Journal of Entrepreneurship & Project Management



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NDUNGUTSE Alain Frank & Dr. Jean de Dieu DUSHIMIMANA

ISSN: 2616-8464



Influence of Risk Management on Project Performance: A Case of Investment and Mortgage Bank (I&M Bank) Building Project in Nyarugenge District (2018-2022)

NDUNGUTSE Alain Frank¹ & Dr. Jean de Dieu DUSHIMIMANA² ¹ Master of Project Management, University of Kigali, Rwanda ² Senior Lecturer, University of Kigali, Rwanda

How to cite this article: NDUNGUTSE A., F. & DUSHIMIMANA J., D. (2023). Influence of Risk Management on Project Performance: A Case of Investment and Mortgage Bank (I&M Bank) Building Project in Nyarugenge District (2018-2022). *Journal of Entrepreneurship & Project Management. Vol* 7(11) pp. 85-95 <u>https://doi.org/10.53819/81018102t2221</u>

Abstract

This research is investigating the influence of risk management on project performance: a case of investment and mortgage bank (I&M Bank) building project in Nyarugenge. This research achieved the following objectives: to examine the influence of risks identification on performance of Investment and Mortgage Bank building project in Nyarugenge district; to analyze the influence of risks analysis on performance of Investment and Mortgage Bank building project in Nyarugenge district; the influence of risks response on performance of Investment and Mortgage Bank building project in Nyarugenge district and the influence of risks evaluation and control on performance of Investment and Mortgage Bank building project in Nyarugenge district. The population was comprised of respondents of Investment and Mortgage Bank building project in Nyarugenge district in different departments targeting 151 respondents. The study adopt primary and secondary data to get all information needed in this study, the quantitative data was analyzed using descriptive and inferential statistics after running the data collected through the Statistical Package for Social Sciences. The coefficients for the predictor variables show that Risks identification has a coefficient of (β = 0.193, t=2.449, p value=0. 016) indicates a significant influence of risks identification on performance of I&M Bank building project in Nyarugenge district, Risks analysis has a coefficient of (β = 0.173, t=2.235, p value=0.021) indicates a significant influence of risks analysis on performance of I&M Bank building project in Nyarugenge district, Risks response has a coefficient of (β = 0.247, t=2.881, p value=0.005) indicates a significant influence of risks response on performance of I&M Bank building project in Nyarugenge district, Risks evaluation and control has a coefficient of (β = 0.264, t=3.274, p value=0.001) indicates a significant influence of risks evaluation and control on performance of I&M Bank building project in Nyarugenge district. As indicated by their associated Sig. Values below 0.05, all these coefficients have significant effect on Performance of project. Investment and Mortgage Bank building project in Nyarugenge district is recommended to have effective communication with employees about the company's risk assessment recommended, as it will help them understand the approach to risk management.

Keywords: Risk Management, Risks Identification, Risks Analysis, Risks Response, Risks Evaluation and Control, Project Performance



1. Introduction

The current challenges facing projects in Rwanda, as highlighted in this study, encompass financial risk, legal and compliance risk, strategic risk, and technological. Despite the significant growth in the sector, many ongoing projects grapple with the effective management of these risks. This issue becomes especially critical because there is a direct connection between the quality of a project and the effectiveness of its risk management practices. The deficiency in effective project risk management often stems from factors such as limited resources, including time and financial constraints, and an insufficient understanding of risk management techniques. Notably, research in developing countries, including Rwanda, is scarce in addressing these critical variables, with the majority of related studies predominantly conducted in other regions risk (Kerzner, 2018).

The study posits that one of the fundamental challenges faced by construction projects in Rwanda is the insufficient integration of essential risk management skills. Many project managers in the country exhibit limited proficiency in formal risk management practices. Consequently, this deficiency is manifesting in an increasing trend of construction projects failing to meet their deadlines, cost targets, and quality standards, resulting in substantial financial losses.

The consequences of inadequate risk management are particularly pronounced in the construction industry, where risks that could compromise project quality are often disregarded. This failure to address risks at various stages of the project, including identification, analysis, decision-making, and implementation, has a profound impact on the project's ability to achieve its objectives (Serpell & Larissa, 2019).

In the specific context of Rwanda's construction industry, there is a scarcity of research focusing on the mediating role of project efficiency in the relationship between project risk management and successful project implementation. Furthermore, previous studies have not specifically investigated the impact of risk management on project performance in Rwanda, with a case study involving the Investment and Mortgage Bank building project in Nyarugenge district. The lack of available data and information on this particular project has created a gap in the existing knowledge base. Therefore, this study aims to address this gap by examining the influence of risk management on project performance in Rwanda, with a particular focus on the Investment and Mortgage Bank building project in Nyarugenge district.

1.2 Objectives of the Study

The general objective of this study was to assess the influence of risk management on project performance.

Specific objectives:

- 1. To examine the influence of risks identification on performance of Investment and Mortgage Bank building project in Nyarugenge district;
- 2. To analyze the influence of risks analysis on performance of Investment and Mortgage Bank building project in Nyarugenge district;
- 3. To assess the influence of risks response on performance of Investment and Mortgage Bank building project in Nyarugenge district;
- 4. To determine the influence of risks evaluation and control on performance of Investment and Mortgage Bank building project in Nyarugenge district.



1.3 Research hypotheses

 H_{01} : There is no significant influence of risks identification on performance of Investment and Mortgage Bank building project;

 H_{02} : There is no significant influence of risks analysis on performance of Investment and Mortgage Bank building project;

H₀₃: There is no significant influence of risks response on performance of Investment and Mortgage Bank building project;

H₀₄: There is no significant influence of risks evaluation and control on performance of Investment and Mortgage Bank building project.

2. Literature review

2.1. Conceptual Review

The conceptual review covers the survey of past studies on the concepts related to strategic management spilling from the fundamental definitions and terms utilized within the field of risk management. It moreover recognizes the hole within the existing writing counseled. The writing review ends with the rundown of key issues raised.

Risk Management

Risk Management (RM) is a concept that has become very popular in many companies. Many companies regularly implement risk management in their projects to increase productivity and profits and improve company performance (Ahmadi *et al.*, 2017). Risk and uncertainty are two of the most common concepts in the project management literature (Hopkinson, 2017; Qureshi *et al.*, 2020). Although these terms are closely related, many authors distinguish between them (Lachapelle & Hundozi, 2018). It is also difficult for employees at risk to identify and distinguish them. Definitions of risk or uncertainty associated with the use of a particular commodity are often adjusted. A literature study was conducted for systematization. The results of this research have led to several definitions of risk and uncertainty (Ahmadi *et al.*, 2017). Risk management receives a lot of attention because it is seen as a way to improve the cost, schedule and technical performance of new product development programs (Aven, 2016). Uncertainty is one of the main risk factors in projects, which can be considered as a random event whose probability is actually unknown, meaning that uncertainty is associated with an event that is little known except that it may happen (Bazin, 2017).

However, it should be emphasized that risk management is not a tool to ensure success, but rather a tool to help increase the likelihood of success. Therefore, risk management is a proactive rather than a reactive concept (Ahmadi *et al.*, 2017). Many definitions can be found in the literature, for example, Bahamid and Doh (2017) explain the essence of the concept: The risk management process includes the systematic application of management policies, processes and procedures to contextual tasks, identification, analysis, evaluation, treatment. Monitoring and Risk Communication (Bahamid & Doh, 2017).

Bazin (2017) described the risk management process (RMP) as an important principle for risk assessment and risk management in projects. It includes the following key steps: identification, assessment and analysis, and response. The risk decision must include all stages of the risk management plan to effectively implement the process in the project. There are many variants of RMP in the literature, but the most widely used framework consists of the steps described above. Some models add a new step; most sources identify it as monitoring or risk management. Dario (2017) argues that the decentralized, ad hoc, and



complex nature of projects itself creates risks. Industry decision makers need reliable access to information and knowledge to manage risks adequately and systematically.

Therefore, implementing effective risk management in relation to project management contributes to the success of any project. Bazin (2017) described in detail the concept of RM and its practical application. In their opinion, risk management cannot be considered as a tool for future forecasting because it is absolutely impossible. Instead, they describe it as a tool that facilitates a project to make more effective decisions based on investment information. Thus, decisions based on insufficient information can be avoided, leading to an increase in overall productivity. It has been found that the difference and correlation between uncertainty and risk can be described as the measurable risk of uncertainty, with uncertainty being the greatest risk. There is a correlation between the uncertainties of the objectives, which means that the risks consist only of significant uncertainties that can affect the project objectives. In other words, risk is an important uncertainty whose meaning is related to the goal (Dario, 2017).

Carvalho and Rabechini (2015) agreed that generic skills at the organizational level affect risk and uncertainty. For example, organizational culture can make a difference. Soderlund and Gallego (2017) state that risks are usually controlled by the shared competencies of the project team. According to Bazin (2017), international researchers have done significant work within international projects to identify and reflect on optimal risk management competencies and their impact on project performance.

Project performance

Over the past few decades, open administration writing has centered exceptionally intensely on project execution. Ingraham (2015) famous in a discourse at the national conference for the American Society for Open project that performance, at its heart is around governance and accountability. Measuring execution makes a difference open supervisors oversee more efficiently and give open administrations more effectively. Performance measures are periodic estimation in arrange to allow following of problems, progress, and trends (Hatry *et al.* 2017). An open organization, these measures ought to be derived from the expressed missions, objectives, and destinations of the organization (Poister, 2013). Performance estimation is characterized by Poister as the method of characterizing watching, and using such measures. The framework that combines gathering information for execution measures and monitoring advance is called execution administration (, Qureshi *et al.*, 2020).

The subject of execution in open organizations is a continuous investigate theme for numerous public sector researchers. This proceeded intrigued within the subject of execution is to a great extent due to recent efforts within the open segment to redo public sector organizations more within the picture of private sector firms. Reexamination endeavors just like the Unused Open Administration have created a strongly center upon measuring execution. Bouckaert wrote a point by point history of execution measure utilization in the open division in 1990 (moreover see Williams, 2013). This article focuses to an awfully long history of using measures within the open sector, beginning within the early 1900s since of the want for a more efficient government. From the 1940s until the 1970s, open organizations were particularly interested in execution measures as a way to assist keep costs down. Within the 1970s, fetched control efforts were supplanted with the call to be proficient with citizen dollars. In the1980s and 1990s, the developments were toward reevaluating government to guarantee most extreme productivity and effectiveness.



2.2 Conceptual framework

A conceptual framework is a diagrammatical research tool intended to assist the researcher to develop awareness and understanding of the situation under influence of risk management on project performance from this study. A conceptual framework is used in research to outline possible courses of action or to present a preferred approach to an idea or thought. It can be defined as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation.

The interconnection of these blocks completes the framework for certain expected outcomes. An independent variable is one that is presumed to affect or determine a dependent variable. It can be changed as required, and its values do not represent a problem requiring explanation in an analysis, but are taken simply as given. The independent variables in the study were risk management. A dependent variable is what is measured in the experiment and what is affected during the experiment, it responds to the independent variable. The dependent variable in the study was a project performance.

Figure 1: Conceptual Framework Independent Variables

Risks Management

Dependent Variable

Project Performance





3. Research methodology

The chapter explains the study population, how the researcher collected data, the nature of data, where data was collected and how was analyzed.

Research design

This thesis was relied on the method of the case study in order to understand the influence of risk management on project performance. Descriptive survey research design was used to describe characteristics of a phenomenon to be studied (Duttolph, 2011). A correlation design was utilized in order to interpret data. Therefore, both quantitative (questionnaire) and qualitative (interview) research techniques were used by researcher in order to collect data (information) related to the objectives of the study and for data analysis.

Population of the study

The entire target population of the study who was provided the information and data related to the objectives of the research study was included employees of Investment and Mortgage Bank (I&M Bank) Building Project. The total number of the target population was 151 persons including the key informants. Thus, this total of population was used to extract the sample size of the research.

This was used census inquiry method. The census method is also called as a complete enumeration survey method wherein each and every item in the universe was selected for the data collection, or whenever the entire population is studied to collect the detailed data about every unit

Data Collection Methods

Data source refers to any material was consulted or used in the due course of the study. Both the primary and secondary data was used in the study.

Primary data sources

In this research, the primary data was composed by information from questions (both qualitative and quantitative) of relevant staffs were participate in the study and analyzing the influence of risk management on project performance related with Investment and Mortgage Bank (I&M Bank) Building Project.

Secondary data sources

The secondary sources of data for this study were included by different views of risk management on project performance relevant documents that can be accessed by the researcher. Therefore, the secondary data was used toward documentation technique when the researcher collected the data related to the influence of risk management on project performance with reference of Investment and Mortgage Bank (I&M Bank) Building Project.

Data analysis

This part of the third chapter presents the steps to be followed by the researcher after collecting the data from the field; the research was first make the editing of data, the coding of data and made the tabulation of data. In editing, the researcher scrutinized and verifies the questionnaires in order to avoid errors and repetitions. Once this type of data processing is made the analysis becomes simple and easy to the researcher. In coding, the data is summarized by classifying the different responses given into categories for easy interpretation by assigning a symbol or a number to a response for identification purposes. Tabulation means putting data in some kinds of statistical tables through which the number of occurrence of responses to a particular question is shown. These tables were constructed in such way that frequency of responses to a particular question is presented in percentages.



4. Research findings

This chapter presents the detailed findings of the objectives which the researcher sought to achieve. Data was collected from the field using questionnaires and interviews. These data were later analyzed using the Statistical Package for Social Sciences (SPSS) version 20. In SPSS, the indicators of the influence of risk management on project performance were measured on a nominal scale and the mean and standard deviation of the responses was derived to this analysis. The frequencies and percentages of the responses on a 5-point likert scale from 5=strongly agree to 1=strongly disagree were also derived from this analysis for the different indicators of risk management on project performance for Investment and Mortgage Bank building project in Nyarugenge district. The Pearson correlation was also used to establish a relationship between two variables, risk management and project performance.

Table 1: Correlations

		Risks identification	Risks analysis	Risks response	Risks evaluation and control	Project performance
Risks identification	Pearson Correlation	1	.370**	.555**	.532**	.523**
	Sig. (2- tailed)		.000	.000	.000	.000
	Ν	151	151	151	151	151
Risks analysis	Pearson Correlation	.370**	1	.553**	.378**	.472**
	Sig. (2- tailed)	.000		.000	.000	.000
	Ν	151	151	151	151	151
	Pearson Correlation	.555**	.553**	1	.559**	.587**
Risks response	Sig. (2- tailed)	.000	.000		.000	.000
	Ν	151	151	151	151	151
Risks evaluation and control	Pearson Correlation	.532**	.378**	.559**	1	.556**
	Sig. (2- tailed)	.000	.000	.000		.000
	Ν	151	151	151	151	151
Project performance	Pearson Correlation	.523**	.472**	.587**	.556**	1
	Sig. (2- tailed)	.000	.000	.000	.000	
	N	151	151	151	151	151
**. Correlation is	significant at t	he 0.01 level (2-tailed).			

In Table 1 revealed the positive correlations are evident between various risk management practices and performance of project. Risks identification exhibits a strong positive correlation of 0.523, highlighting that well-structured Risks identification is closely linked to better Performance of project. Similarly, Risks analysis shows a strong positive correlation of 0.472, indicating that effective Risks analysis contributes significantly to improved https://doi.org/10.53819/81018102t2221



Performance of project. Risks response effectiveness demonstrates a positive correlation of 0.587, emphasizing the importance of Risks response effectiveness in Performance of project. Lastly, Risks evaluation and control demonstrates a positive correlation of 0.556, emphasizing the importance of Risks evaluation and control in Performance of project. These correlations, all statistically significant at the 0.05 level, collectively indicates that enhancements in Performance of project, Risks evaluation and control, Risks analysis, Risks identification, Risks response are associated with improved overall performance of projects.

The findings are consistent with Dario's (2017) emphasis on the importance of effective risk management in complex and decentralized projects. Dario's viewpoint aligns with the study's results, which demonstrate that systematic risk management practices (such as risk identification, analysis, response effectiveness, evaluation, and control) are positively correlated with improved project performance. This reinforces Dario's assertion that robust risk management is essential for addressing the inherent complexities and risks in project management.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	e Std.	Error	of	the
				Estima	ate		
1	.682 ^a	.465	.450	.48763	3		
a. Predictors: (Constant), Risks evaluation and control, Risks analysis, Risks identification,							
Risks res	ponse						

Table 2 presents the model summary for a regression analysis. The model includes predictors such as Risks evaluation and control, Risks analysis, Risks identification, Risks response. The R value of 0.682 indicates a strong relationship between the predictors and the performance of construction projects. The R Square value of 0.465 indicates that approximately 46.5% of the variability in the outcome variable can be explained by the predictors in the model. Overall, this model summary indicates a significant relationship between the risk management practices and the outcome variable performance of projects, with a good fit to the data.

The findings are consistent with Bazin's (2017) emphasis on the importance of risk management in projects. Bazin's description of the risk management process aligns with the results, which indicate that effective risk management practices (Risks evaluation and control, Risks analysis, Risks identification, Risks response) significantly influence construction project performance. This reinforces Bazin's principles, highlighting the pivotal role of robust risk management in project success.

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	30.154	4	7.539	31.704	.000 ^b
1	Residual	34.716	146	.238		
	Total	64.870	150			

a. Dependent Variable: Project performance

b. Predictors: (Constant), Risks evaluation and control, Risks analysis, Risks identification, Risks response

Table 3 with an F value of 31.539, indicates the results of an Analysis of Variance (ANOVA) for the regression model. The associated significance level (Sig.), denoted as .000, is less than the typical significance threshold of 0.05. This implies that the overall model, which includes



predictors like Risks evaluation and control, Risks analysis, Risks identification, Risks response, is statistically significant. In simpler terms, there is strong evidence to assume that at least one of the predictors in the model has a significant impact on the dependent variable, Performance of project. This indicates the importance of these risk management practices in influencing Performance of project.

The findings are supported by the emphasis of Hopkinson (2017) and Qureshi *et al.* (2020) on the critical role of risk management in project management. These authors highlight the significance of addressing risk and uncertainty, which aligns with the study's results demonstrating the substantial impact of risk management practices on project performance. This reinforces the importance of considering and effectively managing risks in project management, as emphasized in the literature.

Table 4: Coefficients							
Model		Unstandardi	zed	Standardized	t	Sig.	
		Coefficients		Coefficients			
		В	Std. Error	Beta	-		
1	(Constant)	.541	.271		1.999	.047	
	Risks identification	.193	.079	.189	2.449	.016	
	Risks analysis	.173	.075	.170	2.325	.021	
	Risks response	.247	.086	.247	2.881	.005	
	Risks evaluation and control	.264	.081	.253	3.274	.001	
a. De	ependent Variable: Project	performance					

Table 4: Coefficients

Performance of construction project = 0.541+0.193(Risks identification) + 0.173(Risks analysis + 0.247 (Risks response) + 0.264(Risks evaluation and control)

In Table 4, the constant term, representing the estimated intercept of the regression model, has an unstandardized coefficient of 0.541 with a standard error of 0.271, it is not statistically significant with a Sig. Value of 0.047. The unstandardized coefficients for the predictor variables show their effect on Performance of project. Specifically, Risks identification has a coefficient of (β = 0.193, t=2.449, p value=0.016), Risks analysis has a coefficient of (β = 0.173, t=2.235, p value=0.021), Risks response has a coefficient of (β = 0.247, t=2.881, p value=0.005), and Risks evaluation and control has a coefficient of (β = 0.264, t=3.274, p value=0.001). As indicated by their associated Sig. Values below 0.05, all these coefficients have significant effect on Performance of project.

The findings are supported by Ahmadi et al.'s (2017) emphasis on the significance of project performance. Ahmadi and colleagues highlight that companies frequently implement risk management to enhance productivity and profitability, which aligns with the study's results. The significant coefficients for Risks identification, Risks analysis, Risks response, and Risks evaluation and control in the regression analysis underscore their substantial influence on project performance, reinforcing the importance of effective risk management practices in achieving favorable project outcomes.



5. Conclusion

Risk management is a concept that has become very popular in many companies. Many construction companies routinely implement risk management in their projects to increase productivity, increase profits and improve overall performance. This study is based on analytical methods of analysis and discussion. The hypothesis between risk management and project performance has been tested in the Rwandan construction industry. The results show that implementing risk management can significantly improve project performance. Based on this result, it is necessary to employ qualified project managers with sufficient knowledge of risk management and its main activities.

The study also concluded that the regression model was significant. The results of the hypotheses provide significant overviews into the influence of risk management practices on performance of Investment and Mortgage Bank building project in Nyarugenge district. Each null hypothesis (Ho1, Ho2, Ho3 or Ho4) has been rejected (p < 0.05), indicating strong evidence against the idea that these risk management practices have no significant effect on the performance of Investment and Mortgage Bank building project in Nyarugenge district. Specifically, Risks evaluation and control, Risks analysis, Risks identification, Risks response, all demonstrate a significant influence on the performance of Investment and Mortgage Bank building project in achieving the construction project performance of Investment and Mortgage Bank building project in Nyarugenge district.

6. Recommendations

Investment and Mortgage Bank building project should be organized for trainings employees so that they are better aware of the concepts of risk management of investment and mortgage institutions in construction projects.

Based on the study findings revealed on previous chapter and sections, the researcher suggests conducting a longitudinal study on: Future studies evaluate the relationship between stakeholder participation and the success of projects taking private projects as the case study.

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