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Effect of Risk Management Practices on Performance of Digital Transformation Projects: A Case of Network Modernization Project at MTN Rwanda

Djamali Sibomana and Sam Bazimya
University of Kigali
https://orcid.org/0009-0007-2524-1459
Email: Sibomana.djamali@gmail.com

Abstract: *The general objective of this study was to assess the effect of risk management practices on the performance of digital transformation projects in Rwanda, with specific reference to the Network Modernization Project at MTN Rwanda. Data analysis was conducted using Statistical Package for Social Sciences (SPSS) version 29 to generate descriptive and inferential statistics. The findings showed that the R-squared value of 0.772 denotes that approximately 77.2% of the variation in project performance can be explained by the three risk management practices. The Durbin-Watson statistic of 1.692 suggests no significant autocorrelation in the residuals. The overall model significance is confirmed, as the significance level is below 0.05. The unstandardized coefficient for the constant is 0.182, representing the baseline level of project performance when all predictor variables are zero. Risk identification has a coefficient of 0.201, indicating that a one-unit increase in risk identification leads to a 0.201-unit increase in project performance (beta = 0.217, t = 3.865, p = 0.000). Risk analysis has a coefficient of 0.548, suggesting that a one-unit increase enhances project performance by 0.548 units (beta = 0.522, t = 10.340, p = 0.000). Risk monitoring and control has a coefficient of 0.220, indicating that a one-unit improvement increases project performance by 0.220 units (beta = 0.255, t = 4.074, p = 0.000). The study recommended that the MTN Rwanda management link risk management performance metrics directly to overall evaluations.*

Keywords: *Risk Management Practices, Risk Identification Practices, Risk Analysis Practices, Risk Monitoring and Control Practices, Performance of Digital Transformation Projects, Network Modernization Project*

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1. Introduction

Risk management constitutes a fundamental pillar of modern organizational strategy, originating from post-World War II developments in market insurance before permeating the finance and construction sectors. Its primary function involves the systematic safeguarding of corporate entities and individuals against financial devastation resulting from operational failures or unforeseen accidents. In the United States, the construction industry pioneered these concepts, refining them over decades to address contemporary requirements for sustainable infrastructure and efficient project delivery. Effective risk management now transcends basic safety protocols to include the comprehensive identification of risk sources and the formulation of mitigation strategies tailored to complex environments. This evolution ensures that businesses remain protected against losses while simultaneously meeting rigorous delivery targets through the structured handling of potential threats (Oke et al., 2023).

Corporate performance in major Asian economies like China is intrinsically linked to specific enterprise risk management variables. The core of effective management strategy lies in the seamless integration of risk assessment, communication, and monitoring. Weak organizational performance is frequently a direct consequence of inadequate attention to these three central components rather than external market factors alone. When organizations actively engage in continuous monitoring and foster open communication

regarding potential threats, perceived performance metrics improve substantially. This correlation underscores the necessity of positioning risk management not as a peripheral compliance activity but as a central driver of operational stability and corporate success (Wangyanwen et al., 2023).

The construction of the Mpazi channel in Kigali demonstrates the direct correlation between risk identification strategies and successful project outcomes. A robust positive relationship exists between the methods used to identify potential threats and the ultimate performance of infrastructure projects. The implementation of a formal plan for risk response significantly elevates the success rate of construction efforts. When risk identification, response planning, and process management are combined, they account for the vast majority of variances in project success. Integrating formal procedures throughout the planning phase is essential to ensure that all personnel, from support staff to laborers, adhere to necessary safety and performance standards (Igihozo & Irechukwu, 2022).

Urban development in Rwanda demands a strict definition of scope to maintain project focus and prevent unauthorized alterations. Risk analysis and response planning are critical determinants that explain significant variations in project performance metrics. Adherence to strict guidelines during the execution phase is necessary to prevent scope creep and ensure alignment with original objectives. The continuous monitoring and control of risks throughout the project lifecycle contribute positively to the efficient delivery of urban infrastructure. Establishing detailed frameworks early in the process guarantees that every unit of effort translates into tangible performance improvements, securing the project's long-term viability (Mukalay & Wabala, 2025).

The Twiceceka Project in Huye District highlights the indispensable role of deep risk analysis in facilitating informed decision-making. Frameworks based on constraints and goal-setting clarify how risk identification and monitoring influence development outcomes. Risk management practices exert a highly significant effect on the success of such initiatives, with the quality of analysis directly impacting the effectiveness of response planning. A solid foundation for project stability is built upon the enhancement of these analytical processes. Ensuring depth in risk analysis is essential for development projects to meet their goals and deliver sustained value to the community (Sangwa & Dushimimana, 2023).

Research by Habimana (2022) reveals that 55% of digital transformation failures in Rwanda are attributed to inadequate change management and a lack of risk-aware culture among project teams. The alignment between strategic risk management and institutional performance is often disconnected in practice. Uwizeye and Bizimana (2025) conducted a longitudinal study of Rwandan enterprises and found that while 70% of managers claim to have a risk management plan, less than 20% actually use quantitative risk tools to inform decision-making. In the Rwanda Information Society Authority (RISA) Annual Report (2023), it was noted that while investment in digital tools is increasing, only a small fraction of project budgets is dedicated specifically to risk mitigation and contingency planning. This lack of financial buffering means that when technical glitches or cybersecurity threats emerge, projects often stall indefinitely.

There is limited empirical evidence linking structured risk management practices directly to performance outcomes of large-scale corporate digital transformation initiatives. None of the identified studies has specifically examined risk management practices within the Network Modernization Project at MTN Rwanda. This gap in context-specific knowledge limits understanding of how strategic, financial, operational, and technological risk practices influence digital transformation performance in Rwanda

The general objective of this study was to assess the effect of risk management practices on performance of digital transformation projects in Rwanda, with specific reference to Network Modernization Project at MTN Rwanda.

The specific objectives were:

1. To examine the effect of risk identification practices on performance of Network Modernization Project at MTN Rwanda.
2. To identify the effect of risk analysis practices on performance of Network Modernization Project at MTN Rwanda.
3. To assess the effect of risk monitoring and control practices on performance of Network Modernization Project at MTN Rwanda.

2. Literature Review

2.1 Theoretical Review

This section reviews the theory of change, system theory, and resilience theory as foundational perspectives informing analysis of risk management and project performance.

2.1.1 Theory of Change

The theory of change is a structured explanation of how intended actions are expected to lead to desired outcomes through clearly defined causal pathways, assumptions, and enabling conditions. The concept was formally articulated in 1995 by Carol Weiss, who emphasized that many programs rely on implicit assumptions that weaken planning and evaluation. She argued that making the logic of change explicit improves learning, accountability, and the credibility of

claims about impact, especially in complex interventions where outcomes emerge over time (Popkova et al., 2022).

The study utilized the theory of change to examine the effect of risk identification practices on performance of the Network Modernization Project at MTN Rwanda. The theory supports explicit articulation of causal pathways linking early risk identification to anticipated performance outcomes, enabling clear understanding of how proactive identification influences project effectiveness over time.

2.1.2 System Theory

System theory was first developed by Ludwig von Bertalanffy in 1948, when he introduced General Systems Theory to challenge reductionist approaches that focused on isolated components. Developer emphasized that phenomena should be understood as wholes made up of interrelated parts whose interactions determine system behavior. This foundational perspective established key principles such as interdependence, structure, and feedback, which later influenced multiple scientific and applied fields (Ramos et al., 2022).

System theory frames persistent challenges as outcomes of feedback loops, delays, and interdependencies within interconnected systems. Problems are sustained through reinforcing mechanisms embedded in system interactions rather than isolated failures. This perspective supports deeper understanding of why interventions may not produce immediate results and why coordinated change across system components is required (Javanmardi et al., 2023). It treats systems as dynamic and adaptive rather than static. Feedback processes enable learning and adjustment over time, shaping system resilience and long-term performance. Change emerges through continuous interaction between system elements and their environment rather than through linear planning processes (Kantabutra, 2022).

The study used system theory to identify the effect of risk analysis practices on performance of the Network Modernization Project at MTN Rwanda. System theory explains how interactions among technical, financial, and organizational components shape project behavior, allowing risk analysis to be understood as a structural process influencing performance through interdependencies and feedback mechanisms.

2.1.3 Resilience Theory

Resilience theory also applies to supply chain systems facing cyber and operational threats. Blockchain technology strengthens resilience by improving visibility, traceability, and trust across interconnected actors. These capabilities reduce vulnerability to disruption and support rapid system recovery. Resilience in this context reflects system-level robustness and adaptive reconfiguration rather than resistance to change (Bayramova et al., 2021). Resilience theory extends to large-scale economic systems through mechanisms that enhance adaptability and recovery across regions. Digital finance contributes to economic resilience by improving access to resources, facilitating information flows, and generating spatial spillover effects. Regional resilience emerges from systemic interdependence rather than isolated economic strength, highlighting resilience as an emergent property of interconnected subsystems (Yu et al., 2023).

The study utilized resilience theory to assess the effect of risk monitoring and control practices on performance of the Network Modernization Project at MTN Rwanda. The theory frames monitoring and control as adaptive mechanisms that strengthen system responsiveness, sustain functionality under uncertainty, and support continuous adjustment to emerging risks during project implementation.

2.2 Empirical Review

2.2.1 Risk Identification and Project Performance

Algremazy et al. (2023) investigated the effect of risk management practices on project performance within the construction industry using data collected from over 300 construction companies, with 250 valid responses analyzed through structural equation modeling. The study focused on risk identification, assessment, and monitoring as core practices influencing project execution. The results demonstrated statistically significant positive relationships between risk management practices and project performance, particularly in managing financial risks associated with large investments. The analysis confirmed that systematic application of risk management improves execution efficiency and reduces exposure to uncertainty. The study demonstrated that projects characterized by structured risk management processes are more likely to achieve performance objectives in complex construction environments.

Kabutiei, Nyang'au, and Wanjala (2022) analyzed the relationship between risk identification and project performance using data from 205 respondents across eight irrigation schemes. The study applied descriptive and inferential statistics at a 95 percent confidence level. The results confirmed a positive and statistically significant relationship between risk identification and performance of irrigation projects. Reliability and validity tests supported the robustness of the data collection instruments. The findings indicated that early identification of environmental, operational, and financial risks strengthened planning accuracy and implementation effectiveness. The study demonstrated that risk identification remains a critical determinant of performance in large-scale public infrastructure projects.

Sangwa and Dushimimana (2023) examined the effect of risk management practices on project performance using a census of 200 respondents involved in the TWICECEKA Project. Regression analysis revealed that risk management practices accounted for 62.5 percent of performance variation ($R^2 = 0.625$). Risk identification recorded $\beta = 0.353$, risk analysis $\beta = 0.501$, risk response planning $\beta = 0.425$, and risk monitoring and control $\beta = 0.297$, with all coefficients statistically significant at $p < 0.05$. The study confirmed that comprehensive risk management practices significantly enhance performance of development-oriented projects.

2.2.2 Risk Analysis and Project Performance

Othman et al. (2024) assessed how formal risk management practices, with emphasis on risk assessment and analysis activities, relate to project success in Malaysian oil and gas projects. The study applied a quantitative design, surveying 365 project practitioners and analysing the data using PLS SEM. Results reported a positive association between risk assessment practice and project success ($r = 0.672$), with the structural model explaining 60.5 percent of the variance in project success ($R^2 = 0.605$). The authors concluded that disciplined risk assessment and early analytical reviews strengthen delivery outcomes in complex projects. The paper recommended strengthening standard risk assessment routines and embedding them into project governance, so risk analysis becomes continuous rather than occasional.

Abdulai and Owusu Manu (2022) evaluated how the selection and use of risk analysis tools relate to construction project performance in Ghana, with a strong focus on quantitative risk analysis practices. Using a quantitative survey, the authors administered 109 questionnaires and recovered 96 responses (88.07 percent), then ran factor analysis and regression. Quantitative tools, which align with numerical risk analysis, had a positive and significant relationship with construction project performance ($B = 0.222$, $t = 3.220$, $p = 0.002$). The regression model showed adjusted $R^2 = 0.137$ and the ANOVA test was significant ($F = 5.714$, $p = 0.001$), indicating measurable explanatory power even if modest. The study concluded that greater use of quantitative risk analysis improves performance outcomes and recommended training to strengthen quantitative risk analysis capability among practitioners.

Nirere (2022) analysed risk management practices in the AB Bank project in Rwanda, explicitly testing how risk assessment practices relate to project performance. The study used a quantitative approach with SPSS, drawing responses from 141 participants and applying correlation and regression outputs. Findings reported a positive relationship between risk assessment and project performance ($r = 0.455$, $p = 0.03$). Regression results also indicated that risk assessment had a statistically significant contribution to performance ($\beta = 0.41$, $t = 4.64$, $p = 0.03$). The author concluded that structured risk assessment improves delivery outcomes when it is actively integrated into project implementation decisions. The study recommended strengthening risk assessment routines and monitoring mechanisms so identified risks are quantified and tracked consistently across the project cycle.

2.2.3 Risk Monitoring and Control and Project Performance

Ackah (2025) evaluated the effect of risk monitoring and control practices on project performance within the telecommunication industry in Ghana. The study aimed to establish how continuous risk tracking and feedback mechanisms influence time and cost performance. A quantitative correlational research design was adopted, applying Spearman rho tests to analyze data collected from project personnel. The results revealed statistically significant positive relationships between active risk monitoring practices and key performance indicators, including reduced schedule overruns and improved cost effectiveness. Projects with consistent control mechanisms experienced fewer implementation disruptions. The study concluded that strong monitoring and control systems enhance operational performance. It recommended investment in digital risk tracking tools and integration of control reviews into routine project reporting structures.

Machira and Kising'u (2024) investigated the influence of risk monitoring and control practices on performance of road construction projects in Kenya. The objective was to determine how continuous risk tracking, periodic review meetings, and corrective control measures affect cost and schedule outcomes. A quantitative research design was applied, with structured questionnaires administered to project managers and site engineers. Regression analysis results indicated that consistent monitoring of identified risks significantly reduced cost variance and schedule delays. Projects applying regular control actions demonstrated closer alignment with planned performance targets than those using irregular monitoring. The study concluded that embedding formal risk review checkpoints across the project life cycle improves delivery performance and recommended adoption of scheduled risk audits and contingency evaluation policies.

Nkiranuye et al. (2025) assessed the effect of risk monitoring and control practices on project performance among large construction firms in Rwanda. The study employed quantitative design and collected data from 206 respondents, with inferential analysis conducted using regression and ANOVA techniques. Results showed that risk monitoring and review had a statistically significant influence on project performance with $\beta = 0.444$, $t = 7.933$, and $p < 0.001$. The model explained 70.6 percent of performance variation with $R^2 = 0.706$, highlighting the strength of monitoring practices. The authors concluded that formalized monitoring routines enhance responsiveness to emerging risks and recommended standardizing

protocols and adopting real time reporting systems to strengthen project outcomes.

3. Methodology

This section explains the research design, target population, sample size, and sampling strategy.

3.1 Research Design

This study adopted a descriptive research design to collect data and define risk management practices and their effect on performance of digital transformation projects, with specific reference to the Network Modernization Project at MTN Rwanda. Descriptive surveys are used for gathering data, summarizing findings, and drawing conclusions. This design is suitable for gathering information on risk identification, risk analysis, and risk monitoring and control practices within the Network Modernization Project. The choice of this approach stems from the researcher's confidence in obtaining valuable data from a large sample. The study applied correlational research design tests to the study's variables for further analysis regarding hypotheses.

3.2 Study Population

The target population for this study comprised 312 employees of MTN Rwanda who are directly involved in or support the Network Modernization Project. This includes staff from the Network and Engineering Department, IT and Digital Transformation Department, Finance and Procurement Department, Project Management Office, and Risk and Compliance Department. These categories were selected because they possess relevant knowledge and experience regarding risk management practices and performance of digital transformation projects at MTN Rwanda.

3.3 Sampling Design

In this study, Slovin's formula was used to determine the appropriate sample size. This calculation indicated that approximately 175 respondents were needed for the study to achieve a 5% margin of error.

The study employed a combination of stratified and simple random sampling to ensure a balanced and objective selection of participants from MTN Rwanda. Stratified sampling is used to divide the total population of 312 employees into five distinct groups or strata based on their specific departments.

Following the stratification, simple random sampling was applied within each department to select the final 175 respondents. This involves using a random selection process, such as a computer-generated list or a table of random numbers, to choose individuals from each departmental list. By using this method, every employee within a specific department has an equal and independent chance of being included in the study.

3.4 Data Collection Instrument

Information was gathered from selected participants using pre-designed questionnaires. The questions on the survey was appropriate for the study objectives. Questionnaires are easier to administer, cost-effective, and allow respondents to express their views freely. This approach enabled the researcher to collect relevant data related to risk management practices and performance of the Network Modernization Project at MTN Rwanda.

3.5 Pilot Study, Validity and Reliability

A pilot study was conducted to assess the validity and reliability of the questionnaire. The pre-test was conducted on 17 respondents, representing approximately 10% of the sample size, drawn from departments involved in the Network Modernization Project.

The Content Validity Index (CVI) was computed by dividing the number of relevant items by the total number of items. A CVI value greater than 0.70 confirmed acceptable validity of the questionnaire.

The Content Validity Index (CVI) of 0.80, calculated as 16 relevant items out of 20 total items, indicates a strong level of content validity for the research instrument. The majority of the questions are considered suitable and measure the intended constructs well, as this score surpasses the commonly recognized criterion of 0.7.

The reliability statistics indicate a high level of internal consistency for the survey items associated with the various risk management and project performance variables. Each variable, including Risk Identification Practices (Cronbach's Alpha: .821), Risk Analysis Practices (Cronbach's Alpha: .845), Risk Monitoring and Control Practices (Cronbach's Alpha: .818), and Performance of Digital Transformation Projects (Cronbach's Alpha: .836), demonstrates values well above the acceptable threshold of 0.7. These coefficients suggest that the questionnaire items are collectively reliable for data analysis and consistently measure the variables under study.

3.6 Data Analysis

Once the data are collected, responses was coded, entered, and organized according to the study objectives. Data was summarized using frequencies, percentages, and tables. Descriptive statistics was applied to explain patterns in risk management practices and project performance. Inferential statistics, including correlation and regression analysis, was used to test the study hypotheses. SPSS version 29.0 was used for data analysis.

Correlation analysis assessed relationships among risk identification practices, risk analysis practices, risk monitoring and control practices, and project performance. A regression model was used to evaluate the effect of risk management practices on performance of the Network Modernization Project at MTN Rwanda.

The regression model was expressed as:

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

Where:
Y = Performance of digital transformation projects
X_1 = Risk identification practices
X_2 = Risk analysis practices
X_3 = Risk monitoring and control practices
β_0 = Constant term
β_1, β_2, β_3 = Regression coefficients
ε = Error term

3.7 Ethical Considerations

Participation was voluntary, and respondents were fully informed about the study objectives. No sensitive information was requested, and a cover letter explaining the study purpose and confidentiality assurances accompanied the questionnaire. A letter of introduction from the University of Kigali was presented to clarify the academic purpose of the study, and approval was obtained from the relevant authorities overseeing the Network Modernization Project at MTN Rwanda. These measures were intended to ensure ethical conduct throughout the research process and to protect the privacy, rights, and interests of all participants.

4. Results and Discussions

This section presents the findings of the study based on the data collected from respondents regarding the effect of risk management practices on the performance of digital transformation projects at MTN Rwanda. The data is interpreted to provide a clear understanding of how these practices influence the success of the Network Modernization Project.

Table 1: Response Rate

Questionnaire	Frequency	Percentage
Filled and returned	170	97.14
Unreturned	3	1.72
Incomplete	2	1.14
Total	**175**	**100.00**

Source: Field data (2026)

Table 1 presents the response rate achieved during data collection at MTN Rwanda. A total of 170 questionnaires (97.14%) were returned in complete form, while 2 questionnaires (1.14%) were partially completed and 3 (1.72%) were not returned. This exceptionally high response rate reflects strong participant engagement and enhances the credibility of the findings. Given the technical complexity of network modernization research, minimizing missing responses is essential to ensure the robustness of the analysis and the reliability of conclusions drawn regarding the effectiveness of risk management practices.

4.1 Correlation Analysis

Correlation analysis is conducted to measure the degree of association between the independent variables (risk identification, analysis, monitoring, and control) and the dependent variable (performance). This study utilizes Pearson Correlation Coefficient (r) to determine whether a positive or negative relationship exists. The significance of these relationships is tested at a 0.05 level to ensure the results are statistically meaningful for the Network Modernization Project.

Table 2: Correlations

		Risk identification practices	Risk analysis practices	Risk monitoring and control practices	Performance of digital transformation projects
Risk identification practices	Pearson Correlation	1	.559**	.747**	.699**
	Sig. (2-tailed)		.000	.000	.000
	N	170	170	170	170
Risk analysis practices	Pearson Correlation	.559**	1	.667**	.813**
	Sig. (2-tailed)	.000		.000	.000
	N	170	170	170	170
Risk monitoring and control practices	Pearson Correlation	.747**	.667**	1	.765**
	Sig. (2-tailed)	.000	.000		.000

		Risk identification practices	Risk analysis practices	Risk monitoring and control practices	Performance of digital transformation projects
Performance of digital transformation projects	N	170	170	170	170
	Pearson Correlation	.699**	.813**	.765**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	170	170	170	170

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

Source: Field data (2026)

Results from a Pearson correlation study showing the relationship between the Network Modernization Project's performance and the independent variables (Risk Identification Practices, Risk Analysis Practices, and Risk Monitoring and Control Practices) are shown in Table 2.

Risk Identification Practices was shown to have a substantial positive correlation of 0.699 with the performance of the Network Modernization Project at MTN Rwanda. This correlation was significant at the 0.05 level (2-tailed) with a p-value of 0.000. This proves that a higher rate of project performance is highly correlated with more thorough risk identification. The link between the two variables emphasizes how important thorough risk identification is for a project's success. The findings align with Algremazy et al. (2023), who argued that systematic risk identification serves as the foundation for execution efficiency, and Oyekunle (2024), who emphasized that proactive detection mechanisms are universal prerequisites for success in complex environments.

Additionally, there was a very significant positive correlation of 0.813 between Risk Analysis Practices and the Performance of the Network Modernization Project, with a p-value of 0.000 and a significance threshold of 0.05 (2-tailed). This highlights the need for meticulous analytical reviews and shows that effective risk analysis is strongly associated with project success. The results are supported by Othman et al. (2024), who concluded that disciplined risk assessment and analytical reviews strengthen delivery outcomes, and Nirere (2022), who highlighted that structured risk assessment improves delivery outcomes when actively integrated into decisions.

Also, the Network Modernization Project's success was correlated with Risk Monitoring and Control Practices at 0.765, which was statistically significant at the 0.05 level (2-tailed) with a p-value of 0.000. This association suggests that good risk monitoring is highly related with project success, underlining the crucial significance of tracking and mitigation measures in achieving favorable project results. The findings resonate with Rajapakshe et al. (2025), who argued that ongoing monitoring activities significantly reduced schedule delays, and Nkiranuye et al. (2025), who concluded that formalized monitoring routines enhance responsiveness to emerging risks.

4.2 Regression Analysis

Regression analysis is used to determine the extent to which the independent variables predict the variation in the dependent variable. This section includes the Model Summary, which shows the explanatory power of the model, and the ANOVA table, which tests the overall significance of the regression model. Finally, the Coefficient table provides the mathematical weights (B values) for each risk management practice, allowing for the testing of the study's hypotheses.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.878a	.772	.768	.19684	1.692

a. Predictors: (Constant), Risk monitoring and control practices, Risk analysis practices, Risk identification practices
b. Dependent Variable: Performance of digital transformation projects
Source: Field data (2026)

Table 3 displays the results of the regression study that looked at how the Network Modernization Project's performance was affected by Risk Identification Practices, Risk Analysis Practices, and Risk Monitoring and Control Practices. With an R-value of 0.878, suggesting a substantial linear link, the model reveals a robust positive relationship between these parameters and project performance. These variables account for 77.2% of the variation in project performance, according to the R-squared value of 0.772. There is no substantial autocorrelation in the residuals, as shown by the Durbin-Watson value of 1.692, which confirms the trustworthiness of the model.

The findings align with Niragire and Kwena (2024), who observed that combined risk management practices explained a substantial share of project success

outcomes. Similarly, Sangwa and Dushimimana (2023) examined the effect of risk management practices and revealed that comprehensive risk management accounted for a significant percentage of performance variation. All studies highlight the significance of these risk management elements in successful project outcomes within Rwanda.

Table 4: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.736	3	7.245	185.769	.000b
	Residual	6.432	166	.039		
	Total	28.168	169			

a. Dependent Variable: Performance of digital transformation projects
b. Predictors: (Constant), Risk monitoring and control practices, Risk analysis practices, Risk identification practices
Source: Field data (2026)

Table 4 presents the results of the analysis of variance (ANOVA) for the regression model that examined how the performance of the Network Modernization Project was affected by risk identification practices, risk analysis practices, and risk monitoring and control practices. It is statistically significant that the predictors are associated with the dependent variable, as shown by the F-value (185.769). This link is very significant, since the associated Significance (Sig.) score of 0.000 is much lower than the conventional threshold of 0.05.

The findings align with Bora (2024), who emphasized that a well-structured approach to risk management enhances project performance through statistically significant model summaries. These results, along with insights from Igihozo and Irechukwu (2022), underscore the importance of detailed risk processes in ensuring the success of large-scale digital transformation and infrastructure projects.

Table 5: Coefficients

Model	Variable	B	Std. Error	Beta	t	Sig.
1	(Constant)	.182	.179		1.017	.310
	Risk identification practices	.201	.052	.217	3.865	.000
	Risk analysis practices	.548	.053	.522	10.340	.000
	Risk monitoring and control practices	.220	.054	.255	4.074	.000

a. Dependent Variable: Performance of digital transformation projects
Source: Field data (2026)

The adopted model for analysis was structured as follows:

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

$$Y = 0.182 + 0.201X1 + 0.548X2 + 0.220X3 + \varepsilon$$

Risk identification has a coefficient of 0.201, indicating that a one-unit increase in risk identification leads to a 0.201-unit increase in project performance (beta = 0.217, t = 3.865, p = 0.000).

Risk analysis has a coefficient of 0.548, suggesting that a one-unit increase enhances project performance by 0.548 units (beta = 0.522, t = 10.340, p = 0.000).

Risk monitoring and control has a coefficient of 0.220, indicating that a one-unit improvement increases project performance by 0.220 units (beta = 0.255, t = 4.074, p = 0.000).

The coefficient analysis reveals that all three risk management practices are significant predictors of project performance. Risk analysis is the most influential factor, followed by monitoring and identification. All t-values are above the required threshold, and all p-values are below 0.05, confirming the validity of the research model for the Network Modernization Project.

For H01, the p-value of .000 led to the rejection of the null hypothesis, confirming a significant effect of identification. For H02, the p-value of .000 resulted in the rejection of the null hypothesis, showing a significant effect of analysis. Finally, for H03, the p-value of .000 led to the rejection of the null hypothesis, establishing a significant effect of monitoring and control. These decisions confirm that all examined risk management practices are vital for the performance of the Network Modernization Project at MTN Rwanda.

5. Conclusion and Recommendations

5.1 Conclusion

The study concludes that risk identification practices are a fundamental requirement for the successful execution of digital transformation projects. By identifying potential threats early, the project team can prevent disruptions and maintain coordination across various modernization activities. The positive relationship found in the analysis confirms that effective identification acts as a protective shield for the project's scope.

It is further concluded that risk analysis practices serve as the most critical factor in achieving the desired performance levels at MTN Rwanda. The ability to

prioritize risks through impact reasoning and dependency evaluation allows management to focus resources on the most threatening issues. This strategic analytical approach is the main contributor to the high quality and cost-effectiveness of the modernization project.

The research concludes that risk monitoring and control practices are essential for the ongoing stability of network modernization efforts. Having the discipline to track risks and the responsiveness to adjust plans ensures that the project remains on schedule despite changing conditions. The results indicate that consistent oversight is necessary to bridge the gap between risk planning and actual project results.

The study concludes that there is a significant positive relationship between a comprehensive risk management framework and project performance. When identification, analysis, and monitoring are implemented together, they provide a robust environment for digital transformation to thrive. Consequently, the success of the Network Modernization Project is highly dependent on how well these risk management practices are maintained and improved.

5.2 Recommendations

1. MTN Rwanda should establish a centralized digital registry to allow project members to report emerging threats in real-time. This practice will enhance the speed of risk detection and ensure that no potential threat is overlooked during the modernization phases.
2. Management should invest in advanced analytical software to more accurately evaluate the interconnected effects and dependencies between identified risks. Using automated tools will provide more objective data to support the prioritization of complex digital transformation tasks.
3. MTN Rwanda should link risk management performance metrics directly to the overall evaluation of project success and employee performance reviews. This will incentivize all team members to prioritize risk mitigation as a core part of achieving project milestones on time and within budget.
4. The organization should establish a formal lesson learned database that captures the specific risk-performance correlations observed during the Network Modernization Project. Utilizing this historical data will improve the accuracy of performance forecasting and resource allocation for future digital transformation initiatives.

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