

Effect of Project Management Practices on the Performance of Kinyinya Park Estate Project in Gasabo District, Rwanda

Ruth Tuyishimire

University of Kigali, Republic of Rwanda

ABSTRACT

The study examined the effect of project management practices on the performance of Kinyinya Park Estate Project in Gasabo District, Rwanda. It focused on project planning, resource management, risk management, and quality management practices. A descriptive and correlational research design using quantitative and qualitative approaches was adopted. The study covered 153 employees and stakeholders directly involved in the project. Data were collected through questionnaires, interviews, and document review and analyzed using SPSS version 29. Multiple regression results showed that project planning significantly affected project performance ($B = 0.172$, $p = 0.001$). Resource management had the strongest positive effect ($B = 0.405$, $p < 0.001$). Risk management ($B = 0.177$, $p = 0.001$) and quality management ($B = 0.208$, $p < 0.001$) also had significant positive effects. The study concluded that effective project management practices significantly improve construction project performance.

The finance and procurement teams should strengthen transparent resource management and regular budget monitoring to minimize cost overruns.

1.1 Background of the study-

Project management has evolved from informal coordination into a formal, research-based discipline emphasizing planning, resource allocation, risk management, and quality control (Kerzner, 2022). Globally, professional project management frameworks have strengthened organizational performance and accountability, particularly since 2010 (Kerzner, 2022). In the United Kingdom, regulatory reforms and professionalization have improved project planning, accountability, stakeholder coordination, and schedule performance (Winch, 2021). China has institutionalized project coordination and governance systems to control costs, timelines, and stakeholder complexities in large infrastructure projects (Zhang, 2022). India has adopted detailed planning, clear responsibilities, and systematic monitoring to address delays and accountability challenges in infrastructure projects (Iyer, 2021). Egypt has strengthened quality control, reporting, and planning to improve the delivery of major housing and transport projects (Abdelhamid, 2023). South Africa, Kenya, and Tanzania have increasingly emphasized governance, risk management, monitoring, capacity building, and standardized project procedures (Emuze, 2022; Ochieng, 2021; Kikwasi, 2022). In Rwanda, national development priorities have encouraged structured monitoring, quality assurance, fiscal responsibility, and professional project management practices (Nduwimana, 2023). Increasing stakeholder expectations and resource constraints have made accurate planning, risk management, quality assurance, and coordination essential for construction projects in Rwanda. Overall, the professionalization of project management has become critical to achieving timely, cost-effective, high-quality, and internationally competitive construction outcomes in Rwanda (Bizimana, 2024).

1.2 Statement of the Problem-

Despite the widespread use of project management practices, construction projects in Rwanda continue to face cost overruns, schedule delays, and quality deficiencies. Government audit reports indicate significant delays and budget deviations in public projects, reflecting weaknesses in planning, monitoring, and control.

Studies also report that many construction projects exceed planned budgets and completion timelines, while rework further increases project costs. These persistent challenges suggest that existing project management practices do not consistently ensure effective project performance. However, limited research has specifically examined these practices in relation to the performance of Kinyinya Park Estate Project in Gasabo District, creating a contextual research gap.

1.3 Objectives of the Study

This section outlined the objectives guiding the study. The objectives provided direction for the investigation and clarify the intended analytical focus.

1.3.1 General Objective

The general objective of the study was to examine the effect of project management practices on performance of Kinyinya Park Estate Project in Gasabo District.

1.3.2 Specific Objectives

The study would specifically seek to:

- i. To examine the effect of project planning on performance of Kinyinya Park Estate Project in Gasabo District.
- ii. To assess the effect of resource management on performance of Kinyinya Park Estate Project in Gasabo District.
- iii. To analyze the effect of risk management on performance of Kinyinya Park Estate Project in Gasabo District.
- iv. To evaluate the effect of quality management on performance of Kinyinya Park Estate Project in Gasabo District.

1.4 Research Hypotheses

This section presents testable null hypotheses derived from the study objectives. These hypotheses guided statistical analysis.

H01: Project planning has no significant effect on performance of Kinyinya Park Estate Project in Gasabo District.

H02: Resource management has no significant effect on performance of Kinyinya Park Estate Project in Gasabo District.

H03: Risk management has no significant effect on performance of Kinyinya Park Estate Project in Gasabo District.

H04: Quality management has no significant effect on performance of Kinyinya Park Estate Project in Gasabo District.

1.5 Scope of the Study

The study was limited to a period, geographical range and content in order to provide clarity and analytical accuracy.

1.5.1 Time Scope

The study period was between 2021 and 2025 since this is the recent time frame of the project implementation and practice of project management. This was the period that lets the study determine the present project management practice and performance results.

2. Literature review-

In this chapter, the author has given an elaborate discussion of the available academic literature and theoretical models applicable in project management and project performance. It started with a conceptual review that characterizes the key variables and then move on to a theoretical review that gives the academic basis of the research. Moreover, the chapter is an empirical review of the recent research conducted in different geographical settings and determines the gaps in the research that this study aims to fill.

2.1 Conceptual Review-

The conceptual review elucidates the basic terms that were employed in this study to have a standardized interpretation of the variables. This section by integrating the different academic insights sets the limits of project management practices and performance measures. It discusses the multidimensional aspect of these concepts by revealing how they have developed in the recent academic discourse.

2.2 Theoretical Review

This part examines the theoretical basis behind the project management practices and its correlation with project performance. The analysis of the existing academic frameworks helps the study to obtain a systematic prism with the help of which the intricate process of interactions between planning, resources, risks, and quality in the construction sector can be analyzed.

2.2.1 Complexity Theory

Complexity Theory views large-scale projects as complex adaptive systems where different components interact in unpredictable and non-linear ways (Stacey, 1993). It emphasizes flexibility, agility, decentralized decision-making, and self-organization in managing project uncertainty. Small changes in one activity can create significant effects across the entire project, highlighting the interdependence of project activities. External factors such as material prices, government regulations, weather, and stakeholder behaviour can significantly influence project outcomes (Winch, 2021). In this study, the theory helps assess whether Kinyinya Park Estate Project had sufficient flexibility in planning, risk management, and stakeholder coordination to respond to unexpected challenges.

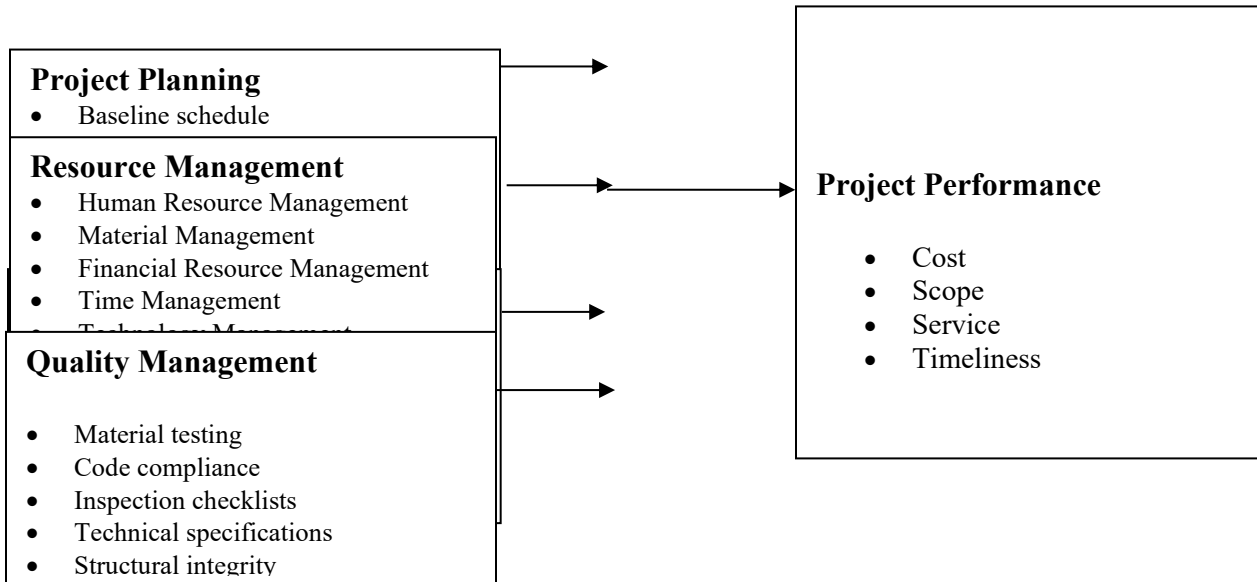
2.2.2 Resource-Based View (RBV) Theory

The Resource-Based View (RBV), developed by Barney (1991), argues that organizational and project performance depends on internal resources that are valuable, rare, difficult to imitate, and non-substitutable. These include skilled employees, technology, capital, knowledge, and managerial expertise. Effective bundling and utilization of resources, rather than their availability alone, can create competitive advantage and improve project outcomes (Hassan, 2023; Abdelhamid, 2023). In this study, RBV guided the assessment of how human, material, technological, and managerial resources contributed to the performance of the Kinyinya Park Estate Project

2.3 Conceptual Framework

Independent variable (ID)
Project Management Practices

Dependent variable (DV)
Project Performance



The study adopted a descriptive and correlational research design using both quantitative and qualitative approaches. The descriptive design assessed the current project management practices, while the correlational design examined their relationship with project performance. Questionnaires were used to collect quantitative data, while interviews provided qualitative insights into project-specific challenges (Creswell, 2023).

3.1 Study Population

This study was targeted to a total of 153 employees and stakeholders with direct involvement in the construction activities of Kinyinya Park Estate Project. This group shall entail project managers, site engineers, administrative workers, and graven site workers that have substantial direct understanding of the section of management of the project

Table 3.2 Study Population

Category of Population	Population Size (N)
Project Managers and Supervisors	8
Site Engineers and Technicians	19
Administrative and Finance Staff	21
Skilled Site Labor and Foremen	105
Total	153

Source: Kinyinya Park Estate Project (2025)

3.3 Data Collection Instruments

Data collection instruments refer to the measures applied by researchers in gathering data related to the respondents and use it to respond to the research questions. According to Brown (2024) the instrument used

should be appropriate to the research design since it provided pertinent and quantifiable data. These instruments serve the purpose of transforming the research objectives and the raw data possessed by the participants. The researcher of the research employed three main tools, namely documentation review, questionnaires, and interview guides. The combination between these tools was used to gather a blend of both quantitative and qualitative information on the project management in Kinyinya Park. The researcher made sure that all instruments are customized to gather certain indicators of planning, resources, risk, and quality. Such multi-instrument methodology was employed to make the results of the research deeper and more precise.

Table 3.4: Reliability Statistics

Variables	Cronbach's Alpha	N of Items
Project Planning	0.832	5
Resource Management	0.815	5
Risk Management	0.841	5
Quality Management	0.828	5
Project Performance	0.862	4

Source: Pilot Study Data, 2026

Table 3.4 Level of Descriptive Statistical Analysis and Categories

Mean	Evaluation
1.00–1.80	Very low
1.90–2.60	Low
2.70–3.40	Neutral
3.50–4.20	High
4.30–5.00	Very high
Standard Deviation	Level of Spreading
Stdv < 0.5	Homogeneity
Stdv > 0.5	Heterogeneity

Source: Researcher, 2026

All the indicators were subject to the linear regression model according to the conceptual framework to analyses the impact of stakeholder engagement on the project performance. The regression equation was given as:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where:

Y = Project Performance, β_0 = Constant₁ = project planning, X_2 = resource management, X_3 = risk management, X_4 = quality management, β_1 - β_4 = Coefficients, e = Error term³²

3.5 Limitations of the Study

The researcher experienced challenges related to the tight working schedules of construction workers and their willingness to disclose sensitive construction project data. Risks also existed regarding respondent bias, as employees could have been influenced to provide positive responses concerning their management teams. To address these limitations, the researcher ensured that the questionnaires were brief and could be

completed during break times to avoid disrupting activities at the construction site. The researcher also provided clear explanations regarding the scholarly nature of the study to encourage respondents to provide honest answers and minimize any fear of reprimand from management. In addition, the researcher triangulated the research findings using documentary evidence and interviews so that potential questionnaire bias could be counterbalanced by objective records and qualitative insights. These measures were applied to enhance the credibility, reliability, and validity of the study findings.

4. Data Interpretation and analysis-

This chapter presents the analysis and interpretation of data collected on the effect of project management practices on performance of Kinyinya Park Estate Project in Gasabo District. The chapter begins with the response rate, followed by socio-demographic characteristics of respondents.

4.1 Response Rate

Response rate shows the level at which the selected respondents participated in the study. It helps to determine whether the collected data was enough to support analysis and interpretation of findings. In this study, questionnaires were distributed to respondents connected with Kinyinya Park Estate Project in Gasabo District, and the returned complete questionnaires formed the basis for data analysis.

Table 4.1: Response rate

Category	Frequency	Percentage (%)
Returned Questionnaires	150	98.0
Unreturned Questionnaires	3	2.0
Total	153	100.0

Table 4.2: Gender of respondents

	Frequency	Percent
Male	84	56.0
Female	66	44.0
Total	150	100.0

Table 4.3: Age group of respondents

	Frequency	Percent
18–25 years	10	6.7
26–35 years	54	36.0
36–45 years	72	48.0
46–55 years	9	6.0
Above 55 years	5	3.3
Total	150	100.0

Table 4.4: Education level of respondents

	Frequency	Percent
Secondary education	7	4.7

Diploma	24	16.0
Bachelor's degree	110	73.3
Masters	9	6.0
Total	150	100.0

Table 4.5: Experience of respondents

	Frequency	Percent
Less than 1 year	43	28.7
1 to 2 years	80	53.3
3 to 5 years	21	14.0
above 5 years	6	4.0
Total	150	100.0

Table 4.6: Descriptive statistics on project planning of Kinyinya Park Estate Project

	N	Min.	Max.	Mean	Std. Dev.
Kinyinya Park Estate Project establishes a realistic baseline schedule to effectively measure performance deviations.	150	4	5	4.30	.460
Clear milestone definition is utilized to track critical progress points throughout the construction phases.	150	4	5	4.21	.406
A detailed work breakdown structure is used to organize complex project tasks into manageable components.	150	1	5	4.28	.532
Logical activity sequencing is applied to ensure a smooth workflow between different construction stages.	150	3	5	4.21	.422
Accurate duration estimation is conducted for all site activities to prevent schedule slippage.	150	1	5	4.07	.532
Overall				4.21	.470

Table 4.7: Descriptive statistics on resource management of Kinyinya Park Estate Project

	N	Min.	Max.	Mean	Std. Dev.
Effective Human Resource Management is practiced to ensure skilled labor is available and well-coordinated on site.	150	1	5	4.13	.539

The project implements efficient Material Management to minimize wastage and ensure timely availability of supplies.	150	4	5	4.15	.362
Transparent Financial Resource Management is maintained to track project expenditures against the approved budget.	150	4	5	4.33	.473
Strict Time Management protocols are observed by the project team to meet daily and weekly targets.	150	4	5	4.30	.460
Modern Technology Management tools and software are adopted to enhance the efficiency of project operations.	150	2	5	4.20	.463
Overall				4.22	.459

Table 4.8: Descriptive statistics on risk management of Kinyinya Park Estate Project

	N	Min.	Max.	Mean	Std. Dev.
Systematic risk identification is performed regularly to detect potential threats to Kinyinya Park Estate Project.	150	4	5	4.17	.380
The project team conducts thorough risk analysis to evaluate the probability and impact of identified threats.	150	3	5	4.16	.386
A comprehensive risk register is maintained to document and track the status of all project risks.	150	3	5	4.10	.362
Proactive risk mitigation strategies are implemented to reduce the likelihood of negative events occurring.	150	3	5	4.20	.418
Continuous risk monitoring is carried out to ensure that risk response measures remain effective over time.	150	1	5	4.12	.432
Overall				4.15	.396

Table 4.9: Descriptive statistics on quality management of Kinyinya Park Estate Project

	N	Min.	Max.	Mean	Std. Dev.
Regular material testing is conducted on site to ensure all inputs meet the required quality standards.	150	3	5	4.22	.431
The construction activities strictly adhere to building code compliance to satisfy regulatory requirements.	150	3	5	4.27	.501
Standardized inspection checklists are used during site supervision to verify the quality of workmanship.	150	3	5	4.17	.445
All construction works are executed in strict accordance with the project's technical specifications.	150	4	5	4.29	.457
Rigorous assessments are performed to guarantee the structural integrity of the buildings within the estate.	150	4	5	4.27	.447
Overall				4.24	.456

Table 4.10: Descriptive statistics on performance of Kinyinya Park Estate Project

	N	Minimum	Max.	Mean	Std. Dev.
The Cost of Kinyinya Park Estate Project is being maintained within the planned budget with minimal cost overruns.	150	1	5	4.07	.487
The Scope of Kinyinya Park Estate Project is being achieved in line with the defined project components.	150	1	5	4.14	.544
The Service provided by Kinyinya Park Estate Project is meeting the needs of the beneficiaries.	150	4	5	4.13	.334
The Timeliness of Kinyinya Park Estate Project is being maintained in accordance with the planned schedule with limited delays.	150	4	5	4.25	.433
Overall	150			4.15	0.450

Source: Field Data, 2026

Table 4.11: Secondary Data on Performance of Kinyinya Park Estate Project in Kinyinya Sector

Year	Scope achievement rate	Cost variance	Timeliness rate	Quality compliance rate	Overall performance
2022	68.30%	3.2% under budget	75.00%	80.50%	74.30%
2023	73.80%	1.7% under budget	77.80%	82.00%	78.80%
2024	79.00%	2.1% under budget	80.00%	84.50%	81.20%
2025	83.80%	2.3% under budget	83.30%	86.00%	84.70%

Table 4.12: Tests of normality

Variable	Kolmogorov Smirnov			Shapiro Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Project planning	.098	150	.071	.962	150	.068
Resource management	.111	150	.196	.972	150	.093
Risk management	.121	150	.098	.961	150	.074
Quality management	.119	150	.085	.964	150	.080
Performance of Project	.087	150	.200*	.969	150	.130

a. Lilliefors Significance Correction

Table 4.13: Correlation matrix

		Project planning	Resource management	Risk managemen t	Quality manageme nt	Performance of Project
Project planning	Pearson	1	.540**	.648**	.667**	.701**
	Correlation					
	Sig. (2-tailed)		.000	.000	.000	.000
Resource management	N	150	150	150	150	150
	Pearson	.540**	1	.586**	.644**	.777**
	Correlation					
Risk management	Sig. (2-tailed)	.000		.000	.000	.000
	N	150	150	150	150	150
	Pearson	.648**	.586**	1	.756**	.751**
Quality management	Correlation					
	Sig. (2-tailed)	.000	.000		.000	.000
	N	150	150	150	150	150
Performance of Project	Pearson	.667**	.644**	.756**	1	.783**
	Correlation					
	Sig. (2-tailed)	.000	.000	.000		.000
	N	150	150	150	150	150
	Pearson	.701**	.777**	.751**	.783**	1
	Correlation					
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	150	150	150	150	150

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

4.4.2 Regression Analysis

Regression analysis was used to determine the effect of project planning, resource management, risk management, and quality management on performance of Kinyinya Park Estate Project in Gasabo District. The model summary was used to show the strength of the model through R, R Square, and Durbin-Watson. The ANOVA table was used to test whether the overall regression model was statistically significant. The coefficients table was used to show the effect of each independent variable on project performance through B, t, Sig., tolerance, and VIF values.

Table 4.14: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.888 ^a	.789	.783	.178	1.682

a. Predictors: (Constant), Quality management, Resource management, Project planning, Risk management

b. Dependent Variable: Performance of Project

Table 4.15: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.234	4	4.308	134.625	.000 ^b
	Residual	4.616	145	.032		
	Total	21.850	149			
a. Dependent Variable: Performance of Project						
b. Predictors: (Constant), Quality management, Resource management, Project planning, Risk management						

Table 4.16: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.181	.184		.984	.326		
	Project planning	.172	.050	.188	3.440	.001	.496	2.014
	Resource management	.405	.053	.394	7.642	.000	.551	1.816
	Risk management	.177	.051	.216	3.471	.001	.382	2.617
	Quality management	.208	.057	.241	3.649	.000	.337	2.970
a. Dependent Variable: Performance of Project								

Table 4.16: Hypotheses Decision

Hypothesis	Sig. value	Decision
H01: Project planning has no significant effect on performance of Kinyinya Park Estate Project in Gasabo District.	0.001	Rejected
H02: Resource management has no significant effect on performance of Kinyinya Park Estate Project in Gasabo District.	0.000	Rejected
H03: Risk management has no significant effect on performance of Kinyinya Park Estate Project in Gasabo District.	0.001	Rejected
H04: Quality management has no significant effect on performance of Kinyinya Park Estate Project in Gasabo District.	0.000	Rejected

5. Summary of Findings

5.1 Summary on Project Planning and Performance of Kinyinya Park Estate Project in Gasabo District

Project planning had a high overall mean of 4.21, indicating strong planning practices. It showed a strong positive relationship with project performance ($r = 0.701$, $p = 0.000$) and a significant positive effect ($B = 0.172$, $t = 3.440$, $p = 0.001$). Therefore, better project planning significantly improved the performance of Kinyinya Park Estate Project.

5.2 Summary on Resource Management and Performance of Kinyinya Park Estate Project in Gasabo District

The second objective assessed the effect of resource management on Kinyinya Park Estate Project performance. Resource management recorded a high overall mean of 4.22 ($SD = 0.459$), with financial resource management rated highest ($M = 4.33$, $SD = 0.473$). Inferential results showed a strong positive relationship with project performance ($r = 0.777$, $p = 0.000$) and a significant positive effect ($B = 0.405$, $t = 7.642$, $p = 0.000$). Therefore, the null hypothesis was rejected, confirming that effective resource management significantly improved project performance.

5.3 Summary on Risk Management and Performance of Kinyinya Park Estate Project in Gasabo District

The third objective was to analyze the effect of risk management on Kinyinya Park Estate Project performance. Risk management recorded a high overall mean of 4.15 ($SD = 0.396$), indicating effective risk identification, analysis, mitigation, and monitoring. It had a strong positive relationship with project performance ($r = 0.751$, $p = 0.000$) and a significant positive effect ($B = 0.177$, $t = 3.471$, $p = 0.001$). Thus, the null hypothesis was rejected, confirming that improved risk management significantly enhanced project performance.

5.1.4 Summary on Quality Management and Performance of Kinyinya Park Estate Project in Gasabo District

The fourth objective evaluated the effect of quality management on Kinyinya Park Estate Project performance. Quality management recorded a high overall mean of 4.24 ($SD = 0.456$), with compliance with technical specifications rated highest ($M = 4.29$, $SD = 0.457$). Inferential results showed a strong positive correlation with project performance ($r = 0.783$, $p = 0.000$) and a significant positive regression effect ($B = 0.208$, $t = 3.649$, $p = 0.000$). Thus, the null hypothesis was rejected, confirming that effective quality management significantly improved project performance.

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