Effect of Project Risk Management on Project Success in Rwandan Logistics Companies; A Case of KARA Logistics Company in Nyarugenge District (2018 to 2022)

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Abstract

This research is investigating the effect of project risk management on success of KARA logistics project. This research achieved the following objectives: to assess the effect of risk identification on project success of KARA logistics company; to examine the effect of risk analysis on project success of KARA logistics company; to analyze the effect of risk mitigation on project success of KARA logistics company and to evaluate how risk monitoring and control affect success of KARA logistics company.The research also was compared two variables which are independents and dependents variables. It is a quantitative analysis that involves careful observation of the situation. All the respondents from the population of KARA Logistics Company to respond to research questionnaires. The research used questionnaires to collect data, As far as this study was concerned, the population was comprised of respondents of KARA logistics company in different departments targeting 244 respondents. To describe target population of a study as the point of focus from which a generalization was made regarding the research findings. Thus a sample size was 244 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 statement evaluated is that there are risks that have a high negative impact on KARA Logistics' success rates, "Respondents strongly agreed with a mean of 4.11 and a standard deviation of 0.940. "This indicates that respondents disagree with the statement, as indicated by the weaker mean and heterogeneity of responses and that respondent have different opinions about the statement, as shown by the standard deviation. The third rated statement is "Reduce the impact of potential risks by developing plans to manage, prevent or limit failures as much as possible to achieve the success of KARA Logistics" with a measured mean of 4.21 and a standard deviation of 0.944. From objectives, the researcher found that project risk management has positive effect on success of KARA logistics project. In the data analysis and interpretation as shown in above discussion, the study sought to come up with the following recommendations in line with the research objectives as given below. KARA logistics project should work with Insurance company with lower premium in order to manager well project risk management which lead to success of KARA logistics project and

it should work with bank to reducing the delaying their daily activities. The government of Rwanda should establish the away of proving training to many Rwandans specialist in logistic to increase lots number of Rwandans who are experienced with the field.

Key words: *Project Risk Management, Risk Identification, Risk Analysis, Risk Mitigation, Risk Monitoring and Control, and Project Success.*

1. Introduction

Worldwide, project risk management is the process of identifying, analyzing, and responding to any risks that might affect your project's goals and progress (Shubham, 2022). By identifying and mitigating potential risks before they develop into problems, timely risk management contributes to the success of projects. A project risk management plan is a section of every project that deals with managing potential project risks (Scavetta, 2021). It defines how your project's risk management process will be executed. This includes the funds, tools and approaches that will be used to perform risk identification, assessment, mitigation and monitoring activities. The objectives of the project risk management plan are to increase the probability and impact of positive events while reducing the probability and impact of negative events in the project.

In European countries like German, England and Suisse, project risk management contributes to project success by generating a list of internal and external risks (Tara, 2019). This process includes listing the identified risks, the likelihood of occurrence, potential effects, and proposed responses. A risk is anything that can potentially impact the project's schedule, performance, or budget (Stephanie, 2021). In most cases, low-risk events have little to no impact on budget, schedule, or performance. Positive and negative risks are commonly referred to as opportunities and threats. If the risks are within tolerances and are outweighed by the rewards that may be gained by taking the risks, the project might be approved (PMBOK). There are four potential responses to risk encountered in the project which are: avoid, mitigate, accept and transfer. It has been concluded that the cause of the project's failure can be directly related to the extent of risk management undertaken (Mohammed & Chioma, 2008). When risk planning is not carried out risks will threaten the successful completion of the project.

In the United States of America, according to APM (2006), all projects are naturally risky because they are unique, constrained, and complex, depending on assumptions and carried out by people. Many projects fail because companies make the mistake of assuming that all the projects will be successful and they, therefore, do not identify, analyze, and provide mitigation for the risk components involved in the project. It has been determined that the level of risk management implemented has a direct impact on the project's success or failure, for the project lifecycle, effective project risk management should be consistently applied to increase project success (Mohammed & Chioma, 2008) Given the above, one must understand how project risk management has contributed to project success.

African Businesses are becoming increasingly global, the industrial environment is heavily influenced by the uncertainty that may result in unanticipated disruptions, and logistical projects are at risk from various uncertainties and risks. A typical logistics project involves a wide range of organizations, including material suppliers, producers, distributors, wholesalers, and retailers (Katowice, 2016). Easily collapsing and failing to accomplish its goals, the logistics project falls apart if one or more subjects fail. The likelihood of the logistics project's failure increases with the number of stakeholders involved. Since effective logistics management contributes to higher project success of logistics companies while

maintaining delivery quality and lowering costs, it can provide the company with a long-term competitive advantage (Katowice, 2016).

Nigeria as a country, has the ability to plan projects and implement logistics properly when planning specific activities is a prerequisite for success in managing a logistics project. Risk is a necessary component of these projects due to their specific requirements and individuality. The degree of this risk varies based on the project's type, size, scope, logistics, behaviour, and other elements. Potential risks must be continuously assessed by businesses and given the same level of attention as other areas (Abolghasemi, 2015). To maximize performance and profits, the risk management process's goal is to safeguard the organization's integrity from unfortunate events and effects and ensure project success for logistics companies. There is no denying that risk management in the logistics and supply chain is a current and significant problem that needs to be solved in both academia and industry. As a result, incorporating the risk management process into business management as a crucial component of enterprise competitiveness is one of the most crucial prerequisites for a successful business (Abolghasemi, 2015).

Kenya is one of the countries in our region, organizations with growing costs and complexity also have growing uncertainties and risks. To lower the risk and prevent deviation from the target, the risk management process is subsequently being used more frequently (Salomo, 2017). Companies can lessen the impact of unsettling events and/or lessen the likelihood that they will occur by implementing a project risk management process, allowing them to concentrate on seizing opportunities. Project risk analysis, project risk identification, developing and putting into practice risk response strategies, and project risk monitoring are all part of the project risk management process for the project success of logistics companies. The degree to which risk management techniques are used makes a difference between successful and unsuccessful projects, highlighting the significance of the risk management process in projects. Project outcomes are better the more comprehensive the risk management for project success of logistics companies is (Salomo, 2017).

Rwandan project risk management has an important place in project management theory and methodological framework because unexpected events often occur during the project process. Given the importance of project risk management in project management activities, the effectiveness of risk management is predictable. The implementation of the project has a significant impact; studies on the impact of risk management strategies on project implementation have shown that effective risk management strategies improve project implementation by increasing productivity, and in today's dynamic and increasingly competitive environment, companies simply have a good project plan or a good project is not enough. Monitoring and control systems play a role in project success but must focus on developing effective project risk management strategies, including risk prevention, risk reduction, risk transfer, and risk retention strategies, to promote project success (Passenheim, 2017). Risk management is a form of business planning and implementation process but having a risk management plan (RMP) alone is not enough, it must be actionable and everyone in the company must understand and be trained to implement it. This training should be mandatory because people need to know how to prevent certain risks and how to behave in the face of built-in risks (problems) because they may be the source of the risk or, if they are not well protected, be in danger. Risks are ever-present in this world, and it is almost impossible to prevent or control all risks before they occur (Nehariatal, 2014).

Problem statement
Risk management is an important part of project management because risks are bound to happen in any project. For any project, there are many risks to consider, but the most

significant ones are related to the project schedule, cost, quality, technology, and resources (Shubham, 2022). Projects are impacted by a variety of risks in ways that are difficult to predict. Resources may be lost or inaccessible, and supplies can arrive late or of poor quality (Virine, 2014). The worst-case scenario for ineffective risk management is the failure of your project, it never completes or never delivers anything of value. The objectives of the project aren't met, and you waste all the time, resources, and effort you've put into the project so far (TenSix, 2017)

Effective risk management allows you to identify your project's strengths, weaknesses, opportunities, and threats (Adarsh, 2016). This helps the project manager deliver the project as scheduled, on budget and with quality, ensuring project success. It also helps project managers to make better-informed decisions by considering the potential risks and their impacts (Gururo, 2022) one of the main factors leading to project failure is ineffective risk management. It happens as a result of a lack of good decision-making processes; in turn, poor decisions lead to poor actions, which often lead to pure disasters in an organization (Rashad & Kaizer, 2011). In logistics companies, risks are often perceived as events that affect the most important project objectives, namely cost, time and quality. Many projects fail because organizations fail to identify, assess project risk factors, and provide for constraints or contingencies in the belief that all efforts will succeed. In fact, successful project management is judged on three criteria: performance/quality, budget, and completion time. According to Shrivastava (2012) project risk management, when done well, not only increases the likelihood of success but also provides a higher level of predictability. It has become the backbone of organizations, which successfully deliver projects, and in the current period, it is crucial to the success of any project. Several studies on the impact of effective risk on project success have been conducted, but they have not produced any firm conclusions regarding the situation of the logistics companies in Rwanda. Our study was focused on the case of Kara Logistics.

Research objectives

The general objective of this study is to assess the effect of project risk management on success of KARA logistics project. Specifically, the study aimed to:
- To assess the effect of risk identification on project success of KARA logistics company.
- To examine the effect of risk analysis on project success of KARA logistics company.
- To analyze the effect of risk mitigation on project success of KARA logistics company.
- To evaluate how risk monitoring and control affect success of KARA Logistics Company.

2. Literature Review

Risks identification
Risks have a multifaceted nature. During construction, risk can be the possibility that any factor or combination of factors will occur that can negatively affect the project, and these factors can occur at any stage of the project's life cycle. Ambiguity in defining project goals and failure to anticipate consequences in the planning process. However, the consequences may be worse or even better than expected (Wang el at. 2014). There are different approaches to classifying risks, sometimes in construction as internal or external risk factors. However, others use different types of classification, for example by type of risk and its source. Thus, risks can be political, cultural, economic, etc. Zhi (2015) mentioned that risks in construction projects are divided into two categories, one is internal risks, that is, inherent uncertainties in

construction projects and the other external risks resulting from the impact of the project environment. Foreign projects, therefore, face higher external risks due to political unrest as well as market and economic fluctuations.

This will have a huge impact on overseas projects where every activity involves risk, making risk management very complex and critical to project success. All relevant uncertainties should be addressed at an early stage before the contract is signed, as the environment is new to the project team, there is a lot of uncertainty and a very effective risk management approach is required as it is very important in such projects. Zeng (2017) added that construction projects are inherently difficult to manage due to the ever-changing construction environment, hazards inherent in construction activities, the emergence of complex technologies, and most importantly, the enormous pressure to manage time and cost. According to Akintoye and MacLeod (2017), there are various sources of risk such as physical, political, logistical, legal and operational. These risks may affect the project objectives, so each of these risks should be carefully and individually evaluated and a risk premium assigned to each risk. A risk premium is an allowance for contingencies.

Risks analysis
The study done by Mahmoud (2016) about the effect of risk analysis on the success of coffee project in Colombia. The objective of the study was to assess the effect of risk analysis on boosting project outcomes. Descriptive research design was adopted while the population of the study was 262 participants. The primary data was collected using questionnaires served to the 135-sample size selected through stratified and random sampling techniques. The descriptive statistics was used to analyze collected data. The findings showed that risk analysis increases project outcomes by 79%. The researcher concluded that risk analysis plays a significant effect in the success of the coffee project. However, research recommended project managers work together with both internal and external stakeholders to optimize the success of the project.

Githinji, Ogolla and Kitheka, (2020) researched the impact of risk analysis on the success of the project in Kenya. A case study of Kenya Ferry Services. The objective of the study was to examine the impact of risk analysis on project success. The study adopted a descriptive research design, target population comprising 231 stakeholders of Kenya ferry services partners from which a sample of 70 respondents was selected. Data collection was done by use of questionnaires after a pilot study and analyzed by use of only linear regression with the aid of the SPSS program. The study findings indicated that: risk analysis in project identification was found to be significantly and positively related to project success at a coefficient correlation of r=0.9. The study concluded that risk analysis contributes to the good utilization of project resources as well as making profitable decisions. The study recommended the enhancement of risk analysis in project identification for better contribution to the project's success.

Any human activity aimed at changing the future conditions of life or altering the consequences of natural or man-made events involves a certain concept of risk. This willingness to take risks has helped improve health and overcome natural disasters, but it has also had negative consequences. During the 20th century, life expectancy increased by 20 to 30 years in the United States and Europe, primarily due to the eradication of infectious diseases, but also due to increased attention to safety. But at the same time, technological innovation has had dangerous and sometimes catastrophic consequences (Smith, 2012).
These trends have increased awareness and concern about new industrial risks at a time when technology can help reduce other risks as well. The adoption of safety standards has reduced the number of accidents that affect society, but as technology advances, so does the level of potential damage that accidents can cause. The need to secure certain dangerous technologies

can also impose draconian security measures and even potentially influence social behaviour and, in some cases, the form and powers of government. The science or art of risk analysis is a relatively recent development. Often cited as the beginning of the formal study of risk as a new discipline.

Risk analysis is the use of data, statistical analysis, systematic observations, experiments, or intuition to identify potential threats to individuals and society and to estimate the likelihood of a particular threat occurring. These estimates are intended to assess how and to what extent conditions, people, regulatory policies and other factors may be affected (Smith, 2012). Each of the four approaches to risk analysis defined earlier in this chapter differs in the extent to which they focus on these activities. For example, engineering concepts focus primarily on risk estimation and assessment, while political science approaches focus more on risk management issues. On the surface, these four approaches even seem to fit nicely into different phases of risk analysis: engineering orientation for risk assessment, decision analysis and risk perception for risk assessment, and policy analysis for risk management. However, each approach provides its own perspective on all risk analysis activities, improving and clarifying certain aspects.

Risk mitigation

Determining which factors should be risks, and which are often not subjective, determines which risks arise from management's expectations of the future and the health of future outcomes, influenced by past experience in similar projects (Tah and Carr, 2019). Risk classification is the main process of risk assessment; the purpose of the process is to classify the various risks that may occur in the project. Various existing methods can be used to classify risks. The approach used by the authors is to classify the risk according to the nature and magnitude of these factors so that they can be classified as primary or secondary risk factors. Others recommend using a risk allocation framework to examine the impact of risk sponsors and risk factors on a project. One suggested method is to use a combination of risk decomposition structures and divide them into major and minor. Finally, another approach is to examine risk factors collected from various sources and then rank them according to the ability of contractors, consultants and clients to retain risk (Tah and Carr, 2019). The method of risk sharing can be a single method or a combination of methods, such as risk acceptance, transfer to another party, risk prevention and risk reduction. Risk acceptance is a last resort when risk cannot be transferred, risk avoidance is undesirable, the probability of impact is low, switching costs are high, and the economic impact is negligible. Risk aversion is one of the unrealistic solutions in construction projects that can hinder the progress of the project or get very expensive bids from construction contractors. Risk mitigation techniques focus on the likelihood and consequences of an incident, which is achieved through alternative contracting strategies, project restructuring, alternative project approaches and highly detailed site visits and investigations (Akintoye and MacLeod, 2017).

Risk monitoring and control

According to Aloini el at (2007), the success or failure of a project mainly depends on the risk monitoring and people or the way to determine the success or failure of the project. The traditional way of measuring project success is the iron triangle of time, cost and quality. This may be true in cases where the market is critical, but this measure does not apply to some projects, such as the Sydney Opera House (Ika 2009). The Opera House went five times over budget and three times extended the delivery of the project beyond the planned schedule (Jugdev and Møller 2016). This example shows that a project is perceived as a failure when measured by project management and success when measured by product success (Jugdev and Møller 2016). The benefits of Opera accumulate sometime after the project is assembled, so for such projects, success should be an ongoing goal even after the end of the project, rather than a time, cost, and performance goal (Chang et al. 2013). Prabhakar (2008) added

that the success of a project depends on the first: achieving the objectives within the planned cost and schedule and adding benefits to the organization's strategy.

Furthermore, different people, such as management, employees, and customers, have different understandings of project success. An engineer considers a project successful after the completion of technical work and submission of correct drawings, on the other hand, accountants based on money spent, architecture in appearance, human resources in employee satisfaction, CEO and shareholders through the organization in stock market competition (Shenhar et al. 1997; Shenhar et al. al. 2001 and Prabhakar 2008). Furthermore, success and failure rates may vary depending on the type of project, such as industry type, complexity, client, size, and uniqueness (Ojiako, Johansen, and Greenwood 2008). According to Amade et al. (2012). A successful project fulfils its requirements and expected tasks, meets customer needs, and meets technical specifications. Summarizes the measure of project success in terms of achieving project goals and objectives, customer satisfaction, and meeting short-term and long-term customer expectations. Atkinson (2009) reported that project success can be measured in two ways, the first is traditional metrics that consider time, cost and quality. Masur et al. (2014) added that project success is measured by achieving performance goals and meeting stakeholder expectations and that projects should be successful from a customer perspective rather than from a time, cost, and quality perspective. Proper objectives, top management support, strong communication, adequate uncertainty management, proper project planning, and many other factors, when used in a project, do not necessarily mean that the project will be successful. Conversely, failure to apply these factors can lead to project failure.

Deville et al. (2018) mentioned some dimensions by which project success can be measured, they are management effectiveness, goal achievement, operational effectiveness, execution effectiveness, technical performance, impact on the organization, added value to customers, company capability and employee improvement. influence development. According to Belout and Gauvreau (2014), success is perceived differently by different people such as customers, employees, top management, and shareholders. Deville et al. (2018) conducted an in-depth case study of defence projects and concluded that when projects meet program goals, and generate profits and revenue, thereby contributing to organizational development, contributing to the development of defence units, and contributing to national defence development, the project is a national infrastructure success. This supports the above argument that even if a project is considered a failure during compilation or in the short term, it can be a successful project in the long term. Dvir, Raz and Shenhar (2013) argue that project success is not what it is perceived to be and that in many cases projects are completed within budget, cost, time and performance. Despite this, the project was a complete failure as it did not meet the client's needs or add value to the organization handling the project. Ojiako et al. (2018) mention that project success can be determined at the end of the project or even years after the handover of projects such as the Australian Opera. Patanakul, Iewwongcharoen, and Milosevics (2017) added that the benefits of successful projects can improve an organization's financial position, meet requirements, create an advantage for the organization over competitors, and create services that meet customer needs.

Theoretical review

Theoretical framework involves the review of theories underlying the study topic. "Theories covered in this study include the Theory of change and Resource-Based View.

Theory of change
Theory of Change emerged from the field of program theory and program evaluation in the mid-1990s as a new way of analyzing the theories motivating programs and initiatives working for social and political change. Theory of Change as a concept has strong roots in several disciplines, including environmental and organizational psychology, but has also

increasingly been connected to sociology and political science. Theory of Change emerged in the 1990s at the Aspen Institute Roundtable on Community Change as a means to model and evaluate comprehensive community initiatives. Notable methodologists, such as Huey Chen, Peter Rossi, Michael Quinn Patton, Heléne Clark, and Carol Weiss, had been thinking about how to apply program theories to evaluation since 1980. The Roundtable's early work focused on working through the challenges of evaluating complex community initiatives. This work culminated in a 1995 publication, 'New Approaches to Evaluating Comprehensive Community Initiatives'. In that book, Carol Weiss, a member of the Roundtable's steering committee on evaluation, hypothesized that a key reason complex programs are so difficult to evaluate is that the assumptions that inspire them are poorly articulated. She argued that stakeholders of complex community initiatives typically are clear about how the change process will unfold and therefore place little attention on the early and mid-term changes needed to reach a longer-term goal.

"Weiss popularized the term "Theory of Change" as a way to describe the set of assumptions that explain both the mini-steps that lead to the long-term goal of interest and the connections between program activities and outcomes that occur at each step of the way. She challenged designers of complex community-based initiatives to be specific about the theories of change guiding their work and suggested that doing so would improve their overall evaluation plans and would strengthen their ability to claim credit for outcomes that were predicted in their theory. She called for the use of an approach that, at first glance seems like common sense: lay out the sequence of outcomes that are expected to occur as the result of an intervention and plan an evaluation strategy around tracking whether these expected outcomes are produced. Her stature in the field, and the apparent promise of this idea, motivated a number of foundations to support the use of this technique later termed "the Theory of Change approach" in the evaluations of community change initiatives.

Between 2000 and 2002, the Aspen Community Roundtable on Change dominated the dissemination and case studies of the theory of change approach, though still primarily in the area of public advocacy. With the launch of the theory of change in 2002 and beyond, the online software, popularity and knowledge of the theory of change continues to grow. This growth in awareness of the concept and need for "theory" led to the creation of the first non-profit organization in 2013 to promote and clarify standards for theory of change. Its earlier origins can be traced to Peter Drucker's articulation of Management by Objectives, popularized in his 1954 book "The Practice of Management (Drucker, 2014). The definitions of the theory of change are surprisingly diverse, although they all indicate that a ToC makes obvious the logic of how an intervention is expected to produce results. (Anderson, A 2015), describes this theory as an instrument for creating remedies to complex social problems. It is further defined as the description of a sequence of events that are anticipated to result in a specific desired outcome (Scriven 2018).

According to Harries, Hodgson and Noble (2014), a theory of change is a tool to help you describe the need you are attempting to address, the changes you hope to create, and what activities you plan to do. Although a theory of change can be illustrated as a diagram or chart, the whole theory of change process comprises more than this. It helps you consider and clarify the assumptions and enablers that surround your work and explain why you believe that your activities will produce the outcomes you desire. Additionally, it ought to compel you to develop clear aims and strategies and explore whether your plans are backed by evidence. You ought to have a clear idea of what your project intends to achieve and a strategy to achieve it by the time the theory of change process is finished (Scriven 2018).

Harries, Hodgson and Noble provide a useful summary of the reasons and objectives behind developing a theory of change, which may be found in several other sources : Strategy: Making projects more effective; assisting in identifying and opening "black boxes" in

thinking; assisting teams to achieve a shared understanding of a project and its aims. Measurement: Encourage teams to interact with the available evidence base; serve as the foundation for assertions regarding attribution. Assist in determining what needs to be measured (and what does not) so that you can plan your evaluation activities. Communication: Quickly communicate the objectives of a project; emphasize the need for change. Partnerships: Assistance in forming partnerships (Scriven 2018).

Resource-Based View Theory

Resource Based View (RBV) examines and explains an organization's resources to understand how organizations might achieve sustainable competitive advantage. According to Barney (1991), the resource-based view suggests that if just a few companies control important resources that are expensive and difficult to imitate, those companies may be able to generate sustained competitive advantage. It is used to determine the strategic resources a firm can exploit to achieve sustainable competitive advantage. A firm's ability to perform differently from its competitors depends on the presence of unique inputs and capabilities (Conner,2017). The RBV examines why businesses thrive or fail in the marketplace by adopting the inside-out view or from a firm-specific perspective (Dicksen, 2016).

Resources that are valuable, rare, inimitable, and non-substitutable allow businesses to establish and maintain competitive advantages, which in turn leads to superior performance. (Collis and Montgomery, 2015; Grant, 2016; Werner Felt, 2014). To offer a competitive advantage and sustainable performance, a resource must meet the "VRIN" criterion. Furthermore, Barney (2016) asserts that valuable resources must enable a firm to act in ways that lead to high sales, low costs, high margins, or in other ways add financial value to the firm. He also emphasizes that resources are valuable when they allow a firm to develop and implement strategies that increase its effectiveness and efficiency. RBV helps managers of firms to comprehend why competencies may be considered a firm's most valuable asset while also appreciating how such assets can be utilized to boost business performance.

3. Research methodology

The study adopted a descriptive survey design to provide a detailed understanding of how project risk management affected success of Rwandan logistics companies. A correlation design was utilized in order to interpret data. Therefore, both quantitative (questionnaire) and qualitative (interview) research techniques were used by the researcher in order to collect data (information) related to the objectives of the study and for data analysis.

The study population consisted of 244 employees of KARA logistics, selected for their role in enforcing legislative frameworks concerning government revenue. Due to the nature of the study, the study considered staff from different departments, because of the small number of target population, the researcher decided to use all target population as sample size. Thus, a sample size was 244 employees as respondents were considered representative of the total population. The researcher selected individuals from each job cadre representing senior management, middle level management and lower cadre employees. This saved time and cost of undertaking the study.

Both primary and secondary data sources were utilized, with primary data collected through questionnaires and key informant interviews. Secondary data were obtained through a documentary review process.

The research instruments were tested for validity and reliability. Questionnaires, as a primary data collection method, were designed to align with the research objectives, utilizing a mix of

close-ended and open-ended questions, primarily based on a Likert scale. Documentary review supplemented the primary data collection process, enhancing the depth of information acquired. For reliability, the Cronbach's alpha values for various variables were calculated, all surpassing the acceptable threshold of 0.7, indicating strong internal consistency. Editing, coding, and tabulation processes were employed to ensure data quality, consistency, and organization.

Data analysis involved Statistical Package for Social Science (SPSS V 21.0) for quantitative analysis. Descriptive statistics like frequencies, percentages, mean scores, and standard deviation were employed. Inferential statistics, including Pearson correlation analysis and multiple regression analysis, were conducted to establish relationships project risk management and success of Rwandan logistics companies. Ethical considerations were a priority, ensuring confidentiality by avoiding the disclosure of respondents' identities and maintaining strict confidentiality of sensitive information throughout the study.

4. Findings

This chapter delve**s** into the study's findings and provide their interpretation, drawing from the analysis of the data gathered through questionnaires. The study scrutinizes the effect of project risk management on success of KARA logistics project, employing regression analysis to elucidate both the individual and collective impacts of project risk management on success of KARA logistics project.

Regression Analysis

The study also wanted to establish the relationship between project risk management and success of KARA logistics project. Multiple regression analysis was used to identify the coefficient of model, the analysis of variance (ANOVA) of the model, The section also presents the coefficient of correlation and the coefficient of determination.

H_01: There is no significant effect of risk identification on success of KARA logistics project

"Statistical results are presented in the form of stepwise regression models where they are in three phases namely:(1) model summary which indicates the overall effect using adjusted R^2 to measure the multiple regression results (2) ANOVA which is analysis of variance in the results which helps to test the null hypothesis and (3) coefficients of explanatory variables individual effects as used in the multiple regression model".

Table 1: Model Summary on risk identification on success of KARA logistics project

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.876[a]	.767	.766	.560

a. Predictors: (Constant), Risk_Identification

Table 1 shows that the results indicated that the adjusted R^2 is .766 representing 76%, indicating that risk identification components contribute 76% to the success of KARA logistics project and jointly affect success of KARA logistics project in this study.

Table 2*: ANOVAª on risk identification on success of KARA logistics project

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	250.004	1	250.004	796.279	.000[b]
1	Residual	75.980	242	.314		
	Total	325.984	243			

a. Dependent Variable: Project success of logistics companies
b. Predictors: (Constant), Risk_Identification

From ANOVA Table 2, the F- test of 796.279 is statistically significant with $p < 0.05$ indicating that the variables used in the model are good predictors of risk identification. Therefore, $H_0 1$ which states that risk identification has significant impact on success of KARA logistics project; is accepted at all levels of significance.

Table 3: Coefficientsª on risk identification on success of KARA logistics project

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	-.008	.147		-.054	.957
1	Risk_Identification	1.004	.036	.876	28.218	.000

a. Dependent Variable: Project success of logistics companies

The results from Table 3 indicated that risk identification has a positive and significant effect on project success of logistics companies ($\beta1= 1.004$; $t= 28.218$; p-value > 0.05)”. “[This means that 1% change in risk identification to a decrease 58% change in project success of logistics companies]”.

$H_0 2$: Risk analysis has influence on success of KARA logistics project

Statistical results are presented in the form of stepwise regression models where they are in three phases namely:(1) model summary which indicates the overall effect using adjusted R^2 to measure the multiple regression results (2) ANOVA which is analysis of variance in the results which helps to test the null hypothesis and (3) coefficients of explanatory variables individual effects as used in the multiple regression model.

Table 4: Model Summary on risk analysis for success of KARA logistics project

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.917[a]	.841	.841	.463

a. Predictors: (Constant), Risk_Analysis

The results in table 4 indicated that the Adjusted R^2 is .841 which means risk analysis jointly affect success of KARA logistics project in this study”.

Table 5: ANOVAª on risk analysis for success of KARA logistics project

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	274.214	1	274.214	1281.825	.000[b]
	Residual	51.770	242	.214		
	Total	325.984	243			

a. Dependent Variable: Project success of logistics companies

b. Predictors: (Constant), Risk_Analysis

The results in Table 5 above show that the F-test is positive 1281.825 and that it is significant at 5% because its significance level is .000[b] and therefore, based on the results on this test, we cannot accept the null hypothesis stating that" " Risk analysis) have significant effect on success of KARA logistics project ". "This is due to the fact that the ANOVA results indicated that there is positive and significant effect on success of KARA logistics project in this study".

Table 6: Coefficientsª on risk analysis for success of KARA logistics project

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.174	.111		1.562	.120
	Risk_Analysis	.989	.028	.917	35.803	.000

a. Dependent Variable: Project success of logistics companies
The results from Table 6 indicated that risk analysis has a positive and significant effect on success of KARA logistics project ($\beta1$= .989; t= 35.803; p-value > 0.05)". "This means that 1% change in risk analysis leads to an increase of success of KARA logistics project ".

H₀3: Risk mitigation affects success of KARA logistics project
Statistical results are presented in the form of stepwise regression models where they are in three phases namely:(1) model summary which indicates the overall effect using adjusted R^2 to measure the multiple regression results (2) ANOVA which is analysis of variance in the results which helps to test the null hypothesis and (3) coefficients of explanatory variables individual effects as used in the multiple regression model.

Table 7: Model Summary on risk mitigation for success of KARA logistics project

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.917[a]	.842	.841	.470

a. Predictors: (Constant), Risk_Mitigation

The results in table 7 indicated that the Adjusted R^2 is .841which means the independent variables risk mitigation) jointly effect on success of KARA logistics project in this study.

Table 8: ANOVAª on risk mitigation for success of KARA logistics project

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	274.353	1	274.353	1243.427	.000ᵇ
Residual	51.630	234	.221		
Total	325.983	235			

a. Dependent Variable: Project success of logistics companies

b. Predictors: (Constant), Risk_Mitigation

The results in Table 8 showing that the F-test is positive 1243.427 and it is significant at 5% because its significance level is .000ᵇ and therefore, based on the results on this test, we cannot accept the third null hypothesis stating that" "Risk mitigation Does have significant effect on success of KARA logistics project ". "This is due to the fact that the ANOVA results indicated that there is positive and significant effect on success of KARA logistics project in this study.

Table 9: Coefficientsª on risk mitigation for success of KARA logistics project

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.176	.113		1.560	.120
	Risk_Mitigation	.990	.028	.917	35.262	.000

a. Dependent Variable: Project success of logistics companies

The results from Table 9 indicated that risk mitigation has a positive and significant effect on success of KARA logistics project ($\beta1$= .990; t= 35.262; p-value > 0.05) and this means that 1% change in success of KARA logistics project leads to .780% change in success of KARA logistics project ".

H₀4: Risk monitoring and control has effect on success of KARA logistics project

Statistical results are presented in the form of stepwise regression models where they are in three phases namely:(1) model summary which indicates the overall effect using adjusted R^2 to measure the multiple regression results (2) ANOVA which is analysis of variance in the results which helps to test the null hypothesis and (3) coefficients of explanatory variables individual effects as used in the multiple regression model.

Table 10: Model Summary on risk monitoring and control for success of KARA logistics project

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.934ª	.873	.872	.414

a. Predictors: (Constant), Risk_MonitoringandControl

The results in table 10 indicated that the Adjusted R^2 is .872 which means the risk monitoring and control jointly affects success of KARA logistics project in this study".

Table 11:ANOVAᵃ on risk monitoring and control for success of KARA logistics project

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	284.543	1	284.543	1661.644	.000ᵇ
1	Residual	41.441	242	.171		
	Total	325.984	243			

a. Dependent Variable: Project success of logistics companies

b. Predictors: (Constant), Risk_MonitoringandControl

The results in Table 11 showing that the F-test is positive 1661.644 and it is significant at 5% because its significance level is .000ᵇ". "Therefore, based on the results on this test, we cannot accept the fourth null hypothesis stating that" "Risk monitoring and control have significant effect on success of KARA logistics project". "This is due to the fact that the ANOVA results indicated that there is positive and significant effect of risk monitoring and control on success of KARA logistics project in this study.

Table 12: Coefficientsᵃ on risk monitoring and control for success of KARA logistics project

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
	(Constant)	.174	.098		1.784	.076
1	Risk_MonitoringandControl	.997	.024	.934	40.763	.000

a. Dependent Variable: Project success of logistics companies

The results from Table 12 indicated that risk monitoring and control has a positive and significant effect on success of KARA logistics project ($\beta1$= .997; t=40.763; p-value > 0.05) and [This means that 1% change in risk monitoring and control leads to a decrease 0.583% change in success of KARA logistics project]

The findings of this study mainly indicated that risk management indicators have positive and significant effect on success of KARA logistics project by this study. The individual variables had mix effect on dependent variables where some had positive effects, other negative effects while some others had insignificant effect of the dependent variables taken individual as demonstrated in each table of coefficients of explanatory variables (independent variables). Apart from this research, there are other researchers who have investigated on relationship between the risk management and success of KARA logistics project, buy using various factors and their results is shown below showing the positive effects of risk management on success of KARA logistics project. The from the study done by Palil (2010), investigated how risk management influenced successful of the project implementation in Malaysia. He found that risk management drives significantly to successful of the project implementation, even though there was various level of risk identification, risk mitigation, there were other factors that can contribute to the successful of the project implementation.

According to Adams and Barnd (2017), project success is the ability of the project to achieve its goals like time, cost, performance, quality, safety, and so on of the contractual parties

established and put to test. Project success has been defined by the criteria of time, budget and deliverables (Atkinson, 2009). According to Baccarini (1999), a project is only successful if it comes on schedule, on budget, achieving the deliverables originally set for it as well as being acceptable and used by the clients for whom the project was intended. The completion criteria and satisfaction criteria are the core conditions for determining project success. If the project is well accepted by the users, the project is perceived to be successful (Kumaraswamy, 2016). Juttner et al., (2003) emphasises that risk-taking of projects equals decision making under uncertainty and hence any strategic choice has certain risk implications and this explains why a project should embed risk management initiatives for its success. Jiang and Heiser (2004) contends that risk management is a structured approach to managing uncertainty related to a threat, through a sequence of human activities including: assessment, strategy development to managing it, and mitigation of risk using managerial resources. In the implementation of community projects, Iganga Local Government works hand in hand with several partner NGOs that running different projects in the area. Plan International, one of the NGOs implementing community projects in Iganga designed several projects such as piped water, construction of office blocks for local government, extension of local government workers' houses and latrines (Plan International, 2014). However, according to the quarterly internal audit report (2013), the inspection of various Plan International projects in the different sub-counties in Iganga revealed that out of 24 work sites, 92% of the sites were incomplete while 8% were abandoned by the contractors without any explanation (Plan International, 2014).

5. Conclusion

This research project studied the effect of project risk management on success of KARA logistics project, a case study of KARA logistics project. From the objectives one which was to identify the types of risk management in success of KARA logistics project, the researcher found the risk on project management are fire, floods, earthquakes and population change, personal injuries and from objectives which are to find out the risk identification, risk analysis, risk mitigation and risk monitoring and control used in success of KARA logistics project, the researcher found that the risk management policy used are general liability insurance, employees liability insurance and environmental liability insurance. From objectives, the researcher found that project risk management has positive effect on success of KARA logistics project.

6. Recommendations

In the data analysis and interpretation as shown in above discussion, the study sought to come up with the following recommendations in line with the research objectives as given below.

KARA logistics project should work with Insurance company with lower premium in order to manager well project risk management which lead to success of KARA logistics project and it should work with bank to reducing the delaying their daily activities. The government of Rwanda should establish the away of proving training to many Rwandans specialist in logistic to increase lots number of Rwandans who are experienced with the field.

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