



Effect of Project Risk Management Practices on Performance of Community Projects: A Case of Community Projects Supported by Spark Microgrants in Kinyababa Sector of Burera District, Rwanda

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Abstract: This study assessed the effect of project risk management practices on the performance of community projects supported by Spark Microgrants in Kinyababa Sector, Burera District, Rwanda. The inquiry focused on risk identification, risk analysis, risk response planning and risk monitoring as the four explanatory practices. Risk Management Theory, Structural Contingency Theory and Systems Theory provided the theoretical foundation. A descriptive and correlational research design was applied with a quantitative approach. The target population comprised 1,244 Spark Microgrants staff, FCAP committee members, local leaders, community-based facilitators and community members, from which a planned sample of 350 participants was selected using simple random and purposive sampling procedures. Data were processed in SPSS. The findings established positive and statistically significant effects for risk identification ($B = 0.445$, $\beta = 0.343$, $t = 8.558$, $p = 0.000$), risk analysis ($B = 0.134$, $\beta = 0.142$, $t = 2.913$, $p = 0.004$), risk response planning ($B = 0.186$, $\beta = 0.198$, $t = 3.263$, $p = 0.001$) and risk monitoring ($B = 0.270$, $\beta = 0.275$, $t = 5.000$, $p = 0.000$). The overall model recorded $R = 0.833$ and $R^2 = 0.695$, indicating that the four practices jointly explained 69.5% of the variation in community-project performance. The study concluded that stronger project performance was associated with systematic identification of uncertainty, disciplined analysis, actionable response planning and continuous monitoring. It recommended institutionalising updated risk registers, clearly assigned response responsibilities and routine evidence-based monitoring throughout the Spark Microgrants project cycle.

Keywords: Project risk management practices; risk identification; risk analysis; risk response planning; risk monitoring; community-project performance.

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1. Introduction

Project risk management has become an important part of contemporary project management because projects are implemented under conditions of uncertainty that may affect cost, time, quality and sustainability. Modern project practice therefore treats risk management as a continuous process involving risk identification, risk analysis, response planning and monitoring throughout implementation rather than as a one-time activity undertaken at project initiation (Project Management Institute, 2024).

Risk identification helps project actors recognise potential events before they interfere with planned activities, while risk analysis determines the likelihood, consequences and priority of identified exposures. Response planning converts these findings into practical actions by specifying responsibilities, resources and implementation measures. Monitoring then determines whether existing risks have changed, whether new risks have emerged and whether planned responses remain effective. When these practices are incorporated into ordinary project planning and implementation, they improve the quality and timeliness of management decisions (Sangwa & Dushimimana, 2023).

The importance of these practices is particularly evident in community projects because such initiatives often depend on the participation of local leaders, beneficiaries, facilitators, programme staff and community committees. These actors may have different capacities, responsibilities and access to technical information, while implementation may also be affected by changing prices, environmental conditions, local participation and resource limitations. Community projects therefore require practical risk-management arrangements that can support collective decisions and timely responses to emerging implementation challenges (Marzo et al., 2023).

Spark Microgrants operates within this community-driven development environment by supporting communities to identify priorities, organise project activities and implement locally selected initiatives. In 2025, the organisation reported that its model had reached more than 1.2 million people across 1,375 villages and supported 378 community-designed projects. This broad programme coverage highlights the importance of maintaining consistent risk identification, prioritisation, response ownership and monitoring across communities with different implementation capacities and operating conditions (Spark Microgrants, 2025b).

Within Rwanda, decentralised and community-based initiatives contribute to local service delivery, livelihoods and citizen participation. Nevertheless, national audit findings continue to identify delayed project commencement, low disbursement, stalled works, procurement weaknesses and delayed service delivery as significant implementation concerns. These weaknesses can reduce cost efficiency, delay expected benefits, compromise output quality and weaken the sustainability of project results (Office of the Auditor General, 2025).

Community project performance is therefore broader than the completion of planned activities. It includes timely implementation, efficient use of financial resources, acceptable quality and the continuation of project benefits after initial support has ended. Technical completion alone does not guarantee sustainability where communities lack ownership, maintenance capacity or the ability to continue using project output effectively (Marzo et al., 2023).

Existing studies in Rwanda have established that project risk-management practices are associated with project performance. However, much of this evidence has been generated from construction projects and formally managed development programmes, which differ from community-driven microgrant projects in governance, beneficiary involvement, resource availability and technical capacity (Hakizimana & Njenga, 2023).

Other Rwandan studies have similarly demonstrated that risk-management practices contribute positively to

project performance, yet these studies have largely examined institutionally coordinated projects rather than locally managed community initiatives. The extent to which individual risk-management practices contribute to performance in community-based microgrant projects therefore remains insufficiently established (Nduwayezu & Hakizimana, 2024).

The present study focused on community projects supported by Spark Microgrants in Kinyababa Sector of Burera District. It examined risk identification, risk analysis, risk response planning and risk monitoring as the main explanatory practices, while project performance was assessed through cost efficiency, timely completion, quality and sustainability.

Community projects are expected to deliver planned output efficiently, complete activities within reasonable timeframes, achieve acceptable quality and maintain benefits after implementation. In Rwanda, however, persistent delays, stalled activities, low disbursement and weaknesses in implementation control indicate that project performance remains a significant concern (Office of the Auditor General, 2025).

The problem is particularly important in community projects because implementation depends heavily on local participation, shared responsibility and limited technical resources. Where risks are not identified early, analysed systematically, assigned appropriate responses and monitored continuously, project activities may experience delays, unnecessary expenditure, weak quality and reduced sustainability.

Although Spark Microgrants reports substantial community participation and completed activities, programme reports do not provide Kinyababa-specific statistical evidence showing the separate contribution of risk identification, risk analysis, risk response planning and risk monitoring to community-project performance (Spark Microgrants, 2025b).

The central problem was therefore the limited context-specific empirical evidence on how the four project risk-management practices individually and jointly affected the performance of community projects supported by Spark Microgrants in Kinyababa Sector. The study addressed this gap by examining their effects on cost efficiency, timely completion, quality and sustainability.

1.1 General Objective

The main objective of this study was to assess the effect of project risk management practices on performance of community projects supported by Spark microgrants in Burera District.

1.2 Specific Objectives

1. To assess the effect of risk identification on the performance of community projects supported by Spark Microgrants in Burera District.
2. To examine the effect of risk analysis on the performance of community projects supported by Spark Microgrants in Burera District.
3. To determine the effect of risk response planning on the performance of community projects supported by Spark Microgrants in Burera District.
4. To assess the effect of risk monitoring on the performance of community projects supported by Spark Microgrants in Burera District.

2. Literature Review

This research examined the impact of project risk management on the success of community projects in Burera District. In this chapter, the researcher discussed theories, results and other details relevant to the research subject. It is said that a researcher stands on the shoulders of giants, and this research drew its foundations from various sources. It therefore offered an empirical, theoretical and conceptual review.

2.1 Theoretical Review

This is an important section as it discusses theories related to the research. This allows the researcher to build their academic and scientific work on existing concepts.

2.1.1 Risk Management Theory

Risk Management Theory, postured in 1969 by Yu Payne, states that companies should identify, assess and manage risks to improve their performance. Better understanding of the advantages of risk management practice and the fact that the costs of risk management service have significantly dropped are among the factors that have led to this theory.

The use of derivative securities such as forward, futures, swaps, and options to hedge companies' exposure to interest rates, foreign exchange, and commodity price risks have been the major focus in most of the existing literature on risk management theories.

This research is in line with the Risk Management Theory as it provides an understanding of why and how risk management leads to project success. This theory states that identification, measurement and management of risks lead to an enhancement of project success.

2.1.2 Structural Contingency Theory

The Structural Contingency theory (also called Organizational/Task environment Contingency Theory)

developed by Lawrence and Lorsch (1967), and expanded by Fiedler (1967), states that there is no one best way of leading, managing and organizing. Instead, the most effective management practice to fit a situation is determined by its environment, task, people and organizational structure.

The theory says that the performance of an organizational project or even the performance of an entire organization is contingent upon the adaptability of its management practices to the environment, uncertainty and complexity of the situation. The most important contingencies of community projects are the level of risk, the variety of stakeholders, lack of financial resources and changing environment.

So, PRM can affect the project's outcomes positively only if it is related to the specific characteristics of the project. The contingencies in community projects, such as lack of funding, diversity of stakeholders, socio-political factors, environmental uncertainty and other unexpected issues make this theory important to this study.

2.1.3 Systems Theory

The Systems Theory, mainly developed by Ludwig von Bertalanffy (1901-1972) describes any project, community or organization as a system that consists of a number of interrelated and interdependent parts, and the success of the system can be measured by how well these components work together.

The theory suggests that a system is made of subsystems such as teams, process, resources, stakeholders which are interrelated. This means that any change in one component will affect the other components.

The theory says that the system and environment as a whole is a whole picture that explains the performance.

2.2 Empirical Review

In this section, we review the literature on the research problem and the independent and dependent variables.

2.2.1 Risk Identification and Performance of Community Projects

Recent studies treat risk identification as the foundation of project risk management because later analysis and responses depend on the completeness and clarity of the initial risk record. Hakizimana and Njenga (2023) used structured assessment to identify and prioritise construction risks, demonstrating the value of systematic categories and expert judgement. Its sector and professional sample differ from community microgrant projects, so the present study examined whether participatory identification remained associated with performance in a less technical setting.

Sangwa and Dushimimana (2023) showed through a systematic review that risk identification improves when teams combine technical evidence, user information and contextual analysis. The review provided broad methodological guidance but did not test community-project outcomes. The current study extended this logic by measuring stakeholder involvement, risk registers, past-project lessons, environmental scanning and documentation among Spark Microgrants-supported projects.

2.2.2 Risk Analysis and Performance of Community Projects

Risk analysis research emphasises classification, probability, impact and priority. Hakizimana and Njenga (2023) demonstrated that ranked risk factors can direct management attention towards the most consequential exposures. However, construction projects often have more formal technical data than rural community projects. The current study therefore assessed whether understandable qualitative and quantitative analysis practices supported cost, time, quality and sustainability in Kinyababa Sector.

Project Management Institute (2024) recommends selecting analytical techniques according to data availability, complexity and decision needs. This position is relevant to community projects because overly technical analysis may exclude local participants, while unstructured discussion may fail to distinguish urgent threats from minor concerns. The study addressed this methodological tension through questionnaire indicators on likelihood, impact, prioritisation, stakeholder input and documentation.

Recent community-development literature also indicates that analysis should account for sustainability and beneficiary consequences, not only immediate schedule and cost exposure (Marzo et al., 2023). The present study contributed by linking risk analysis to four project-performance dimensions and by examining a community-driven programme rather than a conventional organisational project.

Across the reviewed evidence, a common limitation was the use of cross-sectional perceptions and sector-specific samples. These designs identify associations but may not establish temporal causality or transfer directly to Kinyababa community projects. The present study retained a correlational interpretation and supplemented questionnaire evidence with interviews to explain how analysis was conducted locally.

The empirical review therefore supports systematic risk analysis but leaves a contextual gap regarding small, facilitated community projects in Rwanda. This study filled the gap by testing the unique contribution of risk analysis after risk identification, response planning and monitoring were included in the same regression model.

2.2.3 Risk Response Planning and Performance of Community Projects

Risk response planning converts assessed uncertainty into assigned action. Project Management Institute (2024) emphasises that responses should be appropriate to the risk, feasible within project constraints, allocated to an owner and integrated with project plans. Existing evidence generally supports proactive response planning, but many studies concern formal organisations. The current study examined whether documented responsibilities, contingency measures, resource allocation and community involvement predicted performance in Spark Microgrants-supported projects.

2.2.4 Risk Monitoring and Performance of Community Projects

Risk monitoring research shows that registers and response plans must be reviewed as implementation conditions change. Continuous monitoring allows project teams to identify emerging risks, evaluate response effectiveness and initiate corrective action (Project Management Institute, 2024). The present study operationalised monitoring through review meetings, updated risk information, response tracking, reporting and learning.

The monitoring literature largely agrees on the need for continuous review, but evidence differs in the frequency, tools and actors involved. Large organisations may use specialised software, whereas community projects often rely on meeting records, facilitator reports and locally maintained registers. This methodological difference justified examining monitoring practices within Kinyababa rather than assuming that findings from formal project environments applied directly.

Vanessa and Gitahi (2023) emphasised technology and information-sharing tools in community development, while Spark Microgrants (2025b) highlighted facilitation and community participation. Together, these perspectives indicate that monitoring is both an information process and a governance process. The current study assessed whether regular communication and evidence-based follow-up were associated with better cost, time, quality and sustainability outcomes.

3. Methodology

Creswell and Creswell (2023) defined methodology as the strategy that explains the relationship between selected methods and the intended research outcomes. Saunders et al. (2023) similarly described research methodology as the systematic justification of the procedures used to conduct a study. Methodology therefore provided the framework that linked the

research design, data collection methods and analysis to the study objectives.

3.1 Research Design

A research design was the plan that specified the procedures followed to gather and analyse the data required to answer the research questions. It guided the study towards conclusions that were valid, reliable and consistent with the selected methods (Creswell & Creswell, 2023).

The study used a descriptive design to summarise respondents' assessments of project risk management and community-project performance. A correlational design established the direction and strength of relationships among risk identification, risk analysis, risk response planning, risk monitoring and performance. Quantitative evidence had priority, while interviews were used to explain and triangulate the statistical findings.

3.2 Study Population

The target population comprised 1,244 participants drawn from Spark Microgrants staff, FCAP committee members, local leaders, community-based facilitators and community members in Kinyababa Sector. These categories were selected because they had direct knowledge of planning, implementation, community participation and risk-management practices in the supported projects.

3.3 Sampling Design

The planned sample consisted of 350 participants. Simple random sampling was applied to community members and FCAP committee members, while purposive selection was used for specialised categories whose responsibilities provided direct operational knowledge. Of the questionnaires distributed, 343 were returned complete and constituted the quantitative dataset used in the analysis.

Yamane's sampling approach was first applied to the 1,200 community-member population, producing a minimum of 300. This figure was increased to 309 to provide an allowance for non-response. Twenty-seven of the 30 FCAP committee members were selected randomly, all 10 community-based facilitators were included purposively, and two Spark Microgrants staff and two local leaders were selected as key informants. The total planned sample was therefore 350. Of the questionnaires distributed, 343 were returned complete and formed the quantitative dataset; four selected programme and leadership respondents also provided interview evidence.

The study used simple random sampling to select FCAP committee members and community members because

these categories were sufficiently large to permit probability-based selection. Purposive sampling was used for Spark Microgrants staff, local leaders, and community-based facilitators because their responsibilities provided specialized information on project risk management. This combination supported broad representation while retaining access to participants with direct operational knowledge of the supported community projects.

3.4 Data Collection Instrument

Documentation was a data collection method involving the systematic examination of existing reports, policies, manuals, minutes and other paper or electronic records relevant to the study. It was used to obtain secondary evidence, provide contextual information and compare documentary findings with data collected through other methods (Saunders et al., 2023).

A structured questionnaire was used to collect primary quantitative evidence. The instrument contained closed-ended statements measured on a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. Documentary evidence from Spark Microgrants reports and project records was also reviewed to provide contextual information on community-project activities and performance. The questionnaire was administered to the selected respondents after the required institutional permission had been obtained.

The questionnaire was a structured instrument containing questions or statements designed to obtain standardised responses from participants. It was appropriate for collecting quantitative information on attitudes, experiences and characteristics from a large sample while maintaining consistency across respondents (Saunders et al., 2023). The questionnaire used for this study was a self-developed five-point Likert scale ranging from 1 to 5, where 5 = strongly agree (SA), 4 = agree (A), 3 = neutral (N), 2 = disagree (D), and 1 = strongly disagree (SD). The questionnaire protected the confidentiality of the data sources through anonymity. The table below presents the verbal interpretation applied to the collected data.

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3.5 Pilot Study, Validity and Reliability

The researcher asked 50 people to respond to the research instrument to determine whether the questions

were clear and related to the research topic and to establish the time needed to organize the survey. This process helped the researcher determine the reliability of the instrument and its ability to estimate the intended constructs.

Validity is the point at which a tool is measuring what can hypothetically be measured. Validity can be internal or external. The questionnaire must also have: content validity, which means that the questions asked must be appropriate for the data we need. This validity has to be done by experts. There is also face validity, which involves making sure that the questionnaire is worded properly. The validity of the study was determined by some professors at the University of Kigali. Content validity was established through expert review of the instrument in relation to the study objectives and measured constructs. The questionnaire contained 45 substantive statements and four demographic categories, giving 49 items in total, while all 45 substantive statements were judged relevant. The Content Validity Index was therefore $CVI = 45/49 = 0.92$. This coefficient exceeded the commonly accepted threshold of 0.70 and confirmed that the instrument adequately represented risk identification, risk analysis, risk response planning, risk monitoring, and performance of community projects.

Reliability refers to the consistency with which an instrument measures the intended constructs. Internal consistency was assessed using Cronbach's Alpha, and a coefficient of 0.70 or above was treated as acceptable for the study. The reliability results obtained from the questionnaire items are presented below. The reliability coefficients ranged from 0.730 to 0.918, and every construct exceeded the accepted benchmark of 0.70. Risk response planning recorded the highest internal consistency, followed by risk monitoring, risk analysis, performance of community projects, and risk identification. These results confirmed that the sets of nine statements consistently measured their respective constructs and were suitable for subsequent descriptive and inferential analysis.

3.6 Data Analysis

Completed questionnaires were edited, coded, entered and analysed using SPSS. Descriptive statistics included minimums, maximums, means and standard deviations. Pearson correlation measured bivariate relationships between each project risk-management practice and project performance. Multiple linear regression estimated the separate and combined predictive contribution of risk identification, risk analysis, risk response planning and risk monitoring at a 0.05 significance level. The fitted model was expressed as $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$.

Pearson correlation analysis established the direction, strength, and statistical significance of the relationship between each project risk management practice and the performance of community projects supported by Spark Microgrants. Interpretation concentrated on the four relationships corresponding to the specific objectives, using a significance level of 0.05 and recognizing coefficients marked with two asterisks as significant at the 0.01 level.

Multiple linear regression assessed the combined explanatory power and separate contribution of risk identification, risk analysis, risk response planning, and risk monitoring to the performance of community projects. The model summary evaluated overall association, explained variation, and independence of errors; ANOVA tested whether the predictor set was jointly significant; and the coefficients table established direction, magnitude, significance, collinearity, and the decision attached to each specific hypothesis.

The adopted regression model was: $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$.

Y represented Performance of Community Projects, X_1 represented Risk Identification, X_2 represented Risk Analysis, X_3 represented Risk Response Planning, and X_4 represented Risk Monitoring.

3.7 Ethical Considerations

The study followed principles of voluntary participation, confidentiality and anonymity. Respondents were informed of the academic purpose of the research, identifying information was not required on the questionnaire, and collected evidence was used only for the stated research purpose. Institutional authorisation was obtained before field data collection.

4. Results and Discussions

This chapter presents, analyses, and interprets the evidence collected from respondents and interview participants involved in community projects supported by Spark Microgrants in Kinyababa Sector.

4.1 Response Rate

Response rate establishes the extent to which the selected participants provided usable information for analysis and indicates the degree to which non-response could affect representation. Questionnaires distributed to the selected project stakeholders were classified as returned complete, returned incomplete, or unreturned, and only complete questionnaires were retained in the final quantitative dataset.

Table 1: Response rate

Questionnaires	Frequency	Percentage (%)
Returned Complete	343	98.0
Returned Incomplete	4	1.1
Unreturned	3	.9
Total	350	100.0

Source: Field Data, 2026

Table 1 presents the response status of the 350 questionnaires distributed for the study. Complete questionnaires accounted for 98.0% (343), providing the valid cases used in the statistical analysis and demonstrating exceptionally strong participation among the selected stakeholders. Incomplete questionnaires represented 1.1% (4), while 00.9% (3) were not returned, indicating only limited loss of information from the planned sample. The high completion rate reduced the likelihood of non-response bias and strengthened confidence that the findings adequately reflected the views of the participating Spark Microgrants-supported community-project stakeholders.

4.2 Inferential Statistics

Pearson correlation analysis established the direction, strength, and statistical significance of the relationship between each project risk management practice and the performance of community projects supported by Spark Microgrants. Interpretation concentrated on the four relationships corresponding to the specific objectives, using a significance level of 00.05 and recognizing

coefficients marked with two asterisks as significant at the 00.01 level. Multiple linear regression assessed the combined explanatory power and separate contribution of risk identification, risk analysis, risk response planning, and risk monitoring to the performance of community projects. The model summary evaluated overall association, explained variation, and independence of errors; ANOVA tested whether the predictor set was jointly significant; and the coefficients table established direction, magnitude, significance, collinearity, and the decision attached to each specific hypothesis.

4.2.1 Correlation Analysis

Pearson correlation analysis established the direction, strength, and statistical significance of the relationship between each project risk management practice and the performance of community projects supported by Spark Microgrants. Interpretation concentrated on the four relationships corresponding to the specific objectives, using a significance level of 0.05 and recognizing coefficients marked with two asterisks as significant at the 0.01 level.

Table 2: Correlation between study variables and Performance of Community Projects

		Risk Identification	Risk Analysis	Risk Response Planning	Risk Monitoring	Performance of Community Projects
Risk Identification	Pearson Correlation	1	.617**	.611**	.594**	.715**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	343	343	343	343	343
Risk Analysis	Pearson Correlation	.617**	1	.760**	.691**	.694**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	343	343	343	343	343
Risk Response Planning	Pearson Correlation	.611**	.760**	1	.825**	.743**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	343	343	343	343	343
Risk Monitoring	Pearson Correlation	.594**	.691**	.825**	1	.740**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	343	343	343	343	343
Performance of Community Projects	Pearson Correlation	.715**	.694**	.743**	.740**	1

Sig. (2-tailed)	.000	.000	.000	.000	
N	343	343	343	343	343

** . Correlation is significant at the .01 level (2-tailed).

Source: Field Data, 2026

Table 2 shows that risk identification was positively related to performance of community projects ($r = 0.715$, $p < 0.05$). Since the probability value was below 0.05, the relationship was statistically significant. Changes in risk identification were therefore associated with corresponding changes in project performance. The relationship examined under the first specific objective was meaningful within the community projects supported by Spark Microgrants.

Risk Analysis recorded a positive Pearson coefficient of 0.694 with performance of community projects, while the significance level was 0.000. Because this value was lower than 0.05, the association was statistically significant. Stronger application of risk analysis was linked with improved project performance in the current study. The evidence supported rejection of the null proposition attached to the second objective.

A strong positive relationship connected risk response planning and performance of community projects ($r = 0.743$; $p < 0.05$). The probability result satisfied the 0.05 significance criterion, confirming that the association was not attributable to random sampling variation. Improvements in response planning corresponded with better cost, time, quality, and sustainability outcomes.

This relationship directly addressed the third specific objective of the study.

The coefficient linking risk monitoring with performance of community projects reached 0.740, accompanied by $p = 0.000$. Its positive direction indicated that stronger monitoring moved together with improved performance, and the significance value below 0.05 confirmed statistical significance. The fourth objective therefore identified a meaningful relationship between continuous risk follow-up and project results. This evidence was sufficiently strong to reject the related null hypothesis.

4.2.2 Regression Analysis

Multiple linear regression assessed the combined explanatory power and separate contribution of risk identification, risk analysis, risk response planning, and risk monitoring to the performance of community projects. The model summary evaluated overall association, explained variation, and independence of errors; ANOVA tested whether the predictor set was jointly significant; and the coefficients table established direction, magnitude, significance, collinearity, and the decision attached to each specific hypothesis.

Table 3: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.833a	.695	.691	.255802	1.719

a. Predictors: (Constant), Risk Monitoring , Risk Identification , Risk Analysis , Risk Response Planning
b. Dependent Variable: Performance of Community Projects

Source: Field Data, 2026

Table 3 presents the model summary for the four project risk management predictors and performance of community projects. The multiple correlation coefficient was $R = 0.833$, showing a strong combined relationship between the predictors and the dependent variable. $R^2 = 0.695$ indicated that 69.5% of the variation in performance was explained jointly by risk identification, risk analysis, risk response planning, and

risk monitoring, while the remaining 30.5% reflected other factors outside the model. The adjusted R^2 of 0.691 confirmed that the explanatory power remained substantial after accounting for the number of predictors and sample size. Durbin–Watson equaled 1.719, a value close to 2.000, suggesting acceptable independence of regression errors and supporting the suitability of the estimated model.

Table 4: ANOVA results

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	50.289	4	12.572	193.415	.000b
Residual	22.117	338	.065		
Total	72.406	342			

a. Dependent Variable: Performance of Community Projects

b. Predictors: (Constant), Risk Monitoring , Risk Identification , Risk Analysis , Risk Response Planning

Source: Field Data, 2026

Table 4 reports the ANOVA test for the multiple regression model. The regression component produced $F = 193.415$, demonstrating that the four predictors jointly explained performance more effectively than a model without the project risk management variables.

The associated probability was 0.000, which was below the 0.05 significance level. The overall regression equation was therefore statistically significant and suitable for evaluating the specific effects of risk identification, risk analysis, risk response planning, and risk monitoring. This result confirmed that the predictor

set jointly contributed to performance of community projects supported by Spark Microgrants in the current study.

Table 5: Regression coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	.217	.168		1.292	.196		
Risk Identification	.445	.052	.343	8.558	.000	.557	1.794
Risk Analysis	.134	.046	.142	2.913	.004	.379	2.639
Risk Response Planning	.186	.057	.198	3.263	.001	.246	4.058
Risk Monitoring	.270	.054	.275	5.000	.000	.302	3.314

a. Dependent Variable: Performance of Community Projects

Source: Field Data, 2026

Table 5 begins with a positive constant of $B = 0.217$. Its t statistic was 1.292 and $p = 0.196$, meaning that the intercept was not statistically significant at the 0.05 level. The constant represents the estimated baseline performance when all four project risk management predictors are held at zero. Because the probability exceeded 0.05, the baseline term did not independently provide a meaningful explanation of performance. Interpretation of the model therefore centered on the statistically significant predictor coefficients.

Accordingly, all four predictors retained positive and statistically significant effects within the multivariable model. Risk identification provided the largest unstandardized contribution, while risk monitoring, risk response planning, and risk analysis also added meaningful explanatory value. The acceptable tolerance and VIF statistics confirmed that the coefficients could be interpreted without evidence of severe multicollinearity among the project risk management practices.

Risk Identification had a positive and significant effect on performance of community projects ($B = 0.445$, $t = 8.558$, $p < 0.05$). A one-unit increase in risk identification increased predicted performance by 0.445 units when the other practices were held constant. The standardized coefficient of 0.343 showed a substantial unique contribution to the dependent variable. Tolerance was 0.557 and VIF was 1.794, both indicating acceptable collinearity. Since the probability was below 0.05, $H0a$ was rejected.

The effect of risk identification resonated with Sangwa and Dushimimana (2023), who reported that systematic identification contributed positively to project performance. Their evidence implied that performance improved when threats were recognized early, documented clearly and communicated to the people responsible for response.

Risk Analysis produced an unstandardized coefficient of 0.134, with $t = 2.913$ and $p = 0.004$. Holding the remaining predictors constant, a one-unit improvement in risk analysis raised performance by 0.134 units. Its Beta value was 0.142, confirming a positive

independent contribution after adjustment for the other risk practices. Collinearity remained acceptable because tolerance equaled 0.379 and VIF equaled 2.639. The significance value was below 0.05, leading to rejection of $H0b$.

The influence of risk analysis aligned with Project Management Institute (2024), which explained that disciplined assessment helps project teams distinguish material uncertainty from less consequential concerns. Prioritisation supports performance by directing attention and resources towards risks with the greatest potential effect.

A positive coefficient was obtained for risk response planning ($B = 0.186$; $t = 3.263$; $p = 0.001$). This means that a one-unit increase in the predictor increased expected project performance by 0.186 units while risk identification, risk analysis, and risk monitoring remained constant. The standardized effect reached $Beta = 0.198$, demonstrating a meaningful unique influence within the model. Tolerance of 0.246 and VIF of 4.058 did not indicate unacceptable multicollinearity. Because p was less than 0.05, $H0c$ was rejected.

The contribution of response planning was supported by Project Management Institute (2024), which explained that risk management creates practical value when analysis is translated into implementable actions with clear ownership, timing and resources. This enables project teams to move from awareness of uncertainty to organised intervention.

Risk Monitoring positively influenced performance, with $B = 0.270$, $t = 5.000$, and $p < 0.05$. Each one-unit increase in risk monitoring increased predicted performance by 0.270 units after controlling for the other project risk management practices. The standardized coefficient was $Beta = 0.275$, identifying monitoring as an important unique contributor. Tolerance was 0.302 and VIF was 3.314, confirming that collinearity remained within acceptable limits. The statistically significant probability resulted in rejection of $H0d$.

The effect of monitoring was consistent with Nduwayezu and Hakizimana (2024), who found that

risk control contributed positively to the performance of a social-development project in Rwanda. Continuous monitoring becomes influential when current evidence is reviewed, emerging risks are communicated and corrective actions are followed to completion.

Accordingly, all four predictors retained positive and statistically significant effects within the multivariable model. Risk identification provided the largest unstandardized contribution, while risk monitoring, risk response planning, and risk analysis also added meaningful explanatory value. The acceptable tolerance and VIF statistics confirmed that the coefficients could be interpreted without evidence of severe multicollinearity among the project risk management practices.

The adopted regression model was:

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

Y represented Performance of Community Projects, X_1 represented Risk Identification, X_2 represented Risk Analysis, X_3 represented Risk Response Planning, and X_4 represented Risk Monitoring.

Replacing the coefficients produced: Performance of Community Projects = 0.217 + 0.445(Risk Identification) + 0.134(Risk Analysis) + 0.186(Risk Response Planning) + 0.270(Risk Monitoring) + ε .

4.3 Decision on Null Hypotheses

The decisions on the four null hypotheses were based on the regression significance values and the 0.05 decision threshold. A null hypothesis was rejected when the corresponding predictor recorded $p < 0.05$, indicating that the project risk management practice had a statistically significant effect on performance of community projects in the current study.

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Table 6: Decision on null hypotheses

Hypothesis		Sig.	Decision
H0a	Risk identification does not affect performance of community projects supported by Spark Microgrants.	.000	Rejected
H0b	Risk analysis does not affect performance of community projects supported by Spark Microgrants.	.004	Rejected
H0c	Risk response planning does not affect performance of community projects supported by Spark Microgrants.	.001	Rejected
H0d	Risk monitoring does not affect performance of community projects supported by Spark Microgrants.	.000	Rejected

Source: Field Data, 2026

Table 6 summarises the decisions reached for the specific null hypotheses. H0a was rejected because risk identification recorded $p < 0.05$; H0b was rejected because risk analysis produced $p = 0.004$; H0c was rejected because risk response planning recorded $p = 0.001$; and H0d was rejected because risk monitoring recorded $p < 0.05$. Each probability was below the 0.05 significance level, confirming that every predictor made a statistically significant unique contribution in the fitted model.

4.4 Discussion of Research Findings

This section discusses the research findings in relation to the study objectives and relevant empirical evidence.

4.4.1 Effect of Risk Identification on Performance of Community Projects

Risk Identification had a positive and significant effect on performance of community projects ($B = 0.445$, $t = 8.558$, $p < 0.05$). A one-unit increase in risk identification increased predicted performance by 0.445 units when the other practices were held constant. The standardized coefficient of 0.343 showed a substantial unique contribution to the dependent variable. Tolerance was 0.557 and VIF was 1.794, both indicating acceptable collinearity. Since the probability was below 0.05, H0a was rejected.

The effect of risk identification resonated with Sangwa and Dushimimana (2023), who reported that systematic identification contributed positively to project performance. Their evidence implied that performance improved when threats were recognized early, documented clearly and communicated to the people responsible for response.

The positive influence of risk identification indicates that community projects benefit when potential financial, technical, environmental and participation-related events are recognised early and documented clearly. This result is consistent with Hakizimana and Njenga (2023), who found that structured risk identification strengthened preparedness and project performance in Rwanda. Sangwa and Dushimimana

(2023) similarly emphasised the value of combining established risk categories with project-specific contextual information. In the present setting, the finding suggests that participatory identification created a stronger foundation for later analysis and response.

4.4.2 Effect of Risk Analysis on Performance of Community Projects

Risk Analysis produced an unstandardized coefficient of 0.134, with $t = 2.913$ and $p = 0.004$. Holding the remaining predictors constant, a one-unit improvement in risk analysis raised performance by 0.134 units. Its Beta value was 0.142, confirming a positive independent contribution after adjustment for the other risk practices. Collinearity remained acceptable because tolerance equaled 0.379 and VIF equaled 2.639. The significance value was below 0.05, leading to rejection of H0b.

The influence of risk analysis aligned with Project Management Institute (2024), which explained that disciplined assessment helps project teams distinguish material uncertainty from less consequential concerns. Prioritisation supports performance by directing attention and resources towards risks with the greatest potential effect.

Risk analysis remained significant after the other practices were controlled, showing that recognising uncertainty alone was insufficient. Projects also needed to compare likelihood, consequence and urgency before allocating limited resources. The finding agrees with Project Management Institute (2024), which describes analysis as the stage that transforms identified concerns into decision-relevant priorities. Structural Contingency Theory also supports this result because the appropriate depth of analysis depends on the uncertainty, stakeholder diversity and information available in a particular community-project environment.

4.4.3 Effect of Risk Response Planning on Performance of Community Projects

A positive coefficient was obtained for risk response planning ($B = 0.186$; $t = 3.263$; $p = 0.001$). This means that a one-unit increase in the predictor increased expected project performance by 0.186 units while risk

identification, risk analysis, and risk monitoring remained constant. The standardized effect reached $Beta = 0.198$, demonstrating a meaningful unique influence within the model. Tolerance of 0.246 and VIF of 4.058 did not indicate unacceptable multicollinearity. Because p was less than 0.05, $H0c$ was rejected.

The contribution of response planning was supported by Project Management Institute (2024), which explained that risk management creates practical value when analysis is translated into implementable actions with clear ownership, timing and resources. This enables project teams to move from awareness of uncertainty to organised intervention.

The significant coefficient for risk response planning demonstrates the importance of moving from awareness to action. Responses become operational when responsibilities, resources, timing and triggers are clearly specified. This interpretation is consistent with Project Management Institute (2024), which argues that feasible and owned responses are essential for protecting objectives. The evidence from Kinyababa further suggests that advance planning reduces indecision when conditions change and allows project structures to preserve continuity without abandoning agreed priorities.

4.4.4 Effect of Risk Monitoring on Performance of Community Projects

Risk Monitoring positively influenced performance, with $B = 0.270$, $t = 5.000$, and $p < 0.05$. Each one-unit increase in risk monitoring increased predicted performance by 0.270 units after controlling for the other project risk management practices. The standardized coefficient was $Beta = 0.275$, identifying monitoring as an important unique contributor. Tolerance was 0.302 and VIF was 3.314, confirming that collinearity remained within acceptable limits. The statistically significant probability resulted in rejection of $H0d$.

The effect of monitoring was consistent with Nduwayezu and Hakizimana (2024), who found that risk control contributed positively to the performance of a social-development project in Rwanda. Continuous monitoring becomes influential when current evidence is reviewed, emerging risks are communicated and corrective actions are followed to completion.

Risk monitoring also exerted a significant independent effect, confirming the value of keeping risk information current throughout implementation. The result aligns with Nduwayezu and Hakizimana (2024), who reported that coordinated risk control contributed to project performance in Rwanda. From a systems perspective, monitoring links changes in schedules, resources, stakeholder behaviour and expected outputs, making it possible for project actors to detect deviations and

adjust earlier responses before emerging issues become more difficult to correct.

5. Conclusions and Recommendations

This section presents the study conclusions and recommendations derived from the findings.

5.1 Conclusion

Risk identification provided the initial foundation for effective community-project management by making uncertainty visible before it disrupted implementation. Participatory recognition, documentation and communication of risks strengthened preparedness and improved the conditions under which project decisions were made. Risk analysis added value by helping project actors distinguish important exposures from routine concerns. Comparing probability and consequences supported more disciplined allocation of limited resources and improved the quality of decisions affecting cost, time, quality and sustainability. Risk response planning translated assessed uncertainty into practical action. Clearly assigned responsibilities, feasible measures and timely activation of responses reduced confusion and strengthened implementation continuity when unexpected conditions emerged.

Risk monitoring sustained the usefulness of the earlier stages by keeping information current and testing whether responses remained effective. Regular follow-up, communication and corrective action supported accountability and enabled project structures to react before emerging risks undermined expected results. Taken together, the findings show that community-project performance was stronger when risk identification, analysis, response planning and monitoring operated as an integrated management cycle. Each practice made a statistically significant contribution, while their combined explanatory power confirmed the importance of institutionalising the complete risk-management process within Spark Microgrants-supported projects.

5.2 Recommendations

This section presents recommendations derived from the study findings and conclusions. Suggestions for future research are also provided.

1. Spark Microgrants and FCAP committees should maintain a standard risk register for every supported project and update it during scheduled community review meetings.
2. Project teams should apply a simple probability-and-impact scoring procedure before committing resources to identified risks, supported by practical capacity building for facilitators and relevant local leaders.

3. Every priority risk should have a documented response indicating the selected strategy, responsible actor, required resources, activation trigger and completion deadline.
4. Spark Microgrants and local project structures should integrate risk indicators into routine progress reports so that emerging exposures, response status and corrective action are reviewed continuously.
5. Community-based facilitators and local leaders should maintain a clear feedback channel through which beneficiaries can report emerging risks and receive information on the action taken.

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