Total Quality Management and Success of Implementation of Road Construction Projects: A Case of Ngoma-Ramiro Road Project in Ngoma-Busgesera Districts

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Abstract

The success of road construction projects is crucial for the sustainable development of any region. This research project aims to investigate the relationship between Total Quality Management (TQM) and the success of the implementation of the Ngoma-Ramiro Road project in Ngoma-Bugesera Districts in Rwanda. The main objective of the study is to determine the extent to which TQM contributes to the project's success. To achieve this objective, the research focuses on three specific areas: the contribution of top management decisions, the involvement of staff and the local community, and the effect of supplier relationships on the implementation of the Ngoma-Ramiro Road project. These areas were identified as critical factors influencing the success of construction projects and will be analyzed to understand how TQM practices can enhance project outcomes. The study employs a case study approach, centering on the Ngoma-Ramiro Road project, which serves as an exemplary representation of the challenges and opportunities faced in road construction projects in the Ngoma-Bugesra Districts region. There was a descriptive survey in design, collecting data using questionnaires, interview guides and observation schedule from a sample of 151 participants including the project managers, community, suppliers and other key stakeholders involved in this particular road construction project. The study is based on Deming's theory of total quality management. The collected data was analysed using SPSS version 20 for the relationship of the study and frequency tables, charts used to classify the findings. The findings were valuable for road construction planners and project implementers, policymakers, and researchers. The finding showed that Top Management were highly involved in the implementation of the project and the people were involved too. The quality of the project was high and supplier relationship was average. However minimal rejection of service occurred though quality standards were instituted. There was delay of the project too during implementation.

1. Introduction

Adhering to International Standard Organisation (ISO) quality requirements is the proper and practical method in road construction. Normativity calls for the client and the contractor to exercise their time and independence so that there is little interference and money is a consistent concern. All staff members and other stakeholders must be involved in order for the contractor to effectively manage any risks that could prevent the timely, cost-effective, and high-quality product from being delivered. The Ngoma-Ramiro Road Upgrading Project needed to be paved Passing through a swampy area which is the key part of the project and its effects on the environment and the communities around it necessitated strict commitment to quality control, the main Contractor for the whole project who is NPD as a local company failed to deliver that swampy area and this work has been subcontracted to a Chinese company (CRBC). The rest of the project are normal and can be executed without any challenge. Based on the progress of the project as per now delay is inevitable. Ngoma-Ramiro Road Project currently faces challenges related to inconsistent quality standards, delays, cost overruns, and customer dissatisfaction. The absence of a comprehensive Total Quality Management system hampers the project's ability to deliver high-quality road within budget and schedule, resulting in compromised durability, public inconvenience, and increased maintenance costs may rise in the future. The project requires a strategic implementation of TQM principles to enhance quality control, streamline processes, and optimize resource utilization.

1.1 Objective of the study:

The general objective of the study is to determine the contribution of Total Quality Management on the success of Implementation of Road Construction of Ngoma-Ramiro Road, Ngoma-Bugesra Districts.

Specific Objectives:

    i. To investigate the contribution of top management decision on the implementation of construction of Ngoma-Ramiro Road.
    ii. To evaluate the contribution involvement of staff and community on the implementation of construction of Ngoma-Ramiro Road.
    iii. To investigate the effect of supplier relationships on the success of implementation of construction of Ngoma-Ramiro Road.

1.2 Research Hypothesis

    i. (H0): Top-level management decisions have no significant impact on the implementation of the Ngoma-Ramiro Road construction project.
    ii. (H0): The involvement of staff and community has no significant effect on the implementation of the Ngoma-Ramiro Road construction project.
    iii. (H0): Supplier relationships have no significant effect on the implementation of the Ngoma-Ramiro Road construction project.

2. Literature review
2.1. Theoretical Literature

Deming's theory of total quality management was employed in the study to support its ideas, and this part addresses it.

2.1.1 Total Quality Management Theory

The Plan-Do-Check-Act (PDCA) cycle and the system of profound knowledge form the foundation of Deming's idea of total quality management (Anderson et al., 1995). He is known for his ratio, according to which quality is equal to the product of labor efforts over the sum of expenditures. The issue is that quality declines while expenses increase if a corporation focuses on cost. Deming's profound knowledge system entails the following:

Understanding variation entails being aware that everything measured has both "normal" variation resulting from the system's flexibility and "special causes" that result in flaws. Quality entails identifying differences in order to control common variation while removing "special causes". Deming advocated against making adjustments in response to "normal" fluctuation since doing so would only worsen the system's performance. A manager of people must be aware of the diversity of each employee. No one is being ranked in this. He must comprehend that the system in which he works, which is the duty of management, greatly influences everyone's performance. Understanding how interactions (i.e., feedback) between system components can lead to internal constraints that cause the system to behave as a single organism that seeks a stable state is necessary for appreciating systems. Instead of the individual components, this steady state controls the system's output. Therefore, the organization's organizational structure, not the employees alone, holds the key to raising output quality. Because quality management involves people and necessitates an understanding of appreciation and variance, this theory is pertinent to the research. The practice of quality management needs a team effort from the stakeholders, senior management, and employees. It is not a one-person job. To ensure that the project is completed on budget, on schedule, and with the requisite quality, it is important to effectively negotiate each of these parties' expectations. If what is normal is to be recognized and quantified at all, there must be a standard against which the quality is benchmarked or measured. Therefore, the theory aids in determining the main stakeholders in quality management as well as what constitutes quality management components. This is crucial for the development of the research methods that measure these components to ascertain the degree of consequence of quality adherence.

2.1.2 Resource dependency theory

Resource dependency theory affirms that the control of resources makes a stakeholder essential to a corporation by suggesting that power accrues to those who do so (Pfeiffer, 1997). This leads to power differentials between parties. The following constitute the fundamental component or core of theory: Resources are necessary for organizations. In the end, the environment of an organization provides these resources. Other organizations are present in the environment to a large level.

As a result, other organizations frequently possess the resources that one organization need. Power is based on resources. Therefore, legally autonomous entities can rely on one another. The theory is strengthened by the fact that it has implications for the best organizational divisional structure, hiring of board members and staff, production strategies, contract structure, external organizational links, and numerous other organizational strategy facets. The theory's flaw is that it is just one of several organizational studies theories that describe organizational behavior rather than being a theory that explains how well an organization performs.

However, the predictions of the resource dependence theory still resemble those of transaction cost economics in many ways while still having some similarities to institutional theory. This notion has been used in research by educating the researcher on how to handle resources effectively.

2.1.3 Stakeholder theory

Initiated by Freeman (2007) as a managerial tool, stakeholder theory has subsequently matured into a theory of the enterprise with strong explanatory power. The primary driver of business policy, according to stakeholder theory, is an equilibrium of stakeholder interests. The expansion of implicit contracts theory from employment to other contracts, such as sales and financing, is the most potential contribution to risk management. Consumer confidence in a company's ability to provide its services in the future can significantly increase a company's worth in some sectors, particularly high-tech and services. The value of these implied rights, however, is extremely sensitive to the anticipated expenses of financial hardship and bankruptcy. Stakeholder theory thus offers fresh perspective on potential justifications for risk management. However, it hasn't yet undergone direct testing. The financial distress theory is only indirectly supported by research.

3.1 Empirical literature

The major goal of Kogi and Were's study from 2017 was to identify the variables that influence cost overruns in construction projects, specifically as they applied to the Kenya National Highways Authority. The factors that were examined included the project schedule's impact on cost overruns in construction projects, the impact of contract management on these costs, the impact of resources on cost overruns in construction projects, and the impact of government policies on these costs. 150 employees from the Nairobi KENYA offices made up the study's study population. It used a descriptive research design.

Stratified random sampling was used in the study's probability sampling design to determine a sample size of 110 participants. The questionnaires, which had both open-ended and closed-ended questions, were the primary data collection tool. The Statistical Package for Social Sciences (SPSS) was used to analyze the data using the descriptive statistics method in order to generate response frequencies, percentage means, and standard deviation results. In order to establish the importance of the independent factors on the dependent variable, a linear regression model was finally used. According to the study's findings, delays in the start and end of construction projects were caused by difficulties with land acquisition, the project's scope, and the use of project management systems. It was highlighted that contract management difficulties caused by contract planning, contract types, and contractor qualification resulted in project cost overruns. The study demonstrates cost overruns and their impact on project performance, but it makes no mention of the impact of quality management on project performance. The present study fills this knowledge gap.

Atibu (2015) looked examined the issues that contributed to the delays in Kenyan road construction projects. Documenting the variety of identified causes of delays in finishing road construction projects in Kenya, the most significant causes of delays in road construction projects in Kenya, and differences in contractor and consultant perceptions of causes of delays in completing projects by the intended completion date were the study's main goals. Purposive sampling methodology and a survey design were utilized in the investigation. Questionnaires were given out to consultants and contractors in order to gather data. The top five reasons for project delays were found to include client payment, insufficient planning and scheduling, bureaucracy in the client organization, and rain. In order to be able to pay contractors on time,

the study advised clients to upgrade their financial management systems. In order to speed up the lengthy decision-making process, client organizations should cut back on red tape and bureaucracy. A decrease in the incidence of claims will also result from effective management of the building process. Contractors should have sufficient schedules and plans that can be used to lessen the effects of rain. Although the elements that influence building projects have been demonstrated, it has not been demonstrated how the general factors of variance in the organization effect them. The performance of a project is influenced by quality management, but this interplay between various organizational systems needs to be studied. This study examines how top management participation, customer involvement, and supplier involvement all affect project performance.

Wafula (2017) investigated Machakos County road builders as a case study for factors affecting road project success in Kenya. The study's goal was to evaluate the variables affecting Kenyan road project performance. A sample of 105 people—including 90 contractors and 15 supervisors—was stratified and randomly selected for the descriptive survey, and data were gathered using a questionnaire. The main conclusions demonstrated that factors such as capital accessibility, managerial aptitude, organizational culture, and technical aptitude affected the success of road projects. Even though it doesn't mention quality management as a consideration, this study is pertinent because it discusses aspects that have an impact on road construction projects. This is because the theory of limitations that was used did not take quality management into account as a potential contributor to project success.

Maemura et al.'s (2018) study, Root Causes of Recurring Contractual Conflicts in International Construction Projects: Five Case Studies from Vietnam, sought to advance knowledge by examining contractual conflicts in order to reduce delays in international construction projects. The study identified 19 main causes of recurrent contractual disputes that fell into six categories using qualitative analyses of interviews with 33 practitioners working in large-scale multinational construction projects in Vietnam. The following root causes contributed to the occurrence of contractual disputes: (1) low levels of political support; (2) low levels of owner experience managing international projects; (3) low use of relational approaches; and (4) insufficient contract clarifications carried out during the precontract period.

Mane and Patil (2015) looked at 25 businesses' use of the quality management system for construction projects. The results demonstrate that check lists are a very high-quality tool utilized in building projects. The standard of craftsmanship in all activities is the quality control indicator utilized on site. Responses from respondents emphasized the need of adhering to a regular timetable for quality control during the planning and designing stages of construction projects. Poor planning is a barrier to the project team's ability to function in a quality manner. Additionally, respondents emphasized the importance of customer satisfaction extremely strongly. According to respondents, putting the quality management strategy into practice on the ground is also crucial, and test results from suppliers should be given more weight than actual on-site testing.

Personal, Archive, and Neyestani (2016) assessed how the introduction of a QMS affected the key elements of construction projects in Metro Manila, the Philippines. The study discovered that the least effectiveness of the QMS was on scope (quality) through QMS implementation in construction projects in Metro Manila. The study indicated that the implementation of QMS can be affected most by customer satisfaction, followed by cost and time, respectively.

3. Research methodology

3.1 Research Design

Descriptive cross-sectional design was used in the research methodology. The independent variable, which predicted the dependent variable, was related to two other factors. In particular, correlation is used to assess whether there is a positive, negative, or neutral relationship between two variables. In other words, inversely proportional if two variables, let's say X and Y, are directly proportional or are not related to each other.

3.2 Study population and sampling

Information must be representative of the population being studied in order for a study to be successful. A population, according to Scott, et al. (1998), is the total number of items included in the study. A population was defined similarly by Grinnell and Williams (1990) as the entirety of the people or things that the study is interested in. Included were the management, employees, and customers of the Ngoma-Ramiro Road Upgrading project. A random sample of population has been taken: 1 project manager, 120 employees, and 30 community households. Thus, 151 people in all made up the target population or the sample size of the study, based on the available resources, including manpower, funding, and logistical support, a sample size of 151 was determined to be the most feasible option to achieve the research objectives within the given constraints.

Table 1: Sample size and sampling

Category	N	Technique
Project Manager	1	Census
Staff	120	Census
Community Leaders	30	Census
Total	151	

Source: HR & Local leaders

3.3 Data Collection Instruments

Data collecting instruments, which include questionnaires, interviews, observations, and reading, are fact-finding techniques or methods for data collection, according to Annum (2019). According to Annum, questionnaires are acceptable for normative studies, but interviews are crucial when face-to-face interaction and the desire to develop new ideas are present.

3.4 Data Analysis

Lick (1084) states that when data was gathered, edited, and put in some sort of tables, more statistical analysis was necessary. Both qualitative and quantitative means of analysis were used for the purpose of this research study, such as:

Descriptive statistics will be used in the analysis to calculate frequency and percentage. The central tendency will be computed using means. In addition, correlation analysis will be conducted to reveal the degree of association between the model variables in order to obtain the casual effect relationship.

A multiple regression model for this research project was specified with independent variables of Top Level Management, People Focus, and Supply Relationship, and project implementation success being the dependent variable.

$$PIS_i = \beta_0 + \beta_1 TLM_i + \beta_2 PF_i + \beta_3 SR_i + \varepsilon_i$$

Where:

PIS indicates Project implementation success that represents the dependent variable.

TLM=Top Level Management, PF=People Focus, and SR=Supply Relationship are the independent variables, representing the different aspects of total quality management.

β_0 is the model intercept, β_1, β_2, and β_3 are the regression coefficients associated with each independent variable, respectively.

ϵ represents the error term, accounting for the unexplained variation in the dependent variable.

In this model, the researcher is examining how the independent variables (Top Level Management, People Focus, and Supply Relationship) influence the success of the implementation of the road construction project. The regression coefficients (β_1, β_2, and β_3) indicate the direction and magnitude of the relationship between each independent variable and the dependent variable.

4. Research findings

This chapter presents the findings and discussions of the findings. These are presented as demographic and a section that addresses each of the objectives. The total of respondents was 138 instead of the 151 that was expected. This gives a response rate of 91.4%. The data collected were analyzed in an attempt to measure the Total Quality Management and Success of implementation of Ngoma-Ramiro Road South-East Rwanda, the analysis was made according to responses from designed questions to the respondents of Ngoma-Ramiro Project.

4.1 Testing the Hypotheses

This section aims at testing the null hypotheses of this study in the following sub sections;
4.1.1 Testing Hypothesis One

This sub section indicated the results which were used to test null hypothesis one.

H$_{01}$: Top-level management decisions have no significant impact on the success of implementation of the Ngoma-Ramiro Road construction 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 Top-level management decisions for success of implementation of the Ngoma-Ramiro Road construction project

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.707[a]	.500	.496	1.67433

a. Predictors: (Constant), Top-level management

Table 2 shows that the results indicated that the adjusted R^2 is .707 indicating that Top-level management decisions's components contributes to the success of implementation of the Ngoma-Ramiro Road construction project.

Table 3*:* **ANOVA[a] on Top-level management decisions for success of Implementation of the Ngoma-Ramiro Road construction project**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	381.348	1	381.348	136.031	<.001[b]
	Residual	381.261	136	2.803		
	Total	762.609	137			

a. Dependent Variable: Success of Implementation of the Ngoma-Ramiro Road construction project

b. Predictors: (Constant), Top-level management

From ANOVA Table 3, the F- test of 136.031is statistically significant with p < 0.05 indicating that the variables used in the model are good predictors of involvement of Top-level management decisions. Therefore, H_01 which states that involvement of Top-level management decisions have a positive significant impact on the success of implementation of the Ngoma-Ramiro Road construction project is accepted at all levels of significance.

Table 2: Coefficients[a] on involvement of Top-level management decisions for success of implementation of the Ngoma-Ramiro Road construction project.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.031	.593		10.179	<.001
	Top-level management	1.006	.086	.707	11.663	<.001

a. Dependent Variable: Success of implementation of the Ngoma-Ramiro Road construction project.

The results from Table 4 indicated that involvement of Top-level management has a positive significant effect on success of implementation of the Ngoma-Ramiro Road construction project ($\beta 1$= .707; t= 11.663; p-value > 0.05)". "[This means that 1% change in involvement of Top-level management decisions leads to an increase in success of implementation of the Ngoma-Ramiro Road construction project]".

H_{02} : The involvement of staff and community has no significant impact on the success of implementation of the Ngoma-Ramiro Road construction 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 R2 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 3: Model Summary on involvement of staff and community for success of implementation of the Ngoma-Ramiro Road construction project

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.689[a]	.475	.471	1.71603

a. Predictors: (Constant), involvement of staff and community

The results in table 5 shows that the results indicated that the adjusted R2 is 0.689 indicating that involvement of staff and community's components contributes to the success of implementation of the Ngoma-Ramiro Road construction project.

Table 6: ANOVAᵃ on involvement of staff and community for success of implementation of the Ngoma-Ramiro Road construction project

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	362.119	1	362.119	122.970	$<.001^b$
	Residual	400.489	136	2.945		
	Total	762.609	137			

a. Dependent Variable: Success of implementation of the Ngoma-Ramiro Road construction project

b. Predictors: (Constant), involvement of staff and community

The results in Table 6 above show that the F- test of 122.970 is statistically significant with $p < 0.05$ indicating that the variables used in the model are good predictors of involvement of staff and community. Therefore, H02 which states that involvement of staff and community have a positive significant impact on the success of implementation of the Ngoma-Ramiro Road construction project is accepted at all levels of significance".

Table 4: Coefficientsᵃ on involvement of staff and community for success of implementation of the Ngoma-Ramiro Road construction project

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.067	.707		7.165	<.001
	involvement of staff and community	1.116	.101	.689	11.089	<.001

a. Dependent Variable: **Success of implementation of the Ngoma-Ramiro Road construction project**

The results from Table 7 indicated that involvement of staff and community has a positive and significant effect on success of implementation of the Ngoma-Ramiro Road construction project ($\beta 1= .689$; t= 11.089; p-value > 0.05)". "[This means that 1% change in involvement of staff and community leads to an increase in success of implementation of the Ngoma-Ramiro Road construction project]".

H₀₃ : Supplier relationships have no significant impact on the success of implementation of the Ngoma-Ramiro Road construction 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 R2 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 mode.

Table 5: Model Summary on Supplier relationships for success of implementation of the Ngoma-Ramiro Road construction project

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.418[a]	.175	.169	2.15073

a. Predictors: (Constant), **Supplier relationships**

shows that the results indicated that the adjusted R2 is 0.418 indicating that Supplier relationships's components contributes to the success of implementation of the Ngoma-Ramiro Road construction project.

Table 6: ANOVA[a] on Supplier relationships for success of implementation of the Ngoma-Ramiro Road construction project

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	133.524	1	133.524	28.866	<.001[b]
1	Residual	629.084	136	4.626		
	Total	762.609	137			

a. Dependent Variable: Success of implementation of the Ngoma-Ramiro Road construction project

b. Predictors: (Constant), Supplier relationships

The results in Table 9 showing that the F- test of 28.866 is statistically significant with $p < 0.05$ indicating that the variables used in the model are good predictors of involvement of Supplier relationships. Therefore, H03 which states that involvement of Supplier relationships have a positive significant impact on the success of implementation of the Ngoma-Ramiro Road construction project is accepted at all levels of significance.

Table 10: Coefficients[a] Supplier relationships for success of implementation of the Ngoma-Ramiro Road construction project

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.996	.542		18.426	<.001
	Team collaboration	.372	.069	.418	5.373	<.001

a. Dependent Variable: Success of implementation of the Ngoma-Ramiro Road construction project

The results from Table 10 indicated that Supplier relationships has a positive and significant effect on success of Prism Projects ($\beta 1$= .418; t= 5.373; p-value > 0.05)". "[This means that 1% change in involvement of Supplier relationships leads to an increase in success of implementation of the Ngoma-Ramiro Road construction project]".

4.2 Correlation analysis between Total quality management and success of Road Project Implementation

Correlation was conducted between independent and dependent variables. The aim was to establish the nature and strength of relation between the independent and dependent variables. Correlation refers to a technique used to measure the relationship between two or more variables. When two variables are correlated, it means that they vary together. Positive correlation means that high values on one variable are associated with high values on the other

and that low values on one are associated with low values scores on the other (Kavale, 2017). In the interpretation of correlation the sign of the correlation coefficient means either a positive or negative correlation coefficient. The positive correlation coefficient means that the variables move in the same direction, while negative correlation means variables move in opposite directions. The correlation significance is indicated by a probability value of less than 0.05 or 0.01.This means that the probability of obtaining such a correlation coefficient by chance is less than five times out of 100 or is less than one times out of 100, so the result indicates the presence of a relationship.

Table 7 Correlations between Total Quality Management and success of Road Project Implementation

		Total Quality Management	Success of Road Project Implementation
Total Quality Management	Pearson Correlation	1	.761[**]
	Sig. (2-tailed)		<.001
	N	138	138
Success of Road Project Implementation	Pearson Correlation	.761[**]	1
	Sig. (2-tailed)	<.001	
	N	138	138

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

The variation of Pearson Correlation is between -1 and 1. Pearson Correlation has significance when it is equal or greater than 0.01. According to the research, the correlation of 0.761 is located in the interval [0.75 - 1.00] categorized as positive and strong correlation. As the significant level is at 0.01 (1%), the p-value of 0.000 (i.e. 0.0%) is less than 1%. This leads to confirm that there is significant relationship between Total quality management and success of Road Project Implementation.

4.2.1. Multiple linear regression analysis

Multiple linear regression analysis was carried out to find out the effect of the independent variables (Total quality management) on the dependent variable (success of Road Project Implementation). Multiple Linear regressions was computed at 95 percent confidence interval was used to establish the relationship between independent variables and the dependent variable. Based on the model summary, the coefficient of determination (R squared) shows the overall measure of strength of association between independent and dependent variables.

Table 8: Model Summary on Total Quality Management

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.761[a]	.578	.575	1.53760

a. Predictors: (Constant), Total Quality Management

The study results in table 12 show that Total quality management has statistically significant effect on success of Road project implementation with a positive coefficient of determination of 0.761 indicate that there is a positive correlation between independent values and dependent value.

Table 9 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	441.076	1	441.076	186.563	<.001[b]
	Residual	321.533	136	2.364		
	Total	762.609	137			

a. Dependent Variable: Success of Road Project Implementation

b. Predictors: (Constant), Total Quality Management

As indicated in the table above the F-test value is 186.563 with significance value of <.001 at 5% level of significance. Since the p-value obtained was less than 0.05, the F-test was significant hence the conclusion that the regression model was good.

Table 10: Regression Results

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.517	.657		5.357	<.001
	Role of Top Level Management	.504	.110	.354	4.574	<.001
	People Focus	.682	.115	.421	5.910	<.001
	Supplier Relationship	.159	.053	.179	2.987	.003

a. Dependent Variable: Success of Road Project Implementation

$SRPI_i = 3.517 + 0.504TLM + 0.682PF + 0.159SR + \varepsilon$

Source: Primary data (2023)

Where

SRPI: Success of Road Project Implementation

TLM: Top Level Management

PF: People Focus

SR: Supplier Relationship

The results from Table 14 indicated that Role of top-level management has a positive and significant effect on success of Road project implementation by Ngoma-Ramiro Project ($\beta 1$= 0.354; t=4.574; p-value < 0.05). This means that 1% change in clarification of responsibilities leads to an increase of 35.4% change in success of Road project implementation by Ngoma-Ramiro Project. The results again indicated that there is a positive and significant effect of clarification of responsibilities at Ngoma-Ramiro ($\beta 2$= 0.421; t=5.910; p-value < 0.05). This means that 1% change in People Focus; it leads to at least 42.1% increase change in success of Road project implementation by Ngoma-Ramiro Project.

The results again indicated that team collaboration has positive and significant effect on success of Road project implementation by Ngoma-Ramiro Project ($\beta 3$= 0.179; t=2.987; p-value <0.05). This means that 1% change in Supplier Relationship leads to at least 17.9% change in success of Road project implementation by Ngoma-Ramiro Project.

5. Conclusion

Top Management were highly involved in the implementation of the project and the people were involved too. The quality of the project was high and supplier relationship was average. However minimal rejection of service occurred though quality standards were instituted. There was delay of the project too during implementation.

6. Recommendations

Road construction is important for government and communities and therefore its careful implementation is critical. This study has shown that involving stakeholders is important and therefore it is here recommended that:

- Management of road construction projects should implement tight control on suppliers and quality.

- Clear objectives should be set with clear expectations established right from the start to avoid rejections and delays.

- The client should ahead of time critically assess the capabilities of the bidders to avoid stacking the projects after rejections of any contractors.

- Project implementation plan (PIP) should be presented to the client through the project consultant holding all the key activities (milestones) of the entire project works and their schedules to ease the monitoring

7. Acknowledgement

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