Effect of Procurement Planning on Organizational Performance in the Public Sector: A Case of Nyagatare District, Rwanda

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Abstract: *The main objective of the study was to assess the effect of procurement planning on organizational performance in Nyagatare District, Rwanda. Specific Objectives of the study was to determine the effect of needs identification, quality specification, cost estimation and contract management on performance of Nyagatare District. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 25. The coefficient for needs identification ($\beta = 0.145$, $t = 2.231$) suggests that this effect is statistically significant. With a significance level of $p = 0.028 < 0.05$, it confirms that needs identification has a significant positive effect on organizational performance. The coefficient for quality specifications ($\beta = 0.27$, $t = 3.767$) is relatively high, indicating strong statistical support for this relationship. The significance level ($p = 0.000$) confirms that this effect is highly significant. The coefficient for cost estimation ($\beta = 0.375$, $t = 5.435$) is the highest in the model, indicating that cost estimation has the strongest effect on performance. With a significance level of $p = 0.000$, which is well below 0.05, cost estimation is statistically significant. The coefficient for contract management ($\beta = 0.191$, $t = 2.938$) indicates a statistically meaningful relationship. The significance level $p = 0.004 < 0.05$, confirming that contract management has a significant positive effect on performance. Nyagatare District should implement standardized frameworks for identifying procurement needs, ensuring alignment with organizational goals and available resources.*

1. Introduction

The process through which an organization chooses what to buy, when to buy it, and from whom it is known as procurement planning. During procurement planning, the method of purchase is designated, and goals for meeting procurement needs are established. Businesses, both public and private, engage in procurement planning, which is the process of preparing for future purchases (Uwarurema, 2023).

Organizations use procurement planning to acquire products, services, and works from vendors and independent contractors. Procurement planning is defined as the procedure through which needs for purchasing goods and services are identified, consolidated, and a schedule for doing so is established (RPPA, 2022).

Since 2004, the Government of the Republic of Rwanda has decided to decentralize public procurement activities. It is in this regard that, from 20 February 2011 all responsibilities and activities regarding contract awarding, signing and contract management were transferred to public procuring entities and Rwanda Public Procurement Authority-RPPA remained with the

responsibility of being a procurement oversight body having the mission geared towards regulations, capacity building and control (Hatangimana, 2021).

The Government of Rwanda for the financial year 2018-2019 lost funds due to non-compliance to public procurement process. Inefficient planning of procurement, long process of procurement led to lack of funds for some projects from donors where it was identified 18 cases of projects worth 112,552,600,100Frw; Inefficient planning in identifying unnecessary items which led to idle assets worth Frw 17,210,605,457; Poor sourcing of contractors where it incurred a loss 2,297,606,521Frw that resulted from the failure of contractors to execute the contracted works; Poor contract management where it was paid invoices amounting to 14,391,086,018Frw with delays ranging between 2 and 725 days. These delays proliferate the risk of delaying and abandoning the contracts; Poor contract management and monitoring which led to a total of 65 contracts valued at Frw 107,939,885,720 reported as either delayed or abandoned; Poor contract management and control where most entities did not recover the amount of advance payment and performance securities worth 3,534,806,068Frw (OAG, 2019).

In Rwanda, public procurement process compliance and ethics are still at low level. For example, 47 out of 70 procuring entities audited by RPPA in the financial year 2018-2019 had implemented the previous audit recommendations at a rate below 60% and recommendations of the office of the auditor general were implemented at a rate below 56% in 156 entities audited and these recommendations would help them to avoid any loss of public funds (Rugamba, 2021).

Furthermore, there hasn't been a dedicated study to uncover the root causes of irregularities in procurement planning at Nyagatare District. Therefore, this study aims to evaluate how procurement planning affects organizational performance in the public sector, using Nyagatare District in Rwanda as a case study.

The general objective of the study was to assess the effect of procurement planning on organizational performance in Rwanda especially Nyagatare District.

Specific Objectives:

1. To determine the effect of needs identification in procurement planning on the performance of Nyagatare District.
2. To examine the effect of quality specification in procurement planning on performance of Nyagatare District.
3. To assess the effect of cost estimation in procurement planning on performance of Nyagatare District.
4. To examine the effect of contract management in procurement planning on performance of Nyagatare District.

The study is based on the following null hypotheses:

Ho_1: There is no significant effect of needs identification in procurement planning on performance of Nyagatare District.

Ho_2: There is no significant effect of quality specification in procurement planning on performance of Nyagatare District.

Ho_3: There is no significant effect of cost estimation in procurement planning on performance of Nyagatare District.

Ho4: There is no significant effect of contract management in procurement planning on performance of Nyagatare District.

2. Literature Review

2.1. Theoretical Review

A theoretical review involves examining and analyzing existing theories, concepts, or models relevant to the topic. The following theories were considered in this study.

2.1.1 Agency Theory

This theory describes clearly how to handle the relationship between two parties in relation to work. In this scenario the paper examines the association through contract management with suppliers. In this association the principal hires an agent (contractors) to undertake a task, to work on behalf of the principal who is not up to or equal to delivery of goods or services. The theory infers that the two parties, the principal and the agent are influenced by self-interests. Self-interest becomes a problem that creates conflicts for parties. If for instance the agent is influenced by his interest, the agent is likely to deviate from the actual objectives and goals of the principal, this goes against the dogma. The agents are only expected to make decisions on the interests of their principals. In cases where the agent goes against the principal the loss is unavoidable. When the loss is severe the agent relationship is terminated by the principal. In a scenario where the agents work on the interest of the principal there is a zero loss. It is essential for the agents to always have the interests of their principals if they expect to end agency losses (Macho & Peres, 2020).

This theory focuses on the relationship between principals (like shareholders or stakeholders) and agents (such as managers or procurement officers) and the potential conflicts of interest that may arise. It assessed how the goals and interests of those responsible for procurement planning align with the objectives of the organization and its stakeholders. It analyzed how some mechanisms influence the behavior of procurement officers and affect the performance of procurement planning in Nyagatare District.

2.1.2 Resource Based Theory

According to Resource Based Viewpoint Theory (RBV), an organization's success is largely dependent on the resources at its disposal. When the firm puts its strength to use, it may gain a competitive edge that might last for years. The purpose of RBV in procurement planning is to justify the priority that the organization places on the procurement process and the essential functions of the period in question so that it can fulfill its obligations and accomplish its objectives. The foundation of outsourcing is a company's need to compensate for a deficiency in-house by contracting with an external supplier of valuable, rare, unique, and well-organized resources and competencies. When it comes to outsourcing, a company's success or failure in the market is determined by a number of factors, the most important of which is its ability to maintain a competitive advantage and produce above-average results through the use of strategies like innovation, continuous improvement, and the management of its relationships with external entities (Alshurideh & El-Gharaibeh, 2019).

In this research, it first examines the resource-based view (RBV) of the company as a theoretical framework for discussing corporate strategy. A company's strategy is the match between the firm's external situation and its internal resources and capabilities. In order to adapt to the new economic climate, it will be necessary to restructure the company and invest in new technologies and human capital. The RBV approach looks inward, at the firm's own assets and strengths, to improve the company's competitive position. The RBV method explains how businesses gain and maintain a competitive edge by accumulating and using resources effectively.

This theory emphasizes the role of internal resources and capabilities in achieving a competitive advantage. It explored how the resources possessed by the Nyagatare District, such as local supplier relationships or specialized knowledge, contribute to improved procurement planning outcomes and organizational performance.

2.1.3 Contract Compliance Theory

Contract compliance theory is about the parties adhering to the contractual terms. The procuring unit or departments are liable for any cause of noncompliance. Compliance can be inside or outside the contract. Inside compliance is adhering to the terms in the contract by the firm procuring example in making payments or order specifications through the procuring structure. The utilization of structured terms for a firm facilitates in upholding contract compliance thus reducing buying expenses or unnecessary expenses. In instances where the process is properly done, the upswings of probability in the success of the project is guaranteed. On the other hand, outside contract obligation can be in different forms that is lack of the procured goods or incompetent employees or asking higher prices than the price agreed on or delivery delays or goods that don't meet the required specifications (Salim & Kitheka, 2019).

The theory is pertinent to this study since it explains how important it is for the parties to oblige to the contractual terms. Buyers and sellers are obligated to follow the contractual terms to the latter if they expect the entire process to be successful. It is also relevant to the study since the success of the entire contract management process enables the organization to realize its performance by meeting the intended objectives of service delivery and customer satisfaction.

2.2 Empirical Review

Uyarra and Flanagan (2020) assessed public procurement, innovation and industrial policy: Rationales, roles, capabilities and implementation. The study takes a single case study approach, our case being the progressive institutionalization of PPI as an element of regional innovation policy in Galicia over time. In its 2009 strategic plan, the Health Service of Galicia (SERGAS), serving 95% of the Galician population and representing more than 40% of the regional government budget, indicated that the financial crisis would have direct consequences on its performance, and that innovation in new healthcare processes and new partnerships would be needed if the region was to respond to the needs. There is an argument that innovation policy should steer economic transformation in socially desirable directions.

Research done by Naibor and Morongry (2018), examined the contribution of procurement process on the performance of public institutions. The study used secondary data and was qualitative in nature. The study established strategies to reduce costs and involvement in strategic supplier choice process and procedure. The study demonstrated that supplier assessment and identification, even follow up refers to an instrument that gives the procuring organ the capacity to know the right supplier to achieve their expected target. These findings are relevant to this study as they suggest that the procurement process plays a crucial role in ensuring the access to quality products and services, which in turn can influence the financial performance of public institutions.

Kiusya (2018) investigated the impact of procurement procedures on the operational performance of manufacturing enterprises located in Mombasa County. The research aimed to ascertain the e-procurement methods used by manufacturing businesses in Mombasa County and to analyze the impact of these practices on the operational performance of said enterprises in the same county. The research approach used in this study was a cross-sectional descriptive survey. The target population consisted of 41 manufacturing enterprises located in Mombasa County. The research used primary data that was collected using a standardized questionnaire. The findings of the study on e-procurement practices and operational performance indicate that e-procurement procedures were responsible

for 79.8% of the variability seen in the total operational performance of manufacturing enterprises located in Mombasa. Significantly, the findings of the study demonstrated a favorable and substantial impact of e-tendering and e-payment on operational performance. Based on the aforementioned data, it can be concluded that the appropriate implementation of e-procurement processes has a generally favorable and statistically significant impact on the operational performance of manufacturing companies. The research primarily discovered that the impact of e-tendering and e-payment on the operational performance of manufacturing enterprises was both favorable and statistically significant. Hence, based on the findings of this research, it is advised that manufacturing businesses increasingly use e-tendering and e-payment methods due to their significant and favorable impact on the operational performance of such organizations.

3. Methodology

This section highlights the research methodology and provides a detailed picture of methodological approach that were used during data collection and analysis.

3.1 Research Design

For this study, descriptive and correlation research design were used. A descriptive study also used to describe participant demographic information. A descriptive analytical approach was utilized in order to interpret data. Therefore, both quantitative (questionnaire) and qualitative (interview) research techniques were used by researcher in order to collect data (information) related to the objectives of the study.

3.2 Target Population

The study population is composed of 131 employees of Nyagatare District. The researcher used a census inquiry method instead of sampling due to the relatively small number of individuals in the population.

3.3 Data Collection methods and instruments

Primary data was collected using structured questionnaires with closed ended questions which had five sections; background information, needs identification, quality specifications, cost estimation and performance. Questionnaires are efficient, cheap and easy to administrate. Secondary data was collected from publications and annual reports. Questionnaires were administered through drop and pick later method to give respondents ample time to respond to the questions.

In this research, the researcher collected the already existing data, by finding them where they were stored or field such as newspapers and other publications and manual procedures. During the process of documentary analysis, the researcher read some documents and after understanding and analyzing the relevance of texts to this study, the researcher jots them down on manuscripts and later type them on a computer for compilation.

3.4 Data Analysis

The information collected was first examined and then checked before analysis. This allowed completeness and clarity. After that, data entered into statistical package for social sciences (SPSS) version 25 to get frequencies and tables and their related percentages of correlation. In addition to that qualitative data analyzed using researcher opinions and perceptions on what the respondents had answered, and qualitative data further was used using qualitative descriptive data techniques to explore data while coding, interpreting into themes.

Correlation coefficient measures the extent to which, as one variable increases, the other variable tends to increase, without requiring that increase to be represented by a linear relationship. It employed SPSS in processing and data examination which informed the presentation of findings, examination and elucidation. The presentation emphasized the hypothesis.

The model used in the study took the form below:
$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varrho$$
Where: Y= organizational performance
X_1: needs identification
X_2: quality specifications
X_3: cost estimation
X_4: contract management
α= Constant Term
β= Beta Coefficient –These measures how many standard deviations a dependent variable will change, per standard deviation increase in the independent variable.

3.5 Ethical Consideration

In this research, some ethical behaviors were considered. These included being patient to get introduction letter from University of Kigali that assisted the researcher to get permission at the area of research. At the field of research, some ethical behaviors like waiting for data needed to be collected, good communication skills with the concerned respondents, all these were applied to increase the response rate. In order to establish relationship with respondents, confidentiality and privacy were of great importance in the success of research interview. Mentioning names, address of respondents and asking confusing questions and other misconduct, all these were avoided.

4. Results and Discussion

This section presents the findings of the study based on the data collected from respondents. The analysis is structured to address the general objective of the study,

which was to assess the effect of procurement planning on organizational performance in Rwanda, particularly in Nyagatare District.

4.1 Response Rate

Table 1: Response rate

	Frequency	Rate
Complete questionnaire	122	93.13
Incomplete questionnaire	9	6.87
Total distributed questionnaires	131	100.00

Source: Research findings, 2024

The findings indicate that out of the 131 distributed questionnaires, 122 were completed, representing a high response rate of 93.13%, while only 9 questionnaires were incomplete, making up 6.87%. This indicates that the majority of the respondents fully engaged with the study, ensuring the reliability and validity of the findings.

The response rate indicates the proportion of questionnaires that were successfully completed and returned by the respondents. Table 1 presents the details of the response rate.

4.2 Correlations Analysis

Correlation analysis was conducted to examine the relationships among the key variables. The Pearson correlation coefficients and significance levels are presented in Table 2.

Table 2: Correlation matrix

		Needs identification	Quality specifications	Cost estimation	Contract management	Organizational performance
Needs identification	Pearson Correlation	1	.738**	.580**	.469**	.677**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	122	122	122	122	122
Quality specifications	Pearson Correlation	.738**	1	.639**	.583**	.756**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	122	122	122	122	122
Cost estimation	Pearson Correlation	.580**	.639**	1	.679**	.785**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	122	122	122	122	122
Contract management	Pearson Correlation	.469**	.583**	.679**	1	.690**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	122	122	122	122	122
Organizational performance	Pearson Correlation	.677**	.756**	.785**	.690**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	122	122	122	122	122

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

Source: Research findings, 2024

The correlation matrix shows a significant positive relationship between procurement planning components (needs identification, quality specifications, cost estimation, and contract management) and organizational performance. The strongest correlation is observed between cost estimation and organizational performance (r = 0.785, p < 0.05), followed by quality specifications (r = 0.756, p < 0.05), contract management (r = 0.690, p < 0.05), and needs identification (r = 0.677, p < 0.05). These results indicate that improvements in procurement planning variables contribute to better performance in Nyagatare District.

The positive correlation aligns with Uyarra and Flanagan (2020), who found that precise procurement quality specifications drive innovation and efficiency,

particularly in the healthcare sector. Similarly, Higiro's (2021) study on Rwandan government agencies found that accurate assessment of procurement requirements was a major determinant of institutional efficiency, validating the strong positive correlation observed in this study.

4.3 Regression analysis

Regression analysis was conducted to determine the extent to which needs identification, quality specifications, cost estimation and contract management collectively explain variations in organizational performance.

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Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.867[a]	.752	.744	.34529	1.410

a. Predictors: (Constant), contract management, needs identification, cost estimation, quality specifications

b. Dependent Variable: organizational performance

Source: Research findings, 2024

The model summary shows that the R-value of 0.867 indicating a strong relationship between procurement planning and organizational performance. The R-Square value of 0.752 suggests that 75.2% of the variance in organizational performance can be explained by procurement planning factors (needs identification, quality specifications, cost estimation, and contract management). The Durbin-Watson statistic of 1.410 indicates no significant autocorrelation in the residuals, confirming the model's reliability. This finding aligns with the work of Naibor and Morongry (2018), who established that procurement processes significantly impact institutional performance by ensuring access to quality suppliers and reducing procurement costs. Additionally, Kiusya's (2018) study on manufacturing enterprises in Mombasa County found that e-procurement strategies accounted for 79.8% of performance variations, similar to the strong explanatory power observed in this study. These empirical findings reinforce the importance of structured procurement planning in enhancing organizational performance.

Table 4: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.406	4	10.602	89.092	.000[b]
	Residual	13.950	117	.119		
	Total	56.356	121			

a. Dependent Variable: organizational performance

b. Predictors: (Constant), contract management, needs identification, cost estimation, quality specifications

Source: Research findings, 2024

The ANOVA results indicate that the regression model is statistically significant (F = 89.092, p < 0.05), meaning that procurement planning factors significantly impact organizational performance in Nyagatare District. This supports the conclusions drawn by Hassan and Omwenga (2023), who found that contract management inefficiencies hinder development project outcomes, suggesting that robust procurement planning frameworks can improve performance. Similarly, Zou *et al.* (2019) established that effective contract structuring and follow-up positively influence supplier performance, further validating the significance of procurement planning on organizational performance.

Table 5: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.199	.180		1.106	.272		
	Needs identification	.145	.065	.155	2.231	.028	.435	2.300
	Quality specifications	.275	.073	.285	3.767	.000	.366	2.733
	Cost estimation	.375	.069	.383	5.435	.000	.431	2.318
	Contract management	.191	.065	.191	2.938	.004	.500	1.999

a. Dependent Variable: organizational performance

Source: Research findings, 2024

The regression analysis results in Table 5 show the impact of each independent variable (needs identification, quality specifications, cost estimation, and contract management) on organizational performance in Nyagatare District. The interpretation of the unstandardized coefficients (B), t-values, and significance levels (p-values) is provided below:

The coefficient for needs identification (B = 0.145) indicates that a one-unit increase in needs identification leads to a 0.145-unit increase in organizational performance, holding all other factors constant. The t-value (t = 2.231) suggests that this effect is statistically significant. With a significance level of p = 0.028, which is less than 0.05, it confirms that needs identification has a significant positive effect on organizational performance. Therefore, improving the identification of needs in procurement planning can enhance the district's overall performance.

The coefficient for quality specifications (B = 0.275) implies that a one-unit improvement in quality

specification results in a 0.275-unit increase in organizational performance. The t-value (t = 3.767) is relatively high, indicating strong statistical support for this relationship. The significance level (p = 0.000) confirms that this effect is highly significant. This means that ensuring precise and well-defined quality specifications in procurement planning significantly enhances performance outcomes in Nyagatare District.

The coefficient for cost estimation (B = 0.375) is the highest among the four independent variables, suggesting that a one-unit increase in cost estimation improves organizational performance by 0.375 units. The t-value (t = 5.435) is the highest in the model, indicating that cost estimation has the strongest effect on performance. With a significance level of p = 0.000, which is well below 0.05, cost estimation is statistically significant. This result highlights the importance of accurate cost estimation in procurement planning, as it has the most substantial impact on performance improvements.

The coefficient for contract management (B = 0.191) suggests that a one-unit increase in contract management leads to a 0.191-unit increase in organizational performance. The t-value (t = 2.938) indicates a statistically meaningful relationship. The significance level (p = 0.004) is less than 0.05, confirming that contract management has a significant positive effect on performance. This implies that effective contract management in procurement planning contributes to better organizational performance in Nyagatare District. Similarly, Higiro (2021) found that procurement planning, particularly quality assessment, improves public sector efficiency. The positive effect of contract management on organizational performance is supported by Hassan and Omwenga (2023), who found that contract inefficiencies hinder project success.

The Variance Inflation Factor (VIF) values are all below 3, indicating no multicollinearity issues. Multicollinearity exists whenever an independent variable is highly correlated with one or more of the other independent variables in a multiple regression equation. Multicollinearity is a problem because it will make the statistical inferences less reliable.

Table 6: Hypotheses Results

Hypotheses	Sig.	Decision
Ho$_1$: There is no significant effect of needs identification in procurement planning on performance of Nyagatare District.	p<0.05	Rejected
Ho$_2$: There is no significant effect of quality specification in procurement planning on performance of Nyagatare District.	p<0.05	Rejected
Ho$_3$: There is no significant effect of cost estimation in procurement planning on performance of Nyagatare District.	p<0.05	Rejected
Ho4: There is no significant effect of contract management in procurement planning on performance of Nyagatare District.	p<0.05	Rejected

Source: Research findings, 2024

Since all p-values are less than 0.05, all null hypotheses are rejected. This confirms that needs identification, quality specifications, cost estimation, and contract management significantly contribute to organizational performance in Nyagatare District.

5. Conclusion and Recommendations

5.1 Conclusion

The study concluded that procurement planning significantly impacts the performance of Nyagatare District. Cost estimation was found to have the strongest influence on performance, followed by quality specification, contract management, and identification. The findings indicate that organizations that invest in structured procurement planning experience improved operational efficiency, cost savings, and better supplier performance. The study's conclusions align with previous empirical studies, reinforcing the importance of procurement planning as a critical determinant of organizational performance.

5.2. Recommendations

Based on the study findings, the following recommendations are made:
1. The district should adopt comprehensive quality specification guidelines to ensure that procurement activities result in high-quality products and services.
2. Continuous training programs should be provided for procurement officers to equip them with the latest skills in procurement planning, contract management, and cost estimation to enhance overall performance.
3. It is recommended that Nyagatare District continue to refine its procurement planning strategies to enhance transparency,

accountability, and efficiency in procurement processes.

5.3 Area for Further Research

The study provides a foundation for further research in procurement planning and organizational performance. The following areas are recommended for future research: Investigate how digital procurement systems, such as e-procurement, impact procurement efficiency and organizational performance and conduct research on the effectiveness of procurement policies and regulatory frameworks in improving procurement performance in local governments.

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