi-square value of 89.189 ($df = 5$, $p < 0.001$), confirming statistically significant differences among the perceived limitations. These findings collectively highlight the multifaceted challenges confronting the effectiveness of project management methods, with respondents pointing to resource constraints, digital adaptation issues, and scope management as dominant factors limiting their success.

Objective 4

Objective 4: To ascertain project policy interventions that will enhance completion

Stakeholder Perceptions of Policy Interventions and Their Influence on Project Completion

Figure 5.6: Stakeholder Perceptions of Policy Influence on Project Completion

The results in (see Figure 5.6) highlight how respondents perceive the influence of project policy interventions on the timely completion of road construction projects. A combined 54% of participants either agreed (35%) or strongly agreed (19%) that the policies in place contribute positively to project completion timelines. This finding suggests a fair level of confidence in the effectiveness of existing policy frameworks in guiding construction progress. However, 25% of respondents remained neutral, indicating a potential gap in awareness or mixed experiences with the operationalization of these policies. Meanwhile, a smaller proportion - 14% disagreed and 7% strongly disagreed - expressed skepticism about the practical effectiveness of these policies in enhancing completion. This signals a level of dissatisfaction or perceived disconnect between policy design and field-level

implementation. One participant shared, "The policies are there, yes, but enforcement and follow-through are often lacking on the ground, which delays progress.

Prioritizing Effective Policy Interventions for Project Completion

The Friedman Test results presented in Table 2 (see Figure 2) reveal statistically significant differences ($\chi^2 = 350.791$, df = 4, $p < .001$) in how respondents ranked the influence of various project policy interventions on project completion. The analysis was based on five key policy factors rated by 100 participants. Among the interventions, "Regular review of project policies" received the highest mean rank (4.08), suggesting that a majority of respondents view consistent policy evaluation as a critical enabler of timely project delivery. Closely following were "Extent of stakeholder involvement in policy formulation" (Mean Rank = 3.91) and "Adequate budg*et al*located for policy implementation" (Mean Rank = 3.79) - both emphasizing the perceived value of participatory approaches and financial backing in ensuring policy effectiveness.

In contrast, "Presence of active monitoring and evaluation systems" (Mean Rank = 1.58) and "Policies supported by legal enforcement mechanisms" (Mean Rank = 1.65) were ranked significantly lower. While these mechanisms are typically essential for accountability, their low ranks suggest they may be either underutilized or not well integrated into actual project processes. A respondent noted, "We have policies written down, but unless there's a regular review and budget to support them, they remain theoretical. Monitoring is weak and rarely followed up." This sentiment aligns with the statistical finding that practical and financial aspects of policy interventions (e.g., reviews and budgeting) are prioritized over structural enforcement and oversight mechanisms.

Conclusion and Recommendations

Conclusion

The findings revealed that a significant portion of the project stakeholders (42%) reported using the Traditional (Waterfall) project management method. This suggests a continued reliance on structured and sequential processes, likely due to the nature of road construction which benefits from clear planning and linear progression. A notable proportion (28%) indicated the use of a Hybrid approach, integrating both agile and traditional elements, possibly as an adaptation to the dynamic field conditions and stakeholder demands. Only 20% utilized Agile methods, which, Although more flexible, may be less suited to the rigid requirements of large-scale infrastructure. The remaining 10% selected other methods, likely context-specific or customized strategies developed internally. In terms of rationale for choosing specific methodologies, Organizational Policy was the most cited reason at 30%, indicating institutional influence in shaping project execution standards. This was closely followed by Project Complexity (25%) and Experience (25%), emphasizing the importance of adaptability and past practical knowledge. Client Preference accounted for 20%, reinforcing the role of stakeholder expectations in method selection.

Recommendations

- There is a need to enhance Control changes to the project The three-dimensional goals of a project (time, cost and performance) are interrelated which means that a change in any of the goals (for example, extending the time schedule of a project) will necessarily affect the other goals (for example, more costs for resources). It has been estimated that it costs about ten times as much to implement a change in each succeeding phase of a project. Hence, during execution, changes (and consequent delays) will cost ten or more times as much to implement, compared to making the same changes during the planning phase. Evaluation (control) points should be included in the project at regular intervals which will provide the opportunity to exercise control over the state and timing of the project.
- The project manager needs to ensure that the project is progressing in a manner consistent with its objectives, or the project can be modified with minimum upset if the objectives (scope) have changed. Continued monitoring, reporting and forecasting must take place during project implementation and the forecasts compared to the project plan.
- Deviations must immediately receive attention, in order to assess the impact on any of the three-dimensional goals (time, cost and performance).
- There is a need to analyse resource utilisation. It is acceded that that managing multiple projects in a project-driven organisation by default requires resources to be shared amongst a number of projects. The optimal utilisation of resources, therefore, becomes of cardinal importance when a condition of limited resources is experienced.
- The efforts of all contributors to the project must be integrated. Projects consist of many diverse tasks that require the different levels of expertise and resources. These tasks are assigned to various people and organisations, usually from both within and outside the organisation. The most effective project management is achieved when all such contributors collaborate and work together as a well-trained team, under the integrative leadership of the project manager.

Acknowledgments

Thanks to ICU and my Supervisor

References

1. Achieng E. Factors influencing performance of NGO projects in the urban informal settlements, a case of Undugu Society of Kenya. Retrieved from http://erepository.uonbi.ac.ke/11295/97492 *International Academic Journal of Information Sciences and Project Management.* 2016; 3(3):1-22
2. Adan IH. Influence of stakeholders role on performance of constituencies development fund projects a case of Isiolo North Constituency, Kenya. Unpublished Masters in project planning and management, University of Nairobi, 2012.
3. Adeyemi I. Effects of Project Management on the Performance of a Construction Firm in Nigeria. *American International Journal of Contemporary Research*. 2013; 3(6):54 58.
4. Affare MAW. An assessment of project communication management on construction projects in Ghana (Doctoral dissertation), 2012.
5. Afroze G, Khan RA. Investigating impact of effective communication practices and project complexity on performance of international development projects. In Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications (IDAACS), 2017 9th IEEE International Conference on. 2017; 1:387-393.

6. Aira EA. Factor's influencing performance of non-governmental organizations projects in the urban informal settlements: A case of Undugu society of Kenya, Nairobi County, 2016.
7. Arslan G, Kivrak, S. Critical Factors to company success in the construction industry. *International Journal of Human and Social Sciences*. 2014; 4(8):561-564 Atif (2010). Investigating Project Management Practices in Public Sector Organisations of a Less Developed Country
8. Atkinson AA, Waterhouse JH. Wells RB. A stakeholder approach to strategic performance measurement. Sloan Management Review. 1997; 38(3):25-37.
9. Baroudi JJ, Olson MH, Ives B. An Empirical Study of the Impact of User Involvement on System Usage and Information Satisfaction. Communications of the ACM. 2016; 29(3):232-243
10. Bin J, Heiser D. A new perspective on the project life cycle. *Journal of Education for Business*. 2012; 80(1):10-16.
11. Blackstone J. Theory of Constraints, 2010. From http://www.scholarpedia.org/article/Theory_of_Constraints. 26th March, 2013. Retrieved
12. Bradley K. Understanding PRINCE2. SPOCE Project Management Limited. Poole, 2012.
13. Dorset Buba SPG, Tanko BL. Project Leadership and Quality Performance of Construction Projects. *International Journal of Built Environment and Sustainability*. 2017; 4(2).
14. Chan AP, Chan AP. Key performance indicators for measuring construction success. *Benchmarking: an international journal*. 2004; 11(2):203-221.
15. Chua DKH, Keg YC, Loh PK, Jaselskis EJ. Model for construction budget, 2010.
16. Chua D, Kog Y, Loh K. Critical success factors for different project objectives. *Journal of Construction Engineering Management*. 2013; 125(3):142-150.
17. Dissanayaka SM, Kumaraswamy MM. Evaluation of factors affecting time and cost performance in Hong Kong building projects. *Journal of Engineering, Construct Architect Management*. 2013; 6(3):287-298
18. Dominique & Clara. Monitoring, Evaluation, Accountability and Learning in Emergencies A resource pack for simple and strong MEAL. Catholic Relief Services, 2012.
19. Eaton D, Ibimina K, Woka P. A review of Critical Project Management Success Factors (CPMSF) for sustainable social housing in Nigeria. *International Journal of Sustainable Built Environment*. 2014; 3(1):62-71.
20. Gathoni J, Ngugi K. Drivers of effective project performance in national government constituency development funded projects in Kiambu County, Kenya. *International Academic Journal of Human Resource and Business Administration*. 2016; 2(2):22-40.
21. Non-governmental organizations. *International Journal of Project Management*. 2015; 33:650-663.
22. Gregg A. Ana L. A Framework for Exploring the Relationship between Project Manager Leadership Style and Project Success. *The international journal of management*. 2016; 1(1):1-19.
23. Gudda P. A Guide to Project Monitoring & Evaluation. Author house, USA, 2011.
24. Ika A, Diallo A, Thuillier D. Critical success factors for World Bank projects: An empirical investigation. *International Journal of Project Management*. 2014; 30(2):105–116.
25. Ika LA, Diallo A, Thuillier D. Critical Success Factors: An Empirical Investigation. *International Journal of Project Management*. 2012; 30:105-116.