

# Journal of Procurement & Supply Chain



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**Peace Umutoni & Dr. Akumuntu Joseph**

**ISSN: 2617-3581**

# Effect of Procurement Practices on the Performance of Construction Projects; A Case of SONATUBE-Sahara-Kabeza Road in Kicukiro District Rwanda

Peace Umutoni<sup>1</sup> & Dr. Akumuntu Joseph<sup>2</sup>

<sup>1</sup>Master of Science in Procurement and Supply Chain Management, University of Kigali, Rwanda

<sup>2</sup>Senior Lecturer, University of Kigali, Rwanda

*How to cite this article:* Umutoni P. & Akumuntu J. (2024). Effect of Procurement Practices on the Performance of Construction Projects; A Case of SONATUBE-Sahara-Kabeza Road in Kicukiro District Rwanda. *Journal of Procurement & Supply Chain*. Vol 8(2) pp. 1-14 <https://doi.org/10.53819/81018102t2394>

## Abstract

The purpose of this research was to examine the effect of Procurement practices on Performance of construction on project in Rwanda, because despite the important role played by the Procurement Act, some government institutions in Rwanda still practice lengthy bureaucratic procurement processes in acquiring goods and services, corruption and discriminatory awards of tenders, hence has made some government projects to fail. The researcher used three specific objectives: To analyze the effect of procurement practices on performance of construction of Kanombe presidential road; to examine the effect of tendering system on performance of construction of Sonatube-Sahara-Kabeza road; to assess the effect contract administration on performance of construction of construction of Sonatube-Sahara-Kabeza road. To achieve these objectives, literatures were reviewed on the subject matter, and then data were collected from 133 employees of NPD COTRACO LTD and they were chosen by using census sampling technique. A questionnaire, observation, interview guide and documentation were used as tools of data collection. Data was analyzed by using both quantitative data and qualitative data. To get primary data, the researcher went to the field and collected raw data from respondents, in this study, questionnaires, interviews and observations were used to collect primary data. Secondary data was collected by way of document reviews. The R value of 0.870 indicated a strong relationship between the predictors and the performance of construction projects. The R Square value of 0.758 indicates that approximately 75.8% 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 procurement practices and the outcome variable performance of construction projects. Specifically, procurement planning has a coefficient of ( $\beta= 0.184$ ,  $t=2.303$ ,  $p \text{ value}=0.023$ ), tendering system has a coefficient of ( $\beta= 0.252$ ,  $t=4.168$ ,  $p \text{ value}=0.000$ ), Contract administration effectiveness has a coefficient of ( $\beta= 0.289$ ,  $t=3.280$ ,  $p \text{ value}=0.001$ ), and Mediating variables has a coefficient of ( $\beta= 0.233$ ,  $t=3.535$ ,  $p \text{ value}=0.001$ ). As indicated by their associated Sig. Values 0.05, these coefficients have significant effect on Performance of performance of construction of Sonatube-Sahara-Kabeza road. Kicukiro District is recommended to establish a strong procurement planning process, ensuring meticulous project preparation and resource allocation.

**Keywords:** *Procurement Practices, Private projects, project performance, procurement planning, tendering system.*

## 1. Introduction

Construction projects are strategic activities “initiated to create economic value and competitive advantage” to both the private and public sector (Shen & Tam, 2017). Their successful completion is dependent on the following factors, namely project-related factors, project procedures, project management actions, human related factors, and external environment (Chan, Scott, & Ada, 2004).

Construction project performance can be looked at from multiple dimensions such as completed on time within budget, and in accordance with specifications and to stakeholders satisfaction (Chan & Suhaiza, 2015). Rosli, Ismail, A, Wan, & Zainordin, (2019) opines that to guarantee successful completion, it is very important at the very outset of the project to carefully consider all factors when selecting the most appropriate procurement approach which is a project procedure for a construction project. It can therefore be inferred that in the absence of a procurement process construction projects may fail to achieve their objectives

Worldwide like in PERU country, In 2010, the Peruvian economy is expected to grow at a rate of 6.6%, with construction projects leading at a rate of 13.9% (Banco Central de Reserva del Peru, 2010). This growth is likely to continue in the future, generating a large demand for project management professionals who apply good project management practices. A construction project can be considered to be successful when its execution finishes on the contractual time, within the approved budget, fulfilling its scope, without lost time accidents, reaching the specified quality, and with the client’s satisfaction. In order to understand the key success factors for projects, a survey was conducted. This paper describes the most important factors. The results will help to understand the level of development of project management practices in Peru and to provide guidance in those areas in which improvements to project management practices are needed (Jose & Melquiades, 2010).

In Kenya the public procurement system has evolved to an orderly and legally regulated system governed by the Public Procurement and Disposal Act, 2015 which regulates the procurement procedures. Despite these efforts by the government to improve construction projects delivery through Public Procurement and Disposal Act 2015, success has been hampered by endemic delays in successful project completion (Nekesa, 2015).According to Road Inventory and Condition (RIC) Survey of 2009, only 19% of the classified road networks are in good maintainable condition while 50% is fair and the remaining 31% is in poor condition requiring improvement through rehabilitation (ROK., 2010 ).There have been, however, major efforts to improve and raise the level of expenditure on roads to over 10% of the Gross Domestic Product (GDP) (Omayo & Gekara, 2013).The myriad cases like constructions on public utility spaces, road reserves and collapsing of buildings are challenges to the industry’s level of competency and product quality assurance. Forthwith, (Cattell, Bowen, & Kaka, 2007) stated that the construction industry is challenged since the current buildings are not able to last long comparatively to other buildings erected centuries ago.

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It can therefore be inferred that in the absence of a procurement process construction projects may fail to achieve their objectives. This position is corroborated by Jeptepkeny, (2015) who aver that procurement processes have increasingly played an important role in project performance.

### **Problem statement**

There is a serious problem of poor performance in private institutions due to inappropriate procurement practices in general because of inefficiencies and corruption, weak legal and regulatory frameworks for procurement (Nkongoli, 2016), poor infrastructure and limited access to financing for procurement activities, in the private sector.

As published in New Times, a survey conducted to explore the state of private procurement in all levels has highlighted a number of issues as many as 55 percent of respondents admitting to have lodged complaints contesting the processes.

The report was commissioned by Strengthening Rwandan Administrative Justice (SRAJ) Project and prepared by the Institute of Policy Analysis and Research (IPAR-Rwanda) and the University of Massachusetts Boston. The report explains that some bidders lack professionalism and ethics in participating in the procurement process, a challenge that sometimes leads to illegal practices, such as the submission of forged documents, and disqualification. These, the report says, often raise complaints about processes yet the fault lies with the bidders themselves. "What you have is a bidder whose poor practices or low capacity leads some bidders to submit low price quotations, which may gain them the tender only for them to realize later that they cannot deliver on their contractual obligations," he said, (Nasra Bishumba; 2020).

As a result, many African countries are striving to continuously develop their procurement systems to function better and effectively contribute to their economic development (Nzimande and Padayachee, 2017). Procurement practices in Rwanda is currently faced with the following main challenges: limited capacity and expertise among procurement professionals and government officials; corruption and unethical practices in procurement processes; and inefficient procurement processes and procedures, leading to delays and cost overruns. According to Shin and Lee (2016), procurement planning aims to address a range of issues related to an organization's procurement of goods, services and works, including: ensuring that procurement activities are aligned with the organization's overall goals.

This research aimed at addressing these gaps by conducting a case study in Rwanda, Kicukiro district exploring how specific procurement planning indicators influence project performance, assessing the impact of the tendering system on road construction projects, and investigating the effectiveness of contract administration in ensuring adherence to timelines and quality standards.

Transparency and competition are recognized as crucial factors in the tendering system for road construction projects in Rwanda. However, little research delves into the relationship between specific tendering system indicators and project outcomes, such as timely contract awarding and contractor qualifications. Through a comprehensive examination of the tendering system in Rwanda, this study will shed light on the influence of transparent tendering processes on promoting healthy competition among qualified bidders. It will also assess how standardized evaluation criteria and scoring systems contribute to an open and fair tendering process, leading to optimal contractor selections. The research findings will offer valuable recommendations to improve the tendering system and enhance road construction project performance.

Finally, effective contract administration is vital to ensure adherence to project timelines and quality standards during road construction projects. However, comprehensive research on the impact of specific contract administration indicators, including change order management and quality assurance, remains limited. This study investigated how proactive measures, such as realistic project scheduling and the use of project management software, aid in tracking progress and minimizing delays. Furthermore, it assessed how efficient change order management minimizes disruptions and controls project costs. The examination of quality assurance practices determined their contribution to high-quality road outcomes in Rwanda. The study's outcomes provided insights to enhance contract administration practices for improved road construction performance.

In conclusion, this research aimed to bridge the knowledge gaps in Rwanda's road construction sector by comprehensively investigating the effect of procurement practices, tendering system, and contract administration on project performance. Through a detailed case study analysis, the study will contribute valuable insights to enhance procurement practices in Rwanda's road construction projects, promoting transparency, efficiency, and successful project outcomes.

### **Research objectives**

The general objective of this research was to examine effect of procurement practices on the performance of construction projects using Sonatube-Sahara-Kabeza road as a case for the study. Specifically, the study aimed to:

- To analyze the effect of procurement planning on the performance of construction of Sonatube-Sahara-Kabeza road in kicukiro district.
- To examine the effect of tendering system on the performance of construction of Sonatube-Sahara-Kabeza road in kicukiro district.
- To assess the effect of contract administration effectiveness on the performance of construction of Sonatube-Sahara-Kabeza road in kicukiro district..

## **2. Literature Review**

### **Procurement planning**

Liebman and Mahoney (2017) focus on the impact of procurement planning on private agency performance. The literature suggests that procurement planning is one of the key functions of procurement with the potential to contribute to operational performance improvement. Despite their importance, little academic research has examined the extent to which procurement planning efforts contribute to the effective performance of private agencies. The study is based on procurement models, the PPOA Handbook, the PPDA Act (2005) and PPDR (2006). The study provides guidance on effective actions to be taken in procurement planning to achieve effective procurement and thus improve agency performance.

Sinclair and Malen (2021) argue that budget management has a significant impact on the achievement of institutional budget goals. The purpose of this study is to analyze the impact of the procurement planning process on the performance of Kenyan public institutions. This study adopts a descriptive research design. Correlation results showed that procurement practices was positively correlated with construction performance (Kikavets and Tsaregradskaya, 2023). Regression results show that there is a significant positive relationship between procurement planning and procurement processes and construction performance (Kikavets and Tsaregradskaya, 2023).

## **Tender process**

Caritas Kabega (May 2016) conducted a survey on effects of tender processes on performance of construction projects in building Bugesera. Findings show that tendering system used to procure the construction of Bugesera District Office include the following Caritas Kabega (May 2016); Open tendering system, restricted tendering system, direct procurement and request for quotation. The tendering system greatly influences the performance of the project in that quality materials were bough, it tried to help the project manage its budge (Jassam, 2021), it helped the project to acquire the right quantity of the materials, it helped the project to acquire materials in time, it helped to manage corruption practices though transparent advertisement and tender evaluations and tendering system helped the project worked within the required standards. This means that there is a significant relationship between tendering system and performance of construction of Bugesera District Office. We can therefore conclude tendering system contributed highly to the performance of construction of Bugesera District Office.

## **Contract administration**

Effect of Contract Administration on Construction of Bugesera District Office Findings show on contract administration of Bugesera District Office shows that time factors was considered while designing procurement contract Caritas Kabega (May 2016) , legal team were consulted before signing the contract, finance factors was considered while designing procurement contract, delivery date factors was considered while designing procurement contract, quality of materials was considered while designing procurement contract of construction of Bugesera District Office, Guarantees for works was considered in the contract, Arbitration between the parties was considered while designing procurement and communication of the terms of contract was consistent during project deliverables hence contract of the construction of Bugesera District Office was well managed.

Contract administration also made the project worked within the required standards and to buy materials within the budget Kabega, Kule & Mbera (2009) Licensed under Creative Common Page 394 therefore researchers conclude that variables are correlated and null hypothesis is rejected and remains with alternative hypothesis. This means that there is a significant relationship between contract administration and performance of construction of Bugesera District Offices. We can therefore conclude that contract administration highly contributed to positive Performance of construction of Bugesera District Office.

## **2.1 Theoretical framework**

The theoretical literature review help establish what theories already exist, the relationships between them, to what degree the existing theories were investigated, and to develop new hypotheses to be tested.

### **Agency Theory**

The agency theory embraces facts that the parties involved in project develop varying interests in approaching tendering process, valuation process. Relationship that exist within parties may be referred to as agency. Parties have an agency relationship when they cooperate and engage in an association that allows one part (the principle) delegates decisions and work to work to/ or another (an agent) to act on its behalf (Tenhiälä, et al., 2017).

The baseline underlying agency theory is that; potential goal conflicts exist between principals and agents; each party acts in its own self-interest; there are frequent similarity between

principals and agents; agents are more risk averse than the principal; and efficiency is the effectiveness criterion. Two potential problems stemming from these assumptions may arise in agency relationships: an agency problem and a risk-sharing problem (Xingxing, 2012).

There is agency problem when agents' goals differ from the principals' and it is difficult or expensive to verify whether agents have appropriately performed the delegated work, or rather moral hazard. The ethical and moral issues arise from the manner donor underlines the manner in which a project should be implemented.

Agency theory determines how procurement managers execute procurement practices on behalf of donor funding agencies. Existence of poor principle agent relationship leads to low level of top management commitment and this also affects the relationship between institutions and the suppliers. Existence of conflict of interest amongst the agents leads to execution of procurement practices against the standard policies which leads to waste of time in tendering and cancelling of tender advertised and loss of procurement funds.

The private procurement Act requires all stakeholders to assess the processes involved in the procurement and to know the efficiency and reliability in the procurement processes. Importantly is to recognize the flaws and challenges inherent in the system of procurement in order to correct them. These can be achieved through a formal procurement audit, among others. The agency theory model anchored on the fact that information asymmetries and pursuant of self-interests, principles lack basis to trust their appointed agents and will seek to mitigate these concerns by putting in place mechanisms to align interests of agents with principle and to reduce the scope for information asymmetries and opportunistic tendencies (Keng'ara, 2013). The study thus used this model to determine the effect of need assessments in procurement planning policies for effective project performance of construction project in non-governmental organization in Rwanda.

### **Stewardship Theory**

This theory was developed by Donaldson and Davis in 1991 and 1993 respectively. The ideal motive which directs managers to accomplish their job is the desire to perform excellently. This theory is based on the assumption that managers are stewards whose behaviors are aligned to the objectives of the principals.

It implies that managers have an intrinsic satisfaction when firm performance improves and organization success is attained. The implication of the theory is that managers are also motivated by non- financial factors like challenging work, the opportunity to exercise responsibility and authority as well as gaining recognition from peers and their managers. It is critical for the organization to build a structure which allows for symphony between principles agents. Turning to the firm's leadership, the structure which allows for symphony between principles is where there is CEO duality. In such a scenario the powers of the chairman of the board (responsible for board processes) and CEO (responsible for operational issues of the organization) are vested in one office. Donaldson and Davis (2009) indicated that such a structure allows an ambiguity in the CEO role as power and authority over lower ranking managers and other board members is then vested in one office. Procurement functions can enjoy the consistency in leadership style, unity of direction as well as command.

The process of amalgamating the role of CEO and the board chairman drives down the cost of agency while enhancing performance Abdula and Valentine (2009). Apart from supporting CEO duality, proponents of stakeholder's theory favor majority of insiders' directors and argue that they have superior knowledge of procurement functions in an organization thus take a shorter time to make decisions; they are more effective at evaluating the performance of top

managers and utilize their expertise to ensure high quality procurement performance at all levels. According to Letting et al., (2012) the inclusion of more executive directors in the boards of companies would lead to more effective and efficient decision which include supplier sourcing.

### **Resource Dependence Theory**

In resource dependency theory nations that are developed actively keep developing nations in alert position, often through economic force by instituting sanctions in a subservient position, often through proscribing free trade policies attached to loans granted by World Bank or by International Monetary Fund.

The theory of dependency goes way back in 1949 where it was observed that the terms of trade for underdeveloped countries relative to the developed countries had deteriorated over time, the underdeveloped countries were able to purchase fewer and less manufactured goods from the developed countries in exchange for a given quantity of their raw materials. In dependency theory the degree of dependency increases as time goes on wealthy countries are able to use their wealth to further influence developing nations into adopting policies that increase the wealth of the wealthy nations, even at their own expense.

Similarly, they are able to protect themselves from being turned on by the developing nations, making their system more very secure as time goes on. In describing poverty, Alkire and Santos (2013) indicated that the level of poverty in Sub-Sahara is an evidence of the developing needs. The evidence provided by Chen and Ravallion (2010) in the describing poverty puts the global number people living with below poverty line of \$ per day in sub-Sahara Africa at 298 million up from 168 million.

### **Stakeholder Theory**

The success of a firm is a complete function of successful management of the various relationship that a firm has with stakeholders considering that less can be achieved without stakeholders, and the organization would cease to exist is that which is enriched in stakeholder's theory (Barringer and Harrison, 2000).

The year 2004 saw the revision of the Organization for Economic Cooperation and Development (OECD) principles which changed the principle from their narrow focus on the traditional shareholder centered corporate governance practice to a wider one which is accommodative of the various interests of different stakeholder of a firm. In their well cited study, Grover and Malhotra (2013) extensively investigated on the application of transaction cost theory in supply chain management.

In their empirical study of 1000 purchasing managers, they conclude that transaction cost theory applies to organizational supply chain management in four facets: effort, monitor, problem, and advantage. Transaction cost theory is primarily concerned with the direct economic factors in organizations and hence fails to address some important aspects of the operation of organizational supply chain, including personal and human relations among other actors in the supply chain.

In a large scale organization, project managers oversee two types of groups. One of which includes project team members permanently assigned to the project office under the project manager 's authority while the other group consists of subject matter expert from the organizational technical and support department. Project managers are responsibility include



meeting project objectives for schedules, budgets and assessing alternatives, assessing risks, and deciding how to accept, avoid, remove, or mitigate them, leading the initiative to successful completion. One of the gurus of project management, coined the term 'democracy' to describe the use of teams in organizations. The team, as the building block of the networked enterprise, displaces the traditional bureaucratic hierarchy of successive levels of pyramided authority. In a democracy, teams' formation leads to the lattice network of cross-functional/cross-organizational projects that integrate the activities of the work groups and reflect their empowerment, dedication, trust, loyalty and commitment.

### **Selection Theory**

According to Saffu and Mamman (2000) literature concerning the selection of partners is insufficient and focuses on the method of choosing a partner unlike the partner selection process. The researchers stated that most publications speculate that the selection of partners is on a straight line basis since they assume the decision- making process is rational.

A relevant precedent choice is refined, often making it be priority the features of concern. Personal ties between the main decision makers result to business alliances in some of the cases (Barringer and Harrison, 2000).

This theory was useful in this research because, in enhancing procurement practice, it is important to select suppliers and maintain a good supplier relationship to ensure that information runs smoothly from both parties. Supplier selection and management boost credit reliability and ensure supply of quality products to the organization hence the success of the overall performance. This theory was important in studying supplier relationship management.

### **3. Research methodology**

The study adopted both census inquiry and correlation design in order to collect and 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 target population of this study was the employees of NPD Ltd, the entire sample is 133 staffs and stakeholders representing the population of the study. NPD Ltd was selected in curiosity of knowing how the procurement planning practices is processed in a day-to-day close institution where data can be easy to get. A census was conducted because the population size is affordable and the researcher was able to contact all the respondents. The population of interest in this study included one hundred thirty-three (133) respondents from five departments. 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. Inferential statistics, including Pearson correlation analysis and multiple regression analysis, were conducted to establish relationships procurement practices and the performance of construction projects using Sonatube-Sahara-Kabeza road. 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 section shows the findings of this research by presenting it from analysis. Where this is required, interpretations are provided after each table, always taking into consideration the initial research questions. This section thus establishes the ground up on the research questions were answered before drawing conclusion. The analysis was made on the responses obtained from 133 staffs and stakeholders of NPD Ltd.

#### Correlation analysis Results

The correlation matrix presented below provides valuable insights into the complex interrelationships among Procurement planning, Tendering system, Contract administration effectiveness, and Performance of construction project. This matrix quantifies both the strength and direction of the connections between these crucial variables, offering a clearer understanding of their interconnected nature.

**Table 1: Correlations**

		Procurement planning	Tendering system	Contract administration effectiveness	Performance of construction project
Procurement planning	Pearson Correlation	1	.553**	.805**	.741**
	Sig. (2-tailed)		.000	.000	.000
	N	117	117	117	117
Tendering system	Pearson Correlation	.553**	1	.680**	.725**
	Sig. (2-tailed)	.000		.000	.000
	N	117	117	117	117
Contract administration effectiveness	Pearson Correlation	.805**	.680**	1	.806**
	Sig. (2-tailed)	.000	.000		.000
	N	117	117	117	117
Performance of construction project	Pearson Correlation	.741**	.725**	.806**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	117	117	117	117

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

Source: Field data (2023)

In Table 1, strong positive correlations are evident between various procurement practices and Performance of construction project. Procurement planning exhibits a strong positive correlation of 0.741, highlighting that well-structured Procurement planning is closely linked to better Performance of construction project. Similarly, Tendering system shows a strong positive correlation of 0.725, indicating that effective Tendering system contributes significantly to improved Performance of construction project. lastly Contract administration effectiveness demonstrates a positive correlation of 0.806, emphasizing the importance of Contract administration effectiveness in Performance of construction project.

These correlations, all statistically significant at the 0.05 level, collectively indicates that enhancements in Performance of construction project, Procurement planning, tendering system, and Contract administration effectiveness are associated with improved overall performance of construction projects. a case of Sonatube-Sahara-Kabeza road in Kicukiro District Rwanda.

The challenges faced by Kenya's public procurement system, as highlighted by Nekesa (2015), resonate with findings in the construction industry. In Table 1, positive correlations between procurement practices and construction project performance are evident. Effective procurement planning, tendering systems, contract administration, and mediating variables significantly enhance project performance, akin to Kenya's efforts to improve construction project delivery. Both contexts underscore the pivotal role of structured processes in achieving better outcomes in their respective domains.

### Regression Analysis

The study also wanted to establish the relationship between procurement practices and the performance of construction projects using Sonatube-Sahara-Kabeza road. 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 determination.

**Table 2: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.870 <sup>a</sup>	.758	.749	.31929

a. Predictors: (Constant), Tendering system, Procurement planning, Contract administration effectiveness

Source: Field data (2023)

Table 2 presents the model summary for a regression analysis. The model includes predictors such as Procurement planning, tendering system, Contract administration effectiveness, and mediating variables. The R value of 0.870 indicates a strong relationship between the predictors and the performance of construction projects. The R Square value of 0.758 indicates that approximately 75.8% 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 procurement practices and the outcome variable performance of construction projects, with a good fit to the data.

The findings are in line with Jeptepkeny's (2015) emphasis on the significance of procurement processes in construction projects. Jeptepkeny highlights how these processes play a crucial role in project performance, reinforcing the notion that without proper procurement practices, construction projects may struggle to achieve their objectives, as indicated in the study's results.

**Table 3: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.689	4	8.922	87.476	.000 <sup>b</sup>
	Residual	11.417	112	.102		
	Total	47.106	116			

a. Dependent Variable: Performance of construction project

b. Predictors: (Constant), Tendering system, Procurement planning, Contract administration effectiveness

Source: Field data (2023)

Table 3 shows F value of 87.476, 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 Mediating variables, Tendering system, Procurement planning, Contract administration effectiveness, 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 construction project. This indicates the importance of these procurement practices in influencing Performance of construction project.

The findings in Table 3, indicating the significant impact of procurement practices on the performance of construction projects, align with the emphasis by Rosli *et al.*, (2019) on the importance of carefully considering all factors in selecting an appropriate procurement approach. This underscores that effective procurement processes are essential for achieving project objectives and ensuring the success of construction projects.

**Table 4: Coefficients**

Model	Unstandardized		Standardized	T	Sig.
	Coefficients				
	B	Std. Error	Beta		
(Constant)	.249	.179		1.390	.167
Procurement planning	.184	.080	.187	2.303	.023
Tendering system	.252	.060	.272	4.168	.000
Contract administration effectiveness	.289	.088	.301	3.280	.001

a. Dependent Variable: Performance of construction project

Source: Field data (2023)

Performance of construction project = 0.249+0.184(procurement planning) + 0.252(tendering system) + 0.289 (Contract administration effectiveness) + 0.233(Mediating variables)

In Table 4, the constant term, representing the estimated intercept of the regression model, has an unstandardized coefficient of 0.249 with a standard error of 0.179, it is not statistically significant with a Sig. Value of 0.162. The unstandardized coefficients for the predictor variables show their effect on Performance of construction project. Specifically, procurement planning has a coefficient of ( $\beta= 0.184, t=2.303, p \text{ value}=0.023$ ), tendering system has a coefficient of ( $\beta= 0.252, t=4.168, p \text{ value}=0.000$ ), Contract administration effectiveness has a coefficient of ( $\beta= 0.289, t=3.280, p \text{ value}=0.001$ ) As indicated by their associated Sig. Values below 0.05, All these coefficients have significant effect on Performance of construction project

The findings align with the emphasis of the (ROK, 2010) report on the state of the public procurement system. While Kenya has a regulated procurement system, the study's results highlight persistent delays in construction project delivery, which could indicate challenges within the procurement process. This suggests that despite regulatory efforts, there may still be issues in the practical implementation and efficiency of the public procurement system, affecting construction projects' performance.

## 5. Conclusion

The general objective of this research was to examine effect of procurement practices on the performance of construction projects using Sonatube-Sahara-Kabeza road as a case for the study. Specifically, the study focused on the influence of procurement practices (Mediating variables, Tendering system, Procurement planning, Contract administration effectiveness) on the construction project performance. The strong significant correlation existed between the procurement practices performance of construction projects using Sonatube-Sahara-Kabeza road. Hence, Each null hypothesis (Ho1, Ho2, or Ho3) has been rejected ( $p < 0.05$ ), indicating strong evidence against the idea that these procurement practices have no significant effect on the project performance of Sonatube-Sahara-Kabeza road in Kicukiro District Rwanda. Specifically, procurement planning, tendering system, contract administration effectiveness, all demonstrate a significant influence on the performance of construction projects. These findings emphasize the critical role of comprehensive procurement practices in achieving the construction project performance of Sonatube-Sahara-Kabeza road in Kicukiro District Rwanda.

## 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.

For the successful construction of Kicukiro District is recommended to establish a strong procurement planning process, ensuring meticulous project preparation and resource allocation. Additionally, implementing a transparent and competitive tendering system will attract qualified contractors and enhance project quality. NPD COTRACO LTD should maintain Effective contract administration, involving clear contract definitions, regular monitoring, and efficient management to ensure project timelines are met. Lastly, attention to potential mediating variables, such as external influences or stakeholder interests, should be part of the project strategy to ensure they positively impact the road construction's overall performance and timely completion.

## 7. Acknowledgement

Firstly, I would like to thank God for his guidance and protection not only during this study but in my entire life. And without the direction, collaboration, and support of many people, scientific research is virtually impossible to complete. I greatly appreciate Dr. Akumuntu Joseph for his dedication in supervising my work. I am also grateful to my classmates for their support and encouragement throughout this study. May the holy God richly bless every one of the individuals mentioned.

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