

Influence of Procurement Procedures on Performance of Public Institutions in Rwanda: A case of Energy Development Corporation Limited (Edcl) Subsidiary of Rwanda Energy Group Limited (Reg)

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ABSTRACT: - Procurement Procedures intergrate various institutions' activities, synchronizing production and support relevant functions of the institution ranging from need identification until the final satisfactory delivery is made and the supplier paid.

The main objective of this study was to establish the influence of procurement procedures on the performance of public institutions in Rwanda. The study employed a descriptive approach on the influence of procurement procedures on the performance of public institutions in Rwanda. The target population for the study was 76 employees of EDCL Kigali Headquarter, from three different functional departments. The study had a sample size of 64 respondents drawn from employees of those three departments of EDCL. Slovirn and yarmen's formula was applied in determining sample size of the respondents. Questionnaires were used in this study as a principle data collection tool to gather views from respondents and documentary review to collect secondary data.

Collected data was first edited, formatted, and arranged for coding into the statistical package for social science (SPSS) program. The generated parameters from SPSS were presented in tables for easier interpretation. The relationship between the independent and dependent variables was analyzed by the use of Multiple Linear Regression. The study established that procurement process, procurement indicators and procurement strategies influenced above 75% of the total variability in the performance of the institution. This was a significant influence thus the study recommended the adherence on this procurement procedure in all procurement functions in the public institutions.

The study further recommended the adoptation of ISO (International Organisation Standards) especially on quality management and antibribery management systems and the use of internal auditors who are specifically trained to audit the implementation of institutions' operating procedures (SOPs) in respective departments.

Keywords: - procurement process, procurement indicators, procurement strategies,

Introduction

Institutions worldwide have different ways of enhancing their performance, although ways differ from one institution to another depending on the actual functions of each institution. This is done in attempt to improve on their performance. Procurement management has prominently become the most important phenomenon in different institutions that

Enables managers to tackle employees' energies to determine their strength and to fully maximize both institutional productivity as well as employees (Paul, 2011); (Friedrich, 2011). As indicated by (Brien, 2011), Procurement Procedures intergrate various institutions' activities, synchronizing production and support relevant functions of the institution ranging

from need identification until the final satisfactory delivery is made and the supplier paid. Worldwide Companies and institutions are striving to increase procurement management in what is the domain of management. For instance, procurement management has been used in Japanese super markets, where managers eventually depend on the ability of their members to work in Concert to accomplish competitive supremacy. Procurement approach was used by managers in Japan to link and align the available resources towards the attainment of the institutional and companies' goals through facilitating in efficiency and operational costs reduction; (Friedrich P., 2011).

Public procurement management frameworks in most of Eastern European countries, specifically Russia are known to be characterized by an unstable tension between the public expectations of accountability, fairness, transparency, openness, and of efficiency and effectiveness of resource management (Kelman, 2000) The contracting authorities and institutions in procurement must consider environmental issues while tendering for goods ,works or services. The intended purpose is to completely reduce and or eradicate the impact of the procurement activities on human health and the environment; (Arjan Van J., 2010).

Worldwide, procurement is considered as the act of acquiring, of goods, services or works from an external source, often via relevant procurement methods. It is important that the procured goods, services or works are appropriate and at the affordable best possible cost to meet the needs of the acquirer in terms of value for money. Corporations and different public institutions often define processes intended to encourage openness and fairness competition while reducing exposure to fraud and collusion to their businesses; (Roehrich J., 2009).

Almost all procuring and purchasing decisions include factors such handling, delivery, marginal benefit, and fluctuations in prices. Generally, Procurement

involves in making buying decisions under shortage circumstances. In availability of good and accurate data, it is always important to make a good use of economic analysis methods such as cost-benefit analysis and or cost-utility analysis. An important distinction should be made between analysis risk and those without risk. In case of risk involvement, either in the costs or the benefits, the concept of expected value may be used. Based on the intended purposes of the acquired goods, works and or services, procurement proceedings are often divided into two distinct categories such as; Direct, for production related procurement and the Indirect one, for non-production-related procurement; (Lewis M. A., 2009).

Procurement procedure is the established formal way of accomplishing a task, usually with steps that are performed in a prescribed order. During the procurement process the procurement method must be assigned and determined to conform with expected procurement requirements; (Caldwell N., 2012).

Proper procurement procedure is very important in helping to decide what to buy, how to buy, when and from what sources. It also enables planners to determine if expectations are realistic; particularly the expectations of the incuring institutions, which normally anticipate their requirements met on short notice and over a shorter period than the application of the corresponding procurement method allows. It is an opportunity for all stakeholders or interested parties who involved in the processes to meet and discuss particulars of procurement requirements. Those interested parties or stakeholders could be the requesting entity, end users, procurement department, technical experts, and even vendors to give relevant inputs on specific requirements. This in return, permits the creation of appropriate or suitable procurement strategy for procuring each of the requirement that will be later included in the procurement plan. Such strategy might be a market survey and the determining of applicable procurement method given the

requirement and the current circumstances; (Caldwell N., 2012).

The time required to complete the procurement process, and contract awarding for each requirement can be estimated by planners and it is a very essential information, as it serves to confirm if the requirement can be really fulfilled within the expected period by the requesting institution. The need for technical expertise to develop technical specifications and/or scope of work for certain requirements can be assessed, especially where in-house technical capacity is not available or is non-existent. Planners can assess the feasibility of combining or dividing procurement requirements into different contract packages. The Procurement Plan, is one of the componete of the procurement procedure and process which can only be developed for a particular requirement, such as a specific project, or for a number of requirements for one or many companies or institutions in the public or private sectors; (Caldwell N., 2012).

1.2. Problem Statement

Procurement procedures gives a clear guidance for the institutions' operations, thus their proper application and use are vital to the survival and performance of the institution (Markus et al, 2013). Procuring departments of Public institutions in Rwanda stays under pressure to attain financial savings through cost cutting, efficiency and proper coordination of service delivery (Auditor general's report of 30th June, 2018). Now day's public institutions worldwide are increasing their professionalism and efficiency in the handling of procurement procedures. Hassanzadeh & Jafarian (2010), recognized that procurement operations are strategic and are meant to increase the productivity of institutions, through identifying better sources of supply, reducing on prices as well as costs of goods, works or services. A quick improvement has been made in Rwanda regarding the procuring procedures in both private and in public institutions. However, there seem to appear a lack of adherence to procurement procedures setby Rwanda public procurement

authority(RPPA) and as well as institutional level, which has over time resulted to misuse of public institutions' funds, loss of money, encouraging of corruption within procurement units, reduction in institutions' profitability as well as poor service delivery. Hence the purpose of this study shall be to identify the influence procurement procedures has on the performance of the public institutions, in order to come up with practical solutions to the same. This will be an additional inquiry as indicated by Otieno (2012) most institutions' procurement activities do not conform to set of procurement practices and procedures of performance, resulting to uneven and subjective decisions that have had costly repercussions for many public institutions. The performance of procurement activities should not be measured and concluded on the basis of financial performance only, but also in consideration of the other tangible performances such as; the quality of goods procured, works and services, customer satisfaction, timely delivery of orders, flexibility, quality of staff and their dependability, all should be looked at it (Atkinson, 2006). Despite the great role played by the proper application of procurement procedures in public procurement units in any given public procuring entity, no particular study has been conducted in Rwandan context and this explains why many public procurement institutions in Rwanda have not tended to give their due attention, thus the need for this study to fill the gap.

Objectives of the study

The main objective of this study was to establish the influence of procurement procedures on the performance of public institutions in Rwanda. The study aimed to achieve the following three specific objectives:

- A. To establish the influence of procurement process on the performance of public institutions in Rwanda

- B. To determine the influence of procurement indicators on the performance of public institutions in Rwanda
- C. To examine the influence of procurement strategies on the performance of public institutions in Rwanda

Research questions

This research study was guided by the following research questions below:

- A. How does procurement process influence the performance of public institutions in Rwanda?
- B. How does procurement indicators influence the performance of public institutions in Rwanda?
- C. To which extent does procurement strategies influence the performance of public institutions in Rwanda?

Theoretical Review

There are several theories that explain the influence of procurement procedures to an institutional performance. The theories discussed in this part include the procurement theory, buyer-supplier relationship theory and performance theory.

The Procurement Theory

This procurement theory laid on the institutional rules, which is mainly focusing on political models of decision-making. Assumptions that is basically holding up such models are those actors who have bounded with rationality and differing motivations, preferences, and that intraorganisational conflict which seems to be inevitable in situations of joint decision-making. Considering that organizational buying behavior is amulti-actor, multi-agenda process, this literature conceptualizes buying decisions as being a potential locus of intraorganisational politics. This in turn, highlights the possibility for power to be used in resolving the conflicts of interest. Deciding on what to buy, drawing up a specification, choosing a shortlist of potential suppliers, assessing and evaluating the bids submitted and selecting of a supplier who seen as

intensely political rather than purely technical decisions. This procurement theory has its roots in the seminal texts on industrial buying and marketing by Robinson et al., Webster, Wind, & Sheth (2009). A common fundamental idea to these early models is that, organizational buying behavior should be treated as a process, in which there are a number of phases or stages representing a sequence of activities. Robinson et al, (2009) enveloped this in their 'buy-grid model, which presents two components that they termed as 'buy-phase and 'buy-class. Johnston & Lewin (2010) noted that, procurement theory suggests that searching for information about supplier options, will become more active and extensive as risks increases in procurement. For the inflexible buying decision, buying centre participants will be strongly encouraged to access a wide variety of formal (trade journals and sales literature) and informal (personal industry contacts) information sources. This can be perceived as an effort to mitigate the uncertainty and complexity that characterise high-risk procurement decisions. It is even argued that known suppliers tend to offer well-proven quality standard products and services that will be favored in high-risk situations, and there will be an emphasis on non-price selection criteria (i.e. quality, delivery performance, service levels). Price will only play a decisive role in selection, if there are only two or more suppliers that appear equally capable of satisfying the buying centre's non-price requirements. For less uncertain, less important, less complex, and therefore lower-risk procurement decisions, by contrast, buying centre participants will use price as the dominant selection criterion and seek to stimulate competition from as wide range of suppliers as possible.

Buyer-supplier relationship theory

The buyer-supplier relationship theory is the supporting theory that was used to establish the backbone for this study. In procurement, this theory is considered as an economist's model that was developed to deal with situations in which the buyer is

in position to induce the supplier, to perform some tasks in the buyer's favor (Health & Norman, 2004). Several studies of Eisenhardt, (1988); Bergen et al., (1992); and Rokkan Buvik, (2003) have all contributed to the literature on buyer-supplier relationship theory. All these contributions have one main theme which is the relationship between a buyer and a supplier. The buyer-supplier relationship theory concerns with the arrangement that exists when one person or any given institution (called the supplier) acts on behalf of another (called the Buyer). The buyers contract suppliers to perform some services on the buyer's behalf. These contracts require the supplier to exert some effort and make wise decisions. For instance, shareholders of a company (buyers) select management (suppliers) to act on their behalf and investors (buyers) choose fund managers (suppliers) to manage their assets. The operational decisions are made by supplier's management on behalf of the company shareholders for example maximization of revenues and minimization of costs among other decisions. With this relationship, the buyer engages the supplier who acts and makes decisions on behalf of the buyer (Eisenhardt, 1989; Bergen et al., 1992). The successfulness of this relationship particularly depends on supplier's expertise in making the necessary wise decisions, and vice-versa when the interests of the buyer and supplier differ substantially.

Generally, a procurement contract is used particularly to specify the terms of a buyer-supplier relationship. According to Eisenhardt, (1989) Agency theory is directed at the ever-present agency relationship in which one party (the buyer) delegates work or tasks to another party (the supplier) who performs that work. Agency theory describes this type of relationship using the metaphor of a contract (Jensen & Meckling, 1976). Agency relationships are enacted in a broader social context for the adoption of policies about aligning incentives in order to discourage self-interested behavior by managers and reducing agency costs. Several studies have shown that procurement

contributes about 60%-70% of an institution's expenditures.

Considering the operational nature of procurement expenditures, decisions must be taken by the institution's management on behalf of the shareholders under the power entrusted to them, through their employment contracts. The theory also answers two specific problems that is, the goals of the buyer and suppliers are not in conflict (agency problem) and that the buyer and supplier reconcile different tolerances for risk. The buyers and suppliers seek to maximize their utility from the same organizations.

As the shareholders seek to maximize their wealth in form of profits (dividends) made by the company, management too seeks to maximize their utility by way of earnings. Also, due to the different roles of these two parties in the institutions, the risk tolerance levels also differ. As the shareholders' risk appetite levels are normally low because of the need to protect the value of their wealth, management normally tolerate higher risk; these are normally reconciled in order for the company to operate well. Procurement management is an essentially risky function that involves management tough wise decisions in optimally allocating the limited resources that are provided by the shareholders. Hence the need to minimize the possible involved risks so to ensure competitiveness.

Transaction cost and social exchange theory are also useful foundations for predictions of relationship dynamics and success. Transaction cost theory takes an instrumental approach to the structure and dynamics of relationships, suggesting that transactions are better managed internally or with close long-term relationships with other firms, especially when the governance of the transaction is difficult (Williamson, 1985). What the theory does not foretell, is how the given different perspectives of buyer and supplier's different factors will influence the success of the relationship for the buying firm and for the supplying firm.

Transaction cost theory states that governance of relationships will be foretold by the asset specificity or the degree of specific investment involved in the transaction, environmental and the behavioral uncertainty surrounding the transaction and hence the scope for opportunism. The theory stipulates adaptation (or relationship-specific investments) and reduction in uncertainty as key to relationship success to diminish the hazard of opportunism (Williamson, 1985). For instance, if one party makes relationship-specific investments, this will only be done when the other party attenuates the hazard of opportunism by also making relationship-specific investments or by offering contractual guarantees (Rokkan et al., 2003).

Relationship continuity is the willingness of parties to extend and or prolong their agreement to cooperate during a period of time, indefinite or not, in the future (Palaima, 2007) the studies of comparative show that supply chain firms with high levels of collaboration have greater chances of sustaining their relationship than those in less collaborative supply chains (Myhr & Spekman, 2005).

This indicates that any firm's ability to generate customer satisfaction, remain loyal, meet future expectations, intentions and retain suppliers will condition the desire to maintain the established relationship (Bionget, 2002). In this respect, buyer-supplier collaboration refers to two or more chain members working together to create a competitive advantage (Sridharan & Togar, 2002). It is also a form of relational exchange that requires information sharing, incentive alignment and joint decision making (Sridharan K., 2005). This intensifies trust, commitment, and adaptation between firms with their suppliers subsequently resulting in relationship continuity.

Buyer-supplier relationships management is central to the successfulness of supply chain management in firms (Harland, 1996). Strategic relationships with critical suppliers must be particularly understood in order to maximize the value creation in the supply

chain (Chen et al., 2004). Several studies have shown that successful management of these relationships contributes to firm performance (Tan et al., 1999). Competences such as commitment, trust, honest, openness and royal are shown to play an important role in high value strategic relationships, where specific investments are high, and contractual governance alone is not adequate (Morgan & Hunt, 1994). In such relationships, it is important that both parties perceive that they are gaining value from the relationship if it is to continue and the relationship is to be considered a success (Narayandas & Rangan, 2004).

Researchers have used both transaction cost theory and social exchange theory as separate and complementary theories to explain the antecedents and dynamics of relationship success (Kwon & Suh, 2004; Kingshott, 2006; Hawkins et al., 2008; Zhao et al., 2008; Liu et al., 2009). Researchers have also used both single-respondent and dyadic samples in order to understand the differences in perceptions of the relationship between buyers and suppliers. However, the antecedents and dynamics have mainly been tested on separate groups of buyers and suppliers and rarely between buyers and suppliers in the same relationship (Donaldson, 2008). Even when matched pairs in a relationship was studied, the results have also been aggregated to the relationship (Liu et al., 2009). Both transaction costs theory and social exchange theory factors across a matched-pair dyad, were used directly to compare the buyer and supplier's perceptions of the same relationship.

Collaboration and trust are two-way processes; they depend upon and foster each other. The possibility of greater trust holds within greater collaboration of partners who have an over time experience, with one another and have the opportunities to witness the goodwill, reliability, competence, honesty and openness of their partners (Putnam, 1993). Trust is always emphasized as the most important issue for managing long-term relationships and cooperation, but it is also a result of long-term relationships between

parties. Trust is a willingness to rely on an exchange partner in whom one has confidence and focus on the perceived outcomes of trust, where one firm believes that another company will perform actions that will result in positive outcomes for the firm as well as not take unexpected actions that will result in negative outcomes. It can generally be agreed that trust consequently exists when one party has confidence in a collaborative exchange partner's reliability and integrity. This is in agreement with who suggest that Collaborative arrangements among partners induce further collaboration over time and the emergence of trust and loyalty which generate increasing benefit (Luo & Park, 2016).

Performance Theory

Performance is attainment of designed task through taking a complex series of actions that integrate skills and knowledge to produce a valuable result. In some instances, the performer is an individual. In other performances, the performer is a group of people who are working together to achieve a common goal it can be an academic department, research team, committee, student team, or a university. When performance is at a higher level, produces results that can be classified into categories (Elger, 2007).

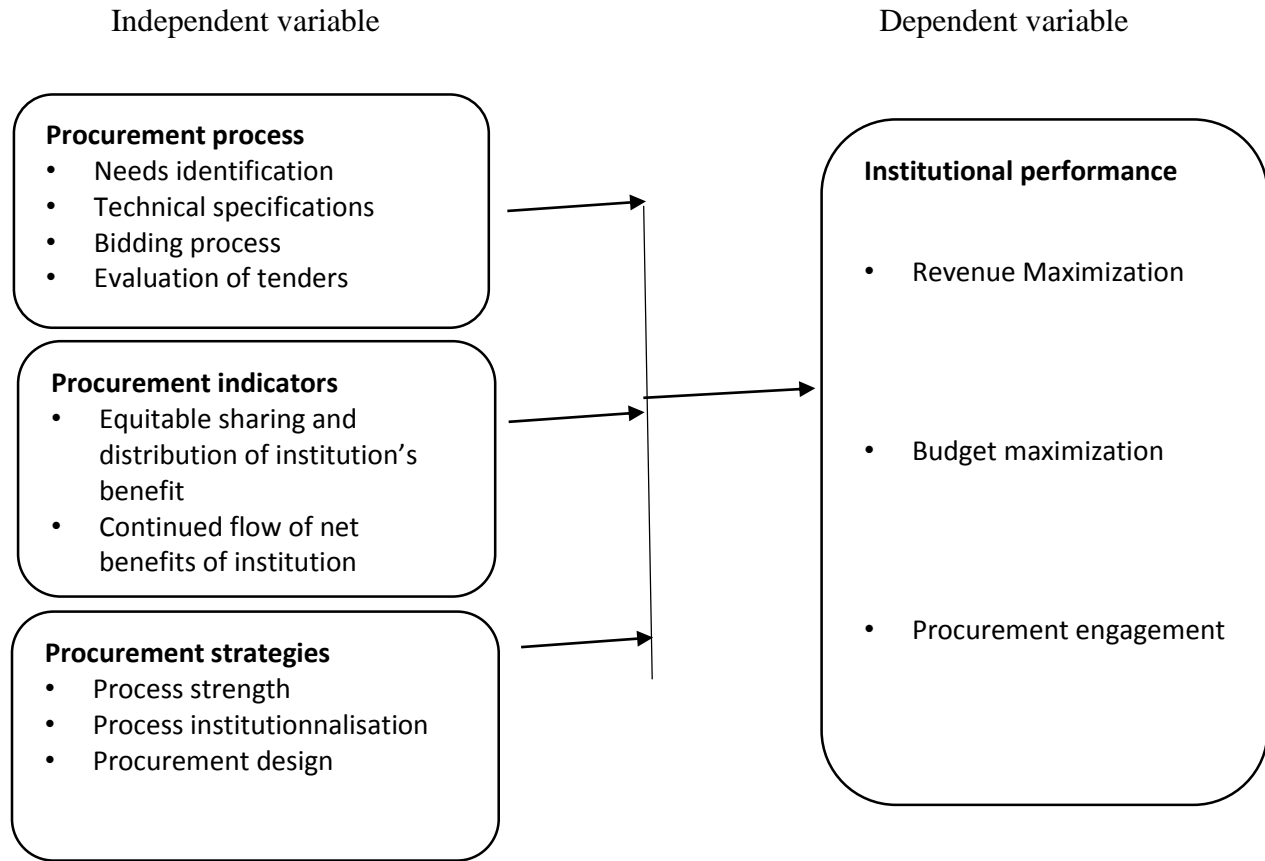
Performance is brought forth by person features which are needed for a specific task, or to the group of people. The characteristics of performance can be ability to communicate so as to provide valuable information, retaining of positive relationship with others, ability to stick and continuous following of the rules and regulation of conducting activities, cooperate with others so as to attain the goals, able to plan, and ability to finish and report completed job within specified time frame. Elger (2007), said that t Performance theory develops and describe six introductory concepts

to make a framework that can be used to describe performance and performance improvements. To perform is to produce valued intended results within specified time frame. A performer can be an individual or a group of people engaging in a collective effort. Developing performance is a journey, and level of performance describes location in the journey. Current level of performance depends on 6 mechanisms: context, level of knowledge, levels of skills, level of identity, personal factors, and fixed factors. Three ways are proposed for effective performance improvements. These involve mind set of performer, immersion in an enriching environment, and engagement in reflective practice. Since worthy attainment are produced from high-level performances, a theory of performance is useful in many learning contexts.

Conceptual framework

This section shows conceptual framework of procurement procedures and performance of public institution from which, theories related to procurement procedures and performance of public institutions are reviewed.

It shows and presents the way ideas are organized to achieve a research study's purpose. It is also an analytical tool with several variations and contexts that used to make conceptual distinctions and organize ideas (Gay&Airasian, 2003). This is illustrated in figure 1. The independent variables are the; procurement process, procurement indicators and procurement strategies and how they influence the performance of public institutions. The performance of the public institutions will therefore be due to the changes that will take place in each of the three independent variables as shown above.



Source: Auther (2021)

Figure 1 : Conceptual Framework

Research gap

Aquick improvement has been made in Rwanda regarding the procuring procedures in both private and public institutions. However, there seem to appear a lack of adherence to procurement procedures setby Rwanda public procurement authority (RPPA) and as well as on institutional level, which has over time resulted to misuse of public institutions' funds, loss of money, encouraging of corruption within procurement units, reduction in institutions' profitability as well as poor service delivery especially in public institutions, as indicated in (Auditor general's report of 30th June, 2018). The literature review was evident that studies done on Procurement Procedures and its influence on the institutions' performance has pointed some pitfalls and weaknesses that call for both practitioners and researchers to document the same. Hence it is clear that there is a need to find out the role of procurement

procedures on institutional performance. Thus, the purpose of this study shall be to identify the influence procurement procedures has on the performance of the public institutions, in order to come up with practical solutions to the same. This will be an additional inquiry as indicated by Otieno (2012) most institutions' procurement activities do not conform to set of procurement practices and procedures of performance, resulting to uneven and subjective decisions that have had costly repercussions for many public institutions.

Research Methodology

Descriptive approach was employed in this study on influence of procurement procedure on the performance of public institutions in Rwanda. The target population for study was 76 staff members of EDCL, Kigali Headquarter from three different functional departments. This study embraced a sample size of 64 staff members of EDCL drawn from the

above target population. The sample size was determined by the use of Slovirn and yarmen’s formula and it was absolutly sufficient for accurate analysis, since 30% of the sample size is considered as a good representation of the target population as indicated by Mugenda & Mugenda (2003). A purposive sampling technique was applied in selecting the respondents from among staff members. Apurposive sampling was described by Saunders et al. (2007) as sampling technique in which respondents are judgmentally included in the sample which is of interest to the researcher. The technique enables the researcher to choose respondents basing on the fact that they have desirable characteristic and variables related to the issue being studied. Purposive sampling was used to get specific information from the employees of EDCL that the researcher believed to have useful knowledge

about the procurement procedures and performance of their institution.

Respondents were selected in proportional of the staff members and each of the department from where the respondents picked, was treated as a separate stratum. Questionnaires were used in this study as a principle data collection tool to gather views from respondents and the secondary data was collected from literature review that was relevant to this study, auditor’s general reports, journals, publications, and internet. There are several ways of collecting data as shown by Cooper & Schindler (2011). The researcher circulated 64 questionnaires, which were all fully completed and returned back by all 64 sampled respondents, contributing to a 100% response.

To test the efficiency of the questionnaires, a pre-test too few respondents was conducted.

Table1.Target population and sample size

Category of Respondents	Target Population	Sample size	Technique
Finance Department	22	19	Simple random
Planning Department	19	15	Simple random
Procurement Department	35	30	Simple random
Total	76	64	84.2%

The validity of the instrumet was established through pilot -testing to a few repondents one week before, to test the reliability and validity of the questionnaires. The aim was to test whether the designed questions were logical and contextual, and if the questions were clear and easy to understand.

Thus, pre-test allowed the researcher to check on whether the variables collected were to be easily processed and analyzed. Any question that was found ambiguous or interpreted differently during the pre-testing was rephrased, so to have the same meaning to all respondents. Views that were given by the respondents during pre-testing were also analyzed through SPSS 20th version spread sheet and used, in order to improve the questionnaires before actual collection of data. Data was organized and interpreted

in terms of percentages to objectives using assistance of computer packages especially SPSS (version 20) to communicate research findings. The relationship between independent and dependent variables was identified by using multiple regression.

Where the influence of procurement procedures on institutional performance was X (Independent Varriables and Y (Dependent Varriables).

The regression equation is:

$$Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \beta_3X_3+ \epsilon$$

Where Y is the dependent varriables (Performance of public institutions), β_0 is the regression constant,

ϵ is the error term well as β_1 , β_2 , β_3 , and β_4 are the coefficients of independent variables. X_1 is

procurement process, X2 Procurement indicator and X3 is procurement strategies.

The independent variable which was procurement process (PP) was measured in terms of needs identification (NI), technical specification (TS), bidding process (BP), evaluation of tenders (ET), award of contract (AC) and publication of award (PA). The dependent variable which was Institutional performance (IP) was measured in terms of procurement engagement (PE), revenue maximisation (RM), and budget maximisation (BM). Thus, from the above equations $Y = IP = (PE, RM, BM)$

Therefore

$$IP = \beta_0 + \beta_1NI + \beta_2TS + \beta_3BP + \beta_4ET + \beta_5AC + \beta_6PA + \alpha$$

But IP can be expressed in terms of PE, RM, and BM, therefore

$$PE = \beta_0 + \beta_1NI + \beta_2TS + \beta_3BP + \beta_4ET + \beta_5AC + \beta_6PA + \alpha$$

Table 2. Gender of the Respondents

Gender	Frequency	Percentage (%)
Male	46	70.9
Female	18	28.1
Total	64	100

Age of the Respondents

The study further established respondent’s age distribution categorized in a certain range. This was to determine how age relates to procurement procedures based on experience. The findings were as indicated in table 3 below. Where most (60.9%) of the respondents’ were within the age bracket of 30-39 years, (18.8%) of respondents were in age bracket of

Table3 .Age Category of Respondents

Age group (Years)	Frequency	Percentage (%)
20-29 years	12	18.8
30-39 years	39	60.9
40-49 years	5	7.8

$$RM = \beta_0 + \beta_1NI + \beta_2TS + \beta_3BP + \beta_4ET + \beta_5AC + \beta_6PA + \alpha$$

$$BM = \beta_0 + \beta_1NI + \beta_2TS + \beta_3BP + \beta_4ET + \beta_5AC + \beta_6PA + \alpha$$

Results, Interpretation and Discussion

Demographic Characterization of the Respondents

Gender of the Respondents

This study attempted to determine the gender of the respondents and therefore requested the respondents to indicate their gender. The findings were as indicated in the table 2 below. According to the findings, majority (70.9%) of the respondents were male while the rest (28.1%) were female. This implies that there has been gender discrimination on employees however, it gives encouragement to the female counterparts to apply for different jobs irrespective of their gender.

20-29 years, (7.8%)of respondents were in between 40-59 years, while the rest (4.7%) of respondents’ were with age above 59 years. This implies that most of the employees are still productive (young, skilled, and energetic) such that they can handle the growing needs of the job requirement and adjust to the strategies adopted within the institution and also that they were with required experience to give appropriate answers concerning the study.

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50-59 years	5	7.8
Above	3	4.7
Total	64	100

Duration in the Institution

The study found it necessary to find out the number of years in which the respondents had worked in the institution. This was to determine if their responses could be reliable to make study conclusions about the variables under concern due to their longevity in the institution. The findings were as indicated in table 4 below:

Where majority (31.3%) were in the institution for 4-5 years, (4.7%) of respondents were in the institution for less than 1 year, (21.9%) of respondents had worked in the institution for 1-3 years, while (17.2%) of

respondents had worked in the institution for 6-8 years, the rest (25%) of them were with the institution for 9 and above years. This implies that majority of respondents have been in the institution for a good duration and could therefore, familiar with the procurement procedures. Thus, ensures less training by the insitution and employees perform better with less supervision as they are used to the tasks they perform. In addition, it also implies that these are experienced employees who could have given the relevant information to the study area. Based on these results, it was deducted that the results of this study are reliable and valid considering the quality of the sources of information gathered.

Table 4. Duration in Service

Respondents	Frequency	Percentage (%)
Below 1 year	3	4.7
1-3 years	14	21.9
4-5 years	20	31.3
6-8 years	11	17.2
9 and above	16	25.0
Total	64	100

Table5. Shows the Procurement process of the institution

Processes	Frequency	Percentage (%)
Identification of needs	40	62.5
Technical specification	41	64.1
Biding process	44	68.8
Tender Evaluation	64	100
Awarding of contracts	64	100
Publication	64	100
Receiving and inspection of items	45	70.3
Payment of invoices	44	68.8
Record keeping	64	100

From the table 5 above, findings indicate the processes followed by EDCL in procurement of goods, services or works. The results from the survey conducted indicate that (62.5%) of respondents were able to

identify the needs of each department within the institution, (64.1%) of respondents can identify and evaluate technical specification of the needed product or equipment for project ,works or services to be

executed, well as (100%) of respondents were technically understand and knows how to carry out tender evaluation processes, publication and awarding of the contracts and as well as the importance of safe keeping of records for the institution’s future use. Findings also further indicated that (68.8%) of the respondents were able to perform bidding processes and evaluate the invoices for their approval for remittance. While the rest (70.3%) of respondents receive and do understand the importance of inspecting the received items. Thus, the outcome from the survey revealed that respondents follows the required procurement processes and procedures in excution of procurement activities, hence putting the findings in line with the previous studies. Like Nakamura (2004) indicated in his study that, public insitutions follows a set of procurement processes.

Relationship between procurement procedures and Institutions’ Performance.

The researcher sought to investigate on a relationship between procurement procedures and performance of the institution. To achieve this, a researcher establish

the relationship between independent varriables to dependent varriables through Correlation Analysis. Pearson correlation was used to measure the degree of relationship between variables under consideration that is independent variables and the dependent variables. Pearson correlation coefficients range from -1 to +1. Negative values indicate negative correlation and positive values indicates positive correlation where Pearson coefficient <0.3 indicates weak correlation, Pearson coefficient >0.3<0.5 indicates moderate correlation well as Pearson coeffeciate >0.5 shows strong correlation.

The relationship between independent variables and dependent variables were identified by the use of regression models, where the influence of procurement procedures on institutional performance was $X_1 \dots \dots \dots X_n$ (Independent Variables) and Y (Dependent Variables).

Through examining the influence of procurement process on procurement engagement, coefficients were obtained, and the results were as shown on summarized table below

Table6. Cofficent results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.939 ^a	.797	.581	0.721		
a. Predictors: (Constant), NI, TS, BP, ET, AC, PA						
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	112.527	37.943		2.966	.007
	NI	-8.584	2.674	-1.220	-3.210	.025
	TS	-9.253	3.606	-.962	-2.566	.037
	BP	-4.955	4.900	-.193	-1.011	.322
	ET	-11.254	2.474	-.017	-4.548	.000
	AC	-2.519	3.251	-.180	-.775	.446
	PA	15.912	4.412	.965	3.605	.019
a. Dependent Variable : procurement engagement						

The results in the table 6 above, indicate the influence of procurement process and other variables on the procurement engagement in EDCL. The results as measured by R-square and adjusted R-square, show that 79.7% and 58.1% of the total variation in the procurement engagement is caused by procurement process and other variables. A statistical significance of the variables is considered where $t \leq 5\%$. Thus, results indicated that there is positive relationship in the publication award (PA) and negative relationship in the needs identification (NI), technical specification (TS), and evaluation of tenders (ET) on the performance of public institution.

From regression equation $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \dots + \beta_nX_n + \epsilon$

The estimated multiple regression model for procurement engagement

(PE) will be.

$$Y = IP = (PE, RM, BM).$$

$$PE = 112.5 - 8.58NI - 9.2TS - 11.25ET + 15.91 PA + 0.721$$

Awarding of contract (AC) and Biding process (BP) does not significantly influence the procurement engagement due to their correspondence p-values (.446 and .322) which were respectively greater than significance level (5%). Thus, it wasn't worth important to be in the estimated model above.

Study was further analyzed to determine the influence of procurement process on revenue maximization of the institution, coefficients were also obtained and the results were as summarized in the below table

Table6.Coefficient Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
2	.853 ^a	.827	.482	1.046		
a. Predictors : (Constant), NI, TS, BP, ET, AC, PA						
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	33.832	13.762		2.458	.035
	NI	187.624	33.012	1.052	5.683	.001
	TS	3.358	1.109	.538	3.027	.018
	BP	.386	6.942	.012	.056	.956
	ET	-11.988	3.505	-1.109	-3.420	.014
	AC	23.311	4.606	1.194	5.061	.000
	PA	2.763	6.252	.102	.442	.663
a. Dependent Variable: Revenue maximization						

The results in the above table, indicate the influence of procurement process and other variables on the revenue maximization in EDCL. The results as measured by R-square and adjusted R-square, show that 82.7% and 48.2% of the total variation in the

revenue maximization is caused by procurement process and other variables. A statistical significance of the variables is considered where $t \leq 5\%$. Thus, results indicated that there is a negative relationship in the evaluation of tender (ET) and positive relationship

in the needs identification (NI), technical specification (TS), and awarding of contract (ET) on the performance of public institution.

Therefore, from regression equation $Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \dots +\beta_nX_n+ \epsilon$

The estimated multiple regression model for revenue maximization (RE) will be.

$Y= IP = (PE, RM, BM)$. Thus,

$$RM = 33.832 + 187.624NI + 3.358TS + -11.988ET+ 23.311 AC + 1.046$$

Based on the mentioned values, Publication award (PA) and Biding process (BP) does not significantly influence the revenue maximization due to their correspondence p-values (.663 and .956) which are respectively greater than significance level (5%). Hence, it wasn't worth important to be in the estimated model indicated above.

Researcher further sought to investigate on the influence of procurement process on budget maximization, this was aiming to determine the relationship between procurement process and budget maximization of the institution, coefficients were obtained and the results were as summarized in the table 14 below

Table7.Coeffiecient Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
3	.894 ^a	.759	.561	0.621		
a. a. Predictors: (Constant), NI, TS, BP, ET, AC, PA						
Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	37.067	5.208		7.117	.000
	NI	8.607	3.539	.375	2.432	.023
	TS	10.614	4.771	.305	2.225	.051
	BP	-12.425	4.483	-.543	-2.772	.048
	ET	-1.148	3.273	-.054	-.351	.729
	AC	.176	4.302	.009	.041	.968
	PA	9.993	4.583	.371	2.181	.040
a. Dependent Variable: budget maximisation						

The results in the above table, indicate the influence of procurement process and other variables on the budget maximization in EDCL. The results as measured by R-square, show that 75.9% of the total variation in the budget maximization is caused by procurement process and other variables. A statistical significance of the variables is considered where $t \leq 5\%$. Thus, results indicated that there is a negative relationship in

the bidding process (BP) and positive relationship in the needs identification (NI), technical specification (TS), and publication award (PA) on the performance of public institution.

From regression equation $Y= \beta_0+ \beta_1X_1+\beta_2X_2+ \dots +\beta_nX_n+ \epsilon$

The estimated multiple regression model for budget maximization

(BM) will be.

$Y = IP = (PE, RM, BM)$. Thus,

$$BM = 37.067 + 8.607NI + 10.614TS - 12.42BP + 9.993PA + 0.621$$

Evaluation tender (ET) and awarding of contract (AC) does not significantly influence the revenue maximization due to their correspondence p-values (.729 and .968) which are respectively greater than significance level (5%). Therefore, it wasn't worth important to be in the estimated model above.

Conclusions and Recommendations

Conclusions

The study fully analyzed and found out that procurement process, procurement indicators and procurement strategies influenced above 75% of the total variability in the performance of the institution.

Study also found out that staff members of the institution in their respective departments follow procurement procedures as designed by Rwanda public procurement authority (RPPA) and institutionalized on institutional level. However, the emphasis should be on their adherence while executing procurement functions, since they have a strong and positive influence on the performance of the institution.

Recommendations

The study recommends the following:

- The study recommended the adherence to procurement procedures and processes set by Rwanda public procurement authority (RPPA) and as well as on institutional level, while handling procurement proceedings and carefully apply the designed procurement strategies of the institution.
- The study further recommended the use of ISO (International Organisation Standards) especially quality management and antibribery management systems.

- The study also recommended that the institution should have internal auditors which are different from financial auditors, those auditors should be specifically trained to audit the implementation of institutions' operating procedures (SOPs) in respective departments.

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