



**EFFECT OF CONTRACT MANAGEMENT ON PROCUREMENT PERFORMANCE AT THE
MINISTRY OF ENVIRONMENT IN RWANDA**

BY

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ABSTRACT

The study was about the effect of contract management on procurement performance at the Ministry of Environment (MoE) in Rwanda. Findings showed that there is a closer the correlation is to either +1 or -1, the stronger the correlation. If the correlation is 0 or very close to 0, there is no association between the two variables. Here, we have a strong correlation ($r = .697^{**}$). The direction of the correlation tells us how the two variables are related. If the correlation is positive, the two variables have a positive relationship (as one increases, the other also increases). If the correlation is negative, the two variables have a negative relationship (as one increases, the other decreases). Here, we have a positive correlation ($r = .697^{**}$). As contract management is effective done, Performance of the

public procurement increases. Based to the findings obtained above, the research problem was solved, research objectives were achieved, and the research hypothesis were verified where the level of significance was .000(b) which implies that the regression model is significant in predicting the relationship between contract management represented by (contract closure, contract administration, contract delivery management, contract relationship management, contract dispute resolution) and performance of the public procurement in Rwanda. The findings also showed a level of fitness model of 41.162 which is positive with a p-value of 0.000b less than 0.01, set as the standard significance level.

Key Words: *Contract management, procurement performance*

1. INTRODUCTION

The Government of Rwanda (GoR) has made a significant progress in reforming its Public Financial Management System with the ultimate goal to increase competition, transparency, accountability and value for money in use of public resources. The Public Procurement reform was among the most important components to

address specific countries' problems and constraints as well as being consistent with international public procurement standards.

The public sector reforms implement decentralization as well as the injection of an entrepreneurial spirit in management of

Government that requires strong measure of performance where procurement was found a business strategy by transferring some risks to other parties targeting better performance (Rundquist, 2007).

The Auditor General of State Finances (OAG) and the Rwanda Public Authority (RPPA) reports for the financial year ending 30th June 2018 pointed out that Government of Rwanda incurs losses in relation with non-compliance with procurement procedures observed in many public Institutions especially poor management of contracts.

Considering the RPPA annual activity report for financial year 2018/2019, it has been noticed serious issues in contract management such as excess delays in contract execution without appropriate decision taken, quality of services, goods and works delivered which do not meet the requirements; lack of the skilled staff able to manage the contracts, poor performance of the contractors or suppliers without application of delay penalties, poor planning leads to change of specifications, design or deliverables during the contract execution and the additional amount to the planned budget (RPPA, 2020).

2. Statement of the Problem

In the 19th century, most of countries such as United Kingdom, United States of America, Sub-Saharan African countries as well as East Africa countries including Rwanda, the procurement was not operating efficiently where its performance was characterized with late deliveries which constrained achievement of value for money and that the public had lost a lot of money through shoddy deals arising from poor managed contract.

The Auditor General Report (2021) highlights the sixty-two (62) cases of delayed contracts from thirty-eight (38) public entities and projects which delay were associated with inadequate contract management. There exist cases of inadequate follow up by the government officials in charge

3. Objectives

The main objective of this study is to establish the relationship between contract management and procurement performance in Rwanda.

The specific objective of this study is divided into five components as following:

[1.] To examine the relationship between contract administration and procurement performance at MoE;

In addition, the Auditor General report revealed that cases of delayed and abandoned contracts were still continuing in public entities for a total of Eighty-six (86) contracts amounting above One hundred billion (Auditor General Report, 2018).

To this regard, it is necessary to set up the appropriate policy and guideline to tackle this problem. Normally, public institutions use public money from taxation imposed on the citizen and they have to prevent unnecessary losses to Government by observing the principle of value for money (RPPA, 2012).

Therefore, contract management in public procurement is vital for all public institutions in attainment of value for money. This includes managing contractual relationships and ensuring that deliverables are provided to the required standards within the agreed time frame from the identification of need, preparation and procurement, transition and handover, proactive management and contract service review.

of contract management associated with lack of clearly defined roles and responsibilities, lack of adequate supervision which led to the poor quality of the deliveries and hinder the proper monitoring of the implantation of the procurement contract.

Furthermore, there is a failure to timely pay government suppliers by some procuring Entities that may be source of corruption which is a deviation from procurement principles. Therefore, the researcher found that there is a need to conduct this study in order to seek how to solve the problem of poor procurement performance by making appropriate recommendations to save the situation.

[2.] To establish the relationship between contract relationship management and procurement performance at MoE;

[3.] To determine the relationship between delivery management and procurement performance at MoE;

[4.] To determine the relationship between contract dispute resolution and procurement performance at MoE;

[5.] To establish the relationship of contract closure and procurement performance at MoE;

4. Research Hypotheses

This study verified five null hypotheses included by:

Ho1: There is no significant relationship between contract administration and procurement performance at MoE;

Ho2: There is no positive and significant relationship between contractor relationship management and procurement performance at MoE;

Ho3: There is no significant relationship between delivery management and procurement performance at MoE;

Ho4: There is no significant relationship between contract dispute resolution and procurement performance at MoE;

Ho5: There is no significant relationship of contract closure and procurement performance at MoE

5. Conceptual Review

Contract management

According to Klara, (2021) Contract management is the process of managing contract creation, execution, and analysis to maximize operational and financial performance at an organization, all while reducing

financial risk. Organizations encounter an ever-increasing amount of pressure to reduce costs and improve company performance.

Contract administration

Contract administration is defined a systematic practice for creation, execution, compliance, and analysis of business contracts in order to maximize

operational performance, reduce costs, and minimizing risk (Aberdeen Group, 2006).

Contractor Relationship Management

Supplier relationship management (also called vendor relationship management) is a set of principles, processes, and tools that can assist organizations to maximize relationship value with suppliers and minimize risk and management of overhead through the entire relationship life cycle. Supplier relationship

has two aspects which are: commitment between the supplier and the buyer, and the objective of understanding, agreeing and whenever possible, codifying the interactions between them (CIPS, 2012).

Contract Delivery Management

Delivery management is a fundamental activity of contract management that concerned with the actual service, good or work provided by supplier meets the agreed standards and prices (CIPS). It provides

assurance that whatever is ordered is then delivered to the required level of quality and performance as specified in the contract (SIGMA, 2011).

Contract dispute resolution

In contract management, dispute is a disagreement which may rise from various matters among others the interpretation of a contract terms; misunderstanding about requirement, late delivery or payment, quality problems, desire of one party to contract to change or

vary contract terms. Normally in buyer-supplier relationship, the contract contains the dispute resolution clauses determining how and where the parties to the contract wish to resolve a dispute once rises. (CIPS, 2012).

Contract closure

The objective of the close out phase is to ensure that the contracting authority is satisfied with the delivery

of goods, work, and materials as well as services it has to purchase (Ministry of Finance, 2013).

6. Theoretical Framework

In this study, the following theories shall be discussed on contract management theory: transaction cost

economics theory, resource-based theory, agent theory, and contractual theory.

Contractual theory

Outsourced contract provides a legally bound, institutional framework in which each party's rights, duties and responsibilities are codified where the goals, policies and strategies underlying the arrangement are specified. Appropriate contractual arrangement can attenuate the leeway for

Transaction Cost Economics Theory

The Transaction Cost Theory (TCE) is predominantly concerned with economizing on transaction cost and concern with the total cost of the contract rather than an estimated price (William, 2007). According to William and Tadelis (2010) long-term contracts are incomplete subject to uncertainty and complexity. Therefore, it is difficult to specify all action required

Agency Theory

The agency theory describes the relationships between two parties where one party called principal delegates work to another party who is called the agent to perform that work. Nevertheless, the conflict of interests may occur when the principal fails to monitor the activities of agent in serious manner (Eisenhardt, 2015).

Resource based theory

Resource dependence theory states that a firm's strategic resources are the roots to gain sustainable competitive advantage. Competing firm may possess different bundles of resources. Resource is considered scarce when its demand is greater than its supply (Dagnino, 2012). According to this theory, resources are strategic when they are valuable, rare, difficult or costly to imitate, non-substitutable and not readily

7. Empirical Review

Gupta, Karayil and Rajendran (2008) argued that poorly managed contracts cause the substantial loss of saving. Then they state that 30% to 70% of each dollar of savings that is negotiated by strategic outsourcing is lost. This happens through spend-leakage and the subsequent non-compliance. For many years, businesses got the whole concept of contract management wrong, hence the heavy fine for non-compliance. It is important to note that the implementation of sound contract management process incurs time, cost and management effort (Sieke, 2008). Kiage (2013), conducted in Kenya, he

8. Conceptual Framework

In this study, it shows the relationship between contract management and performance of public procurement. The contract administration, contractor relationship management, delivery management, contract dispute resolution and contract closure are independent variables while performance of the public procurement is Dependent Variable

opportunism, prohibit moral hazard in cooperative relationship and protect each part's proprietary knowledge. A complete written and properly managed contract reduce the uncertainty faced by organizational decision makers (Gottschalk & Solli-Saether, 2005).

for every possible contingency because such unpredicted events are hardly ever identifiable while developing contract. In addition, TCE leads in taking rational decision after considering transaction related factors among others environmental uncertainty and assets specificity.

Agency theory distinguish a behavior based and outcome-based contract awarding and helps to align the interest of the principal and agent inside a contractual relationship where the choice of the most efficient contract can be supported by this theory. The choice of the right contract type is subject to the several aspects.

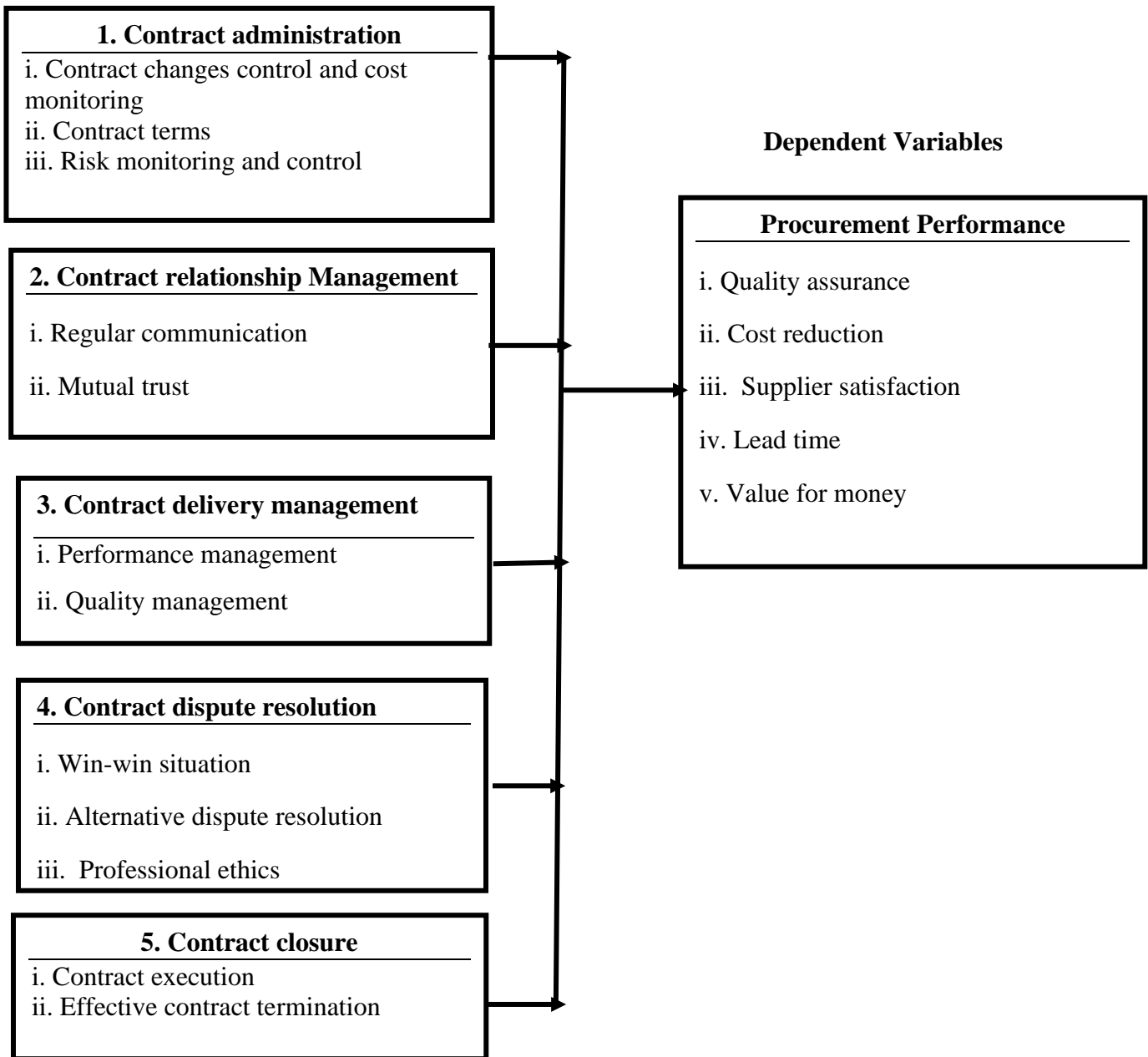
obtainable from the markets and used by organization (Asare & Boateng, 2017).

Transaction cost economics theory, and resource-based theory justifies why organization should engage in outsourcing contracts, whereas, agent theory, and contractual theory indicate challenges that may associated with outsourced contracts.

revealed that contract management influenced procurement performance to a great extent. Therefore, timeliness, work plans and contract periods were the key contractual issues that ensured that most projects would have no cost overruns. In the study conducted in Kenya, contract administration was found to have a significant positive influence on procurement in the manufacturing firms of Kenya hence increasing levels of contract administration would increase the levels of procurement performance in the manufacturing firms in the area of cost reduction (Kimundu & Moronge, 2019).

Figure 1: Conceptual framework

Independent Variables
Contract management



Source: *Researcher, (2022)*

9. Materials and Methods

This study applied qualitative and quantitative research (descriptive), and correlation research designs. This study was carried out within the Ministry of Environment with the targeted group

of 182 Staff from different its affiliated Agencies, directorates, unities and offices that are involved in the procurement process and contract management as users. The stratified sampling

was used by forming 129 respondents as a sample size picked randomly in each strata the number of respondents equal to its percentage weight.

The study used simple random sampling techniques and each respondent had equal chance of being selected. The instruments of data collection were questionnaire technique. Methods of analyzing data of this research include descriptive statistical method which was used to describe the frequency, percentages, and mean and standard deviation of data collected. The correlation coefficient matrix analysis was applied to test the relationship between variables, and multiple linear regression analyses were adopted to test hypotheses. However, the model is X=independent variable which is contract

management, which has five indicators: x1: contract administration, x2: contract relationship management, x3: contract delivery management, x4: contract dispute resolution, and x5: contract closure.

Y= dependent variable is procurement performance at MoE in Rwanda which has indicators as quality assurance, cost reduction, supplier satisfaction, lead time, and value for money. $Y = f(X)$, therefore, $y = f(x_1, x_2, x_3, x_4, x_5)$ function. Based on this functional relationship the following econometric model has been formulated using multiple linear regression or polynomial models: $y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \epsilon$.

10. Findings and Discussion of the Results

Data were collected through questionnaires addressed to 159 respondents, and a document review especially the progress of reports on this project in previous years ago. Data obtained were analyzed quantitatively using computer software of SPSS IBM version 23.0. The participation rate was 100.0% in responding to the questions, and

this helped to continue research with editing, coding, recording, classifying, and tabulating data towards the analysis. Results were interpreted and presented in accordance with the study objectives. Findings indicated that the majority of respondents were males, this was justified by 59.7% of respondents being males, while 40.3% of respondents were females.

Profile of Respondents

Here, the study presents the findings on profile of respondents including but not limit, gender; Age group of the respondents; educational

background; work experience (how long have you been working with Kivu Lake cws?) as detailed in Table 1.

Table 1: Findings on Social Demographic Characteristics of Respondents

<i>Social Demographic Characteristics of Respondents</i>		Frequency	Percent
Gender of respondents	Male	74	59.2
	Female	51	40.8
	Total	125	100.0
Age of respondents	21 and 30 years	14	11.2
	31 and 40 years	63	50.4
	41 and 50 years	30	24.0
	51 years and above	18	14.4
	Total	125	100.0
	Diploma (A1)	25	20.0
	Bachelor's degree (A0)	80	64.0
	Master's degree	19	15.2

<i>Social Demographic Characteristics of Respondents</i>		Frequency	Percent
Gender of respondents	Male	74	59.2
	Female	51	40.8
	Total	125	100.0
Education Level	Ph.D. degree	1	.8
	Total	125	100.0
Position of respondents	Procurement	56	44.8
	Others	69	55.2
	Total	125	100.0
Experience of respondents	1-3 years	7	5.6
	3-5 years	28	22.4
	5 -10 years	90	72.0
	More than 10 years	0	0.0
	Total	125	100.0

Source: Primary data from the field (2021)

Concerning gender, findings in the Ministry of Environment (MOE) in Rwanda showed that males of 59.2%, while 40.8% of respondents were females, participated in this study. Age of respondents was determined by a majority of 50.4% respondents have 31 and 40 years; followed by 24.0% respondents who have 41 and 50 years; 14.4% respondents have 51 years and above; while 11.2% respondents have age between 21 and 30 years in in the Ministry of Environment (MOE) in Rwanda. The highest education level of respondents presented by the majority of 64.0% respondents have bachelor's degree; 20.0% respondents have the diploma but they are confirming that they are still in university to

complete bachelor's level; 15.2% respondents have master's level, while and 0.8% respondent has Ph.D. Level. Findings show that 44.8% of respondents who participated in this survey were coming from the procurement unit of the Ministry of Environment (MOE) in Rwanda while 55. 2% of respondents were from other units of this Ministry in Rwanda. Experience of respondents was demonstrated by 72.0% respondents who have experienced between 5 -10 years; 22.4% have experienced between 3-5 years while 5.6% respondents have experience from 1 to 3 years in procurement procedures; services and activities of Ministry of Environment (MOE) in Rwanda.

Findings on contract administration and procurement performance of MoE;

Findings in table 4.2 showed the perceptions of respondents on the relationship between contract

administration and procurement performance of MoE.

Table 2: Perceptions of respondents on the relationship between contract administration and procurement performance at the MoE;

Contract administration and performance of public procurement	SA		A		N		D		SD		Mean	Std Dev
	fi	%	fi	%	fi	%	fi	%	fi	%		
Within contract administration, the control and monitoring of contract changes control and cost monitoring variations that contribute to the procurement performance in MOE;	48	38.4	41	32.8	6	4.8	18	14.4	12	9.6	2.240	1.352

The risk monitoring and control influences the procurement performance in MOE;	59	47.2	35	28.0	7	5.6	18	14.4	6	4.8	2.016	1.244
The adherence to the contract terms and conditions influences the procurement performance in MOE;	59	47.2	41	32.8	6	4.8	6	4.8	13	10.4	1.984	1.288
Overall Average Rate of Mean and Standard Deviation											2.08	1.295

Source: Primary Data from the field (2021)

Findings in table 2 confirmed that within contract administration, the control and monitoring of contract changes control and cost monitoring variations that contribute to the procurement performance in MOE, stated by 71.2% of respondents; the risk monitoring and control influences the procurement performance in MOE, confirmed by 75.2% of respondents; and the adherence to the contract terms and conditions influences the procurement performance in MOE, confirmed by 80.0% of respondents. According to the findings above, perceptions of respondents on the relationship between contract administration and procurement performance at

the MoE represented by overall average of (\bar{x} =2.08 and SD=1.295); this is a moderately mean that shows an evidence of the existence of the fact and heterogeneity of responses stated that relationship between contract administration and procurement performance at the MoE are determined by in contract administration, the control and monitoring of contract changes and cost variations contribute to the procurement performance in MOE; the risk monitoring and control influence the procurement performance in MOE; and the adherence to the contract terms and conditions influences the procurement performance in MOE.

Findings on contract relationship management and procurement performance of MoE;

Findings in Table 3 presented the perceptions of respondents on the relationship between contract

relationship management and procurement performance at MoE.

Table 3: Perceptions of respondents on the relationship between contract relationship management and procurement performance at MoE;

The contractor relationship management and performance of public procurement	SA		A		N		D		SD		Mean	Std Dev
	fi	%	fi	%	fi	%	fi	%	fi	%		
The existence of mutual trust between MOE and contracts enhances the performance of procurement	53	42.4	47	37.6	6	4.8	13	10.4	6	4.8	1.9760	1.1532
The regular communication between MOE and contractors plays a key role in procurement performance	47	37.6	47	37.6	12	9.6	6	4.8	13	10.4	2.1280	1.2634
Overall Average Rate of Mean and Standard Deviation											2.052	1.208

Source: Primary Data from the field (2021)

Findings in table 3 stated that there is existence of mutual trust between MOE and contracts enhances the performance of procurement, stated by 80.0% of respondents; The regular communication between MOE and contractors plays a key role in procurement performance, strongly agreed and agreed by 75.2% of respondents. Findings in table above confirmed

perceptions of respondents on the relationship between contractor relationship management and procurement performance at MoE represented by an overall average of (\bar{x} =2.052 and SD=1.208); this is reasonable mean and evidence of the existence of the fact and heterogeneity of responses.

Findings on the relationship between delivery management and procurement performance at MoE

Findings in Table 4 showed that perceptions of respondents on the relationship between delivery

management and procurement performance at MoE.

Table 4: Perceptions of respondents on the relationship between delivery management and procurement performance at MoE;

The delivery management and procurement performance at MoE	SA		A		N		D		SD		Mean	Std Dev
	fi	%	fi	%	fi	%	fi	%	fi	%		
Performance management reports are produced on time and contain the right information;	70	56.0	49	39.2	6	4.8	0	0.0	0	0.0	2.2160	1.3111
The quality management plan is tracking any changing risk, issues or agreed actions.	47	37.6	41	32.8	12	9.6	13	10.4	12	9.6	1.4560	.54631
Overall Average Rate of Mean and Standard Deviation											1.836	0.929

Source: Primary Data from the field (2021)

Findings in table 4 stated that Performance management reports are produced on time and contain the right information, confirmed by 95.2% of respondents; and the quality management plan is tracking any changing risk, issues or agreed actions, strongly agreed and agreed by 70.4% of respondents. Findings showed that perceptions of respondents on the relationship between delivery management and procurement performance at MoE represented by

an overall average of ($\bar{x} = 1.836$ and $SD = 0.929$); this is a realistic mean which is an indication of the existence of the fact and heterogeneity of reactions confirming that Performance management reports are produced on time and contain the right information; and the quality management plan is tracking any changing risk, issues or agreed actions.

Findings on the relationship between contract dispute resolution and procurement performance at MoE

Findings in Table 5 showed that perceptions of respondents on the relationship between contract

dispute resolution and procurement performance at MoE.

Table 5: Perceptions of respondents on the relationship between contract dispute resolution and procurement performance at MoE

The contract dispute resolution and procurement performance	SA		A		N		D		SD		Mean	Std Dev
	fi	%	fi	%	fi	%	fi	%	fi	%		
A win- win situation for both the MOE and contractor influences the procurement performance in MOE,	70	56.0	54	43.2	1	.8	0	0.0	0	0.0	1.4560	.54631
Alternative dispute resolution is appropriate procedure which are dully followed to resolve the possible differences in MOE,	59	47.2	41	32.8	12	9.6	7	5.6	6	4.8	1.8800	1.1042
The professional ethics are adhered to resolve the possible differences when they are raised by both parties.	65	52.0	23	18.4	7	5.6	18	14.4	12	9.6	2.1120	1.4211
Overall Average Rate of Mean and Standard Deviation											1.816	1.024

Source: Primary Data from the field (2021)

Findings in table 5 confirmed that a win- win situation for both the MOE and contractor

influences the procurement performance in MOE, stated by 99.2% of respondents; Alternative

dispute resolution is appropriate procedure which are dully followed to resolve the possible differences in MOE, strongly agreed and agreed by 80.0% of respondents; and the professional ethics are adhered to resolve the possible differences when they are raised by both parties, stated by 70.4% of respondents. According to the findings above confirmed perceptions of respondents on the relationship between contract dispute resolution and procurement performance at MoE represented by an overall average of (\bar{x}

=1.816 and SD=1.024), this is a genuine mean and evidence of the existence of the statistic and heterogeneity of responses stated that a win- win situation for both the MOE and contractor influences the procurement performance in MOE; alternative dispute resolution is appropriate procedure which are dully followed to resolve the possible differences in MOE, and the professional ethics are adhered to resolve the possible differences when they are raised by both parties.

Findings on the relationship of contract closure and procurement performance at MoE

Findings in Table 6 showed that perceptions of respondents on the relationship of contract closure and procurement performance at MoE.

Table 6: Perceptions of respondents on the relationship of contract closure and procurement performance at MoE;

The contract closure and procurement performance	SA		A		N		D		SD		Mea n	Std Dev
	fi	%	fi	%	fi	%	fi	%	fi	%		
MOE ensure that contract execution is honored by both parties,	47	37.6	54	43.2	6	4.8	6	4.8	12	9.6	2.0560	1.2201
Both parties in MOE take in effective contract termination	112	89.6	0	0.0	1	.8	6	4.8	6	4.8	1.3520	1.0569
MOE and its contractors convene for termination of the contracts if all avenues for disputes resolutions have failed.	65	52.0	29	23.2	12	9.6	13	10.4	6	4.8	1.9280	1.2126
Overall Average Rate of Mean and Standard Deviation											1.779	1.163

Source: Primary Data from the field (2021)

Findings in table 6 confirmed that MOE ensure that contract execution is honored by both parties, strongly agreed and agreed by 80.8% of respondents; Both parties in MOE take in effective contract termination, stated by 89.6% of respondents; MOE always ensures that any contract amendments are made before contract closure stated by 80.0% respondents; MOE and its contractors convene for termination of the contracts if all avenues for disputes resolutions have failed, strongly agreed and agreed by 75.2% of respondents. Findings stated that the

perceptions of respondents on the relationship of contract closure and procurement performance at MoE represented by overall average of (\bar{x} =1.779 and SD=1.163); there is moderate mean and proof of the existence of the statistic and heterogeneity of responses stated that MOE ensure that contract execution is honored by both parties, both parties in MOE take in effective contract termination, MOE and its contractors convene for termination of the contracts if all avenues for disputes resolutions have failed.

Findings of Correlation Coefficient Matrix

The table 7 shows findings on the correlation coefficient test for this study between variables of

Table 7: Correlations Coefficient

		Contract management	Performance of the public procurement
Spearman's rho	Contract management	Correlation Coefficient	1.000
		Sig. (2-tailed)	.697**
		N	.000
	Performance of the public procurement	Correlation Coefficient	.697**
		Sig. (2-tailed)	1.000
		N	.000

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

We have a strong correlation ($r = 0.697^{**}$). If the correlation is positive, the two variables have a positive relationship (as one increases, the other also increases). If the correlation is negative, the two variables have a negative relationship (as one

contract management as independent variable and procurement performance in Rwanda as the dependent variable.

increases, the other decreases). We have a positive correlation ($r = 0.697^{**}$). As Contract management is effectively done, Performance of the public procurement increases.

Linear Regression Analysis, Testing Hypothesis

The model is X= independent variable which is contract management, which has five indicators: x1: contract administration, x2: contract relationship management, x3: contract delivery management, x4: contract dispute resolution, and x5: contract closure. While Y= dependent variable is the procurement performance at MoE in Rwanda which has indicators as quality

assurance, cost reduction, supplier satisfaction, lead time, flexibility, and value for money. $Y = f(X)$, $y = f(x_1, x_2, x_3, x_4, x_5)$ function. Based on this functional relationship the following econometric model has been formulated using multiple linear regression or polynomial models: $y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \epsilon$.

Table 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.796 ^a	.634	.618	3.08875	.635

a. Predictors: (Constant), Contract closure, Contract administration, Contract Delivery Management, Contract Relationship Management, Contract dispute resolution

b. Dependent Variable: Procurement performance at MoE in Rwanda

From the results of the analysis, the findings showed that the independent variables (contract closure, contract administration, contract delivery management, contract relationship management, contract dispute resolution) contributed to 63.4% of the variation in the procurement performance at MoE in Rwanda as explained by R^2 of 0.634

which indicates that model is positive and strong, as the independent variable highly explained the dependent variable (procurement performance at MoE) and show that the model is a good prediction. The adjusted R-square is used to compensate for additional variables in the model. In this case, the adjusted R-square is also 61.8%.

Table 9: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1963.527	5	392.705	41.162	.000 ^b
Residual	1135.305	119	9.540		
Total	3098.832	124			

a. Dependent Variable: procurement performance at MoE

b. Predictors: (Constant), Contract closure, Contract administration, Contract Delivery Management, Contract Relationship Management, Contract dispute resolution

The findings revealed that the level of significance was 0.000^(b) which implies that the regression model is significant in predicting the relationship between contract management represented by (contract closure, contract administration, contract delivery management, contract relationship management, contract dispute resolution) and procurement performance at MoE in Rwanda.

The findings showed a level of fitness model of 41.162 which is positive with a p-value of 0.000^b less than 0.01, set as the standard significance level. This means that the null hypotheses which included by Ho1 stated that there is no significant relationship between contract administration and procurement performance at MoE; Ho2 said that there is no positive and significant relationship

between contractor relationship management and procurement performance at MoE; Ho3 stated that there is no significant relationship between delivery management and procurement performance at MoE; Ho4 said that There is no significant relationship between contract dispute resolution and procurement performance at MoE; and Ho5 stated that there is no significant relationship of contract closure and procurement performance at MoE were rejected, and the study has retained alternative hypotheses which stated independent variables (contract administration; contract relationship management; contract delivery management; contract dispute resolution; and contract closure) influence positively and significantly Performance of the public procurement in Rwanda.

Table 10: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.738	.854		2.035	.004
1 Contract administration	.680	.299	.808	2.271	.005
Contract relationship management	.373	.528	.362	.706	.000
Contract delivery management	.452	.504	.495	.898	.001
Contract dispute resolution	.657	.573	.657	1.147	.000
Contract closure	.466	.442	.514	1.054	.004

a. Dependent Variable: *procurement performance at MoE in Rwanda*

The model was X is independent variable equals contract management which has five indicators such as x1: contract administration, x2: contract relationship management, x3: contract delivery management, x4: contract dispute resolution, and x5: contract closure while Y= dependent variable is the procurement performance at MoE in Rwanda which has indicators as quality assurance, cost reduction, supplier satisfaction, lead time, flexibility, and value for money.

$$y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \epsilon;$$

Conclusion

The findings showed a level of fitness model of 41.162 which is positive with a p-value of 0.000^b less than 0.01, set as the standard significance level. The findings helped to conclude that the null hypotheses which included by Ho1 stated that there is no significant relationship between contract administration and procurement

$Y = 1.738 + 0.680x_1 + 0.373x_2 + 0.452x_3 + 0.657x_4 + 0.466x_5 + 0.854$. The regression equation shows that the procurement performance at MoE in Rwanda always depends on a constant factor of 1.738 regardless of the existence of other factors. The other variables explain that; 1-unit change in contract management will change x1, x2, x3, x4, and x5 equivalent with 0.680, 0.373, 0.452, 0.657, and 0.466 as standard errors for affecting the procurement performance at MoE in Rwanda.

performance at the MoE; Ho2 said that there is no positive and significant relationship between contractor relationship management and procurement performance at MoE; Ho3 stated that there is no significant relationship between delivery management and procurement performance at MoE; Ho4 said that there is no significant relationship between contract dispute

resolution and procurement performance at MoE; and Ho5 stated that there is no significant relationship of contract closure and procurement performance at MoE were rejected, and the study has retained alternative hypotheses which stated independent variables represented by contract

administration; contract relationship management; contract delivery management; contract dispute resolution; and contract closure affect positively and significantly procurement performance at MoE in Rwanda.

Recommendations

Public organizations should establish a mechanism by which the bidders can raise concerns about the way procurement is progressing. This would significantly increase supplier confidence in the market. Lastly, evaluation criteria should be published at the start of all procurements. Authorities must show

evidence that they have used rigorous methods for evaluating bids and be prepared to publish the results to bidders and auditors. Payment of invoice should be done within the agreed terms of trade and it is part of ethical trading to pay supplier invoices on time.

REFERENCES

- [1] Aberdeen Group (2006), Aberdeen Group, Contract Management benchmark Report Procurement Contract-Maximizing compliance and supply performance.
- [2] Ahimbisibwe, A., (2014). The Influence of Contractual Governance Mechanism, Buyer-Supplier.
- [3] Akamp, M., Müller, M., (2013). Supplier management in developing countries. *Sustain. Manag. Corp. Boundaries* 56, 54-62. doi: 10.1016/j.jclepro.2011.11.069
- [4] Alinaitwe, H. M. (2007). An assessment of clients 'performance in having efficient building process in Uganda. *Journal of Civil Engineering and Management* 2008. 14(2), pp 73-78.
- [5] Angele and Nath (2007). National Academies of Science, Engineering and Medicine. Expedited Procurement Procedures for Emergency Constructions services. Washington DC. The National Academy presses. <http://doi.org/10.17226/22691>.
- [6] Baccarini, D., Salm, G and Love P.E.D. (2004). Management of Risks in Information Technology Projects *Ind. Manag. Data Syst.*, 104(4), 286-295
- [7] Bemelmans, J., Voordijk, H., Vos, B., Buter, J., (2012). Assessing Buyer-Supplier Relationship Management: Multiple Case-Study in the Dutch Construction Industry. *J. Constr. Eng. Manag.* 138, 163-176
- [8] Bryman, A., Bell, E., (2007). The Ethics of Management Research. An Exploratory content analysis. *British Journal of Management*, Vol.18, 63-77.
- [9] Chan, D. W., & Kumaraswamy, M. M. (1997). A comparative study of causes of time overrunning Hong Kong construction projects. *International Journal of Project management*. Vol.15, No 1, pp55-63
- [10] Chang, K.B. (2008). A Study of Contract Management Process and Performance for Outsourcing Contracts, Unpublished Dissertation, University of Hong Kong
- [11] Chemoiywo, KP., (2014). Public procurement procedures and supply chain performance in state corporations in Kenya.
- [12] CIPS and NIGP., (2012). Principles and Practices of Public Procurement: Public Procurement Practices, Supplier Relationship Management (SRM)
- [13] Coltman, T. R., Devinney, T. M. and Midgley, D. F. (2009), Customer relationship management and firm performance: Faculty and research working paper. INSEAD-The Business School for the World.
- [14] Eisenhardt, K.M(2015) Agent Theory: An Assessment and Review. *Academy of Management Review*, 14(1), p. 57-74
- [15] Elsay, R. D. (2007). Contract management guide. The Chartered Institute of Purchasing & Supply
- [16] Fink, R. C., Edelman, L.F., Hatten, K.J., & James, W. L. (2006). "Transaction cost economics, resource dependence theory, and customer-supplier relationships"

- Industrial and Corporate Change 15(3): p.504
- [17] George A. Barthiotas (2014), Contract Management and Administration in the United Nations System, United Nations, Geneva
- [18] Goo, J., Kishore, R., Rao, H.R., & Nam, K. (2009). The role of service level agreements in relation management of information technology outsourcing: An empirical study. *MIS Quarterly*, 33(1), 122
- [19] Gottschalk, P., & Solli-Saether, H. (2005). Critical success factors from IT outsourcing theories: An empirical study. *Industrial Management & Data Systems*, 105(6), 685-702.
- [20] Grant, C. & Osanloo, A. (2014). Understanding, Selecting, and Integrating a Theoretical framework in Dissertation Research: Creating the Blueprint for "House". *Administrative Issues Journal: Connecting Education, Practice and Research*, Pp.12-22
- [21] Gupta, R., Karayil, A. & Rajendran, R. (2008). Contract Life cycle Management. *The DNA of Procurement. Building Tomorrow's Enterprise. Infosys Handbook of Research on Competitive Strategy*, Publisher: Edward Elgar Publishing, Editors: G.B.
- [22] Kimundu, G.N., & Moronge, M. (2019). Influence of contract management on procurement performance in manufacturing firms of Kenya; A case Bidco Oil Refineries Ltd. *The Strategic Journal of Business & Change Management*, 6(1), 106-120
- [23] LASER (2016). Rwanda Case study: Enhancing Government contract management process to stem significant financial losses.
- [24] Law N°62/2018 of 25/08/2018 Governing Public Procurement in Rwanda
- [25] Macher, J. T. and B.D. Richman (2008). "Transaction cost economics: An assessment of empirical research in the social sciences." *Business and Politics* 10 (1). p28
- [26] Mandiyambira R., (2012). Managing supplier relationships to improve public procurement performance. *African Journal of Business Management* Vol.6 (1), pp.306-312
- [27] Miaoulis, George, and Michener, R.D. (1976). *An Introduction to Sampling*. Dubuque, Iowa: Kendall/Hunt Publishing Company.
- [28] Ministerial Instructions N° 612/08.11 of 16/04/2014 setting up modalities for drafting, negotiating, requesting for opinions, signing and managing contracts in Rwanda
- [29] Ministerial Order N° 002/20/10/TC of 19/05/2020 establishing regulations on public procurement in Rwanda
- [30] Monczka, R.M, Handfield, R.B., Giunipero, L. C., Patterson, J. L., & Waters, D. (2010). *Purchasing & Supply Chain Management: South-Western Cengage Learning*, p.336
- [31] Muhwezi, M. and Ahimbisibwe, A. (2015), "Contract Management, Inter Function Coordination, Trust and Contract Performance of Works Contracts in Ugandan Public Procuring and Disposing Entities" *European Journal of Business and Management*, Vol.7, No.20
- [32] Reuben, R., Boselie, D. M., & Lu, H. (2007). Vegetables procurement by Asian supermarkets : a transaction cost approach. *Supply chain Management International Journal*, 12(1), 60-68
- [33] Oliveira Neto, et al., (2018). Framework built on resource-based view for outsourcing strategy on hiring logistics service provider. *Gestão & Produção*, 25(3), 460-462. Epub July 30, 2018. <https://doi.org/10.1590/0104-530x2016-17>
- [34] Oluka P.N. & Basheka, C.B. (2013). Determinants and constraints to effective procurement contract management. *Int. J. Logistics Systems and Management*. Vol. 17, No 1, 2014.
- [35] Pillai, M. and Adavi, P. (2013), "Electronic contract management" *International Journal of Engineering and Advanced Technology*, Vol 2 No.5.
- [36] Rendon, R.G. (2009). Contract Management Process Maturity: Empirical

- analysis of organizational Assessments, Technical Report NPS-CM-09-124, Acquisition Research Program, Naval Postgraduate School, Monterey, CA.
- [37] RPPA Annual activity report 2018-2019
- [38] Rundquist, J. (2007). Outsourcing of New Product Development. -A decision framework. Licentiate Thesis
- [39] Rwagasana J.P., (2021) Procurement policy and public management fund in Local Government of Rwanda: a case of Gisagara District. Procurement-policy-and-public -management-fund-in -local-government-of -rwanda-66229241 accessed on 03/06/2021
- [40] Sieke, M. (2008). Supply chain contract management a performance analysis of efficient supply chain contract. Verl. Kolner Wiss.
- [41] Smith, J., O'Keefe, N., Georgious, J. & Love, P. E. D. (2004). A case study of cost training in action. Australia Managerial Auditing Journal. Vol. 19. No 2. Emerald Group Publishing Limited
- [42] Soh, K.L., Jayaraman, K., Yen, T.S., Kiumarsi, S., (2016). The role of suppliers in establishing buyer-supplier relationship towards better supplier performance. Int. J. Product. Qual. Manag. 17, 183-197. Doi: 10.1504. IJPQM. 2016.074466.
- [43] Tanveer S. M. S (2013). Contract Management Practices in World Bank and PPR: A comparative study, Master's Thesis, BRAC Institute of Governance and Development, BRAC University
- [44] Thomas, A.G. (1919). Principles of Government Purchasing. New Your, D. Appleton and Company.
- [45] William, W.W., (2006). Capturing the dynamics of customer supplier relationships: An empirical examination of the roles of IT, transaction economics and social exchange. Unpublished PHD Thesis. The University of Texas at Arlington