



ASSESSMENT OF E-PROCUREMENT APPLICATION AND THE IMPLEMENTATION OF PUBLIC PROCUREMENT PRINCIPLE CASE STUDY OF RWANDA PUBLIC PROCUREMENT AUTHORITY (RPPA)

By

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ABSTRACT

The main purpose of this research was to analyze of e-procurement application and the implementation of public procurement principle case study of Rwanda Public Procurement Authority (RPPA). The research was guided by the following specific objectives i) To establish the effect of E-Bidding on competition, ii) To assess the effect of E-Evaluation on transparency, iii) To establish the effect of E-Contract on effectiveness, IV) to establish the relationship between E-procurement and accountability. Descriptive survey used in this study to collect information. Sample size is 120. The purposive sampling technique used to select the participants. Data collected using questionnaire and analyzed using Data analyzed by descriptive and inferential statistics. In relation to effect of E-bidding on competition where $b=0.389, t=1.525$ and $p=0.46$ which shows that

there is a positive effect of E-bidding on competition second objective was to analyze if E-Evaluation affect the transparency in Rwanda Public Procurement Authority. The results also revealed that there Most of respondents again agree with the statement where we find beta coefficient which equal to 0.800 , $t=1.659$ and $p=0.47$ and since p is less than 0.05 it means that there is an effect of E-bidding on transparency third objective , researcher find that there is a positive effect of e-contract on effectiveness where by using linear regression researcher found $B=0.812$ $t=0.281$ and $p=0.12$ and final objective was to find relationship E-procurement and accountability and this is supported by the fact that all means of their responses are at very high range which indicate the existence of relationship between E-procurement and accountability. Findings revealed that there was a

positive and significant strong relationship between e-procurement policies and Accountability, increases in the e-procurement in Rwanda Public Procurement Authority increases Accountability by 99.2%. Where $p=0.00$ which means there a relationship between them the researcher recommends Rwanda Public Procurement Authority to put in place. Effective coaching in understanding E-procurement application and procurement principle should continuously be organized to refresh Rwanda Public Procurement Authority staff and user.

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CHAPTER ONE

GENERAL INTRODUCTION

1.1 Background to study

Around the world public sector organizations are experiencing an unprecedented pace of change. As a result, they are rapidly re-evaluating their operating models and market strategies not just to withstand these market forces, but capitalize on them. Clearly, Procurement has a significant role to play in helping the public sector achieve their objectives and prepare for the uncertainty ahead. In part, this will require procurement to focus on driving costs out of the cost base. But the opportunity also exists for the function to add value more strategic way (Labaree, 2013).

In view of Angel (2017) the public procurement, as a major part of the economy and public spending, can be regarded as an indicator of government efficiency. Global crises require a renewed focus on efficient public procurement, based on integrity, to ensure requisite delivery of public services, and sustain the trust of the electorate in their government. Hence,

governments are increasingly acknowledging the role of public procurement in improving public sector productivity through cost saving initiatives and applying the principles of economies of scale. In addition, tapping into the potential of procurement is seen as a strategic policy lever towards achieving important socio-economic and environmental objectives. Governments around the world are constantly buying goods and services from the private sector, from small everyday expenses to large infrastructure projects. Keeping the procurement process simple and cost efficient is a major challenge that every government faces. Despite best efforts, the public procurement process is often lengthy, complex, and costly. To address the problem, many governments around the world have implemented digitized processes to make procurement easier, faster, and more transparent, and to reduce opportunities for corruption.

Rwanda was ranked 51st in Transparency International's 2019 Corruption Perception Index, higher than every other African nation except for Botswana, Cape Verde, the Seychelles, and Mauritius (Transparency International 2019). Bid manipulation in Rwanda is very low compared to other Sub-Saharan African countries, and the government has zero tolerance for corruption," said Mulugeta Dinka, World Bank procurement specialist in Rwanda. The government hoped that the introduction of an e-procurement system could make the procurement process more efficient and transparent, promote competition among bidders, and generate cost savings. If the country could successfully implement a fully functioning e-procurement system, it would be the first country in Africa to do so.

As of December 2017, nearly 3,500 suppliers had registered on the e-procurement website, nearly 2,000 tenders had been advertised on the site, and 685 contracts had been signed. Tenders received four bids each, on average. As the system had only been fully operational for six months, it was

too early to tell if it had delivered the improved efficiency the government had envisioned. In theory, the system should have created time and cost savings for both government officials and contractors, as the single online portal provided all the documents and information required, eliminating the need for in-person visits and printing costs. The government also reported "increased authenticity of procurement documents," as document forgery by bidders had been a major problem in the past. However, in Rwanda there are disconnects between supply and demand of government agent. Principals and government agents have shown little interest in working with Rwanda Public Procurement Authority (RPPA). The evidence has pointed to limitations in the capacities of entities that especially in delivering service to the public where there is untimely of delivering service and inability to meet the public expectations.

The Public Procurement System in Rwanda has evolved from a crude system with no regulations to an orderly legally regulated procurement system. From the use of 1959 law in public procurement in Rwanda to the Public Procurement Law enacted in April 2007, Rwanda moved towards a

national public procurement system
which respects international standards.

The Rwanda Public Procurement Authority is a Public body established on February 20, 2008 by the law N° 63/2007 of 30/12/2007. It was created to replace the National Tender Board during a reform process in Public financial management launched by the Government of Rwanda (GoR), in which Public procurement reform was one of the most important components.

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1.2 Statement of the problem

In developing countries, public procurement is increasingly recognized as essential in service delivery (Bisanga basaiji, 2019), and it accounts for a high proportion of total expenditure. By understanding the steps involved with procurement, it is possible to get better understanding of real cost involved with attaining any goods and services (Bailey, 2014). The importance of public organizations as entity designed to serve the public, along with the imperative for accountability, makes studying the problem associated with the public sector essential (Trionfetti, 2018).

Rwanda public procurement law provides e-procurement. Some contents of e-public procurement are regulated while others are not for example The total cost (TCO) may be too high because it need internet which is on high speed .It may be subject to hacker attacks because every technology has also some effects .It may be difficult to get suppliers to cooperate electronically because it avoid human contact .The system may be too complex for those people who are not familiar withICT The regulated contents are not implemented

accordingly in the whole public procurement process. That's why this research based on the analysis of the inconveniences for the non-implementation of e-procurement, advantages and challenges of using it.

1.3. Objectives of the Study

This study was guided by the following objectives

1.3.1 General Objective

Assessment of e-procurement application and the implementation of public procurement principle case study of Rwanda Public Procurement Authority (RPPA)

1.3.2 Specific Objectives

- i. To establish the effect of E-Bidding on competition
- ii. To assess the effect of E-Evaluation on transparency
- iii. To establish the effect of E-Contract on effectiveness
- iv. To establish the relationship between E-procurement and accountability

1.4. Research questions

- i. What is the effect of E-Bidding on competition?
- ii. What is the effect of E-Evaluation on transparency?
- iii. What is the effect of E-Contract on effectiveness?
- iv. What is the relationship between E-procurement and accountability?

CHAPTER TWO

LITERATURE REVIEW

2.1. Theoretical review

A literature review is Theories which are formulated to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions. The theoretical framework is the structure that can hold or support a theory of a research study.

2.1.1 Electronic procurement strategy

Electronic procurement strategy as conceptualized and defined in the introduction does not represent a radical departure from the traditional concept of purchasing strategy; the only difference is that internet based technologies are used as tools to carry

out the firms purchasing and corresponding corporate strategies (William et al, 2006). This assertion can be illustrated by different research on the strategic objectives of the purchasing function and information regarding the objectives that purchasing organizations pursue when using internet based technologies.

The E -Technology Perspective Theory

E-procurement lacks an overarching definition and encompasses a wide range of business activities. For example, (Choi & Rungtusanatham, 2001,) state that e-procurement remains a first generation concept aimed at buyers, which should progress into e-sourcing and ultimately into e collaboration. E-collaboration allows customers and suppliers to increase coordination through the internet in terms of inventory management, demand management and production planning (Lee, 2003).

Resource-based theory

The quest for Information Technology has long been a central tenet of the field of procurement and supply chain management (Pressutti, 2003)). Within this field, resource-based theory (RBT) has emerged as a promising new

framework for analyzing the sources and sustainability of Information Technology (Baily, 2008)). According to RBT, Information Technology-measured as economic rent (Caridi et al, 2004) - derives from strategic resources. Such Information Technology is sustainable to the extent that the resources on which it is based are valuable, rare, inimitable, and non-substitutable (Bales & Fearon, 2006

Transaction cost theory

The use of information technology (IT) has facilitated the reduction of coordination costs, which has been extensively documented in the literature (Bakker et al, 2008). For example, electronic market places, facilitated through IT, reduce the cost of searching for obtaining information about product offerings and prices (Bakker et al, 2008). Also, collaboration facilitated by information sharing can lower transaction costs (in particular coordination costs) as companies can thereby reduce supply chain uncertainty and thus the cost of contracting. This can be explained with an example: If a supplier is unable to accurately predict the price of its product inputs, it will be reluctant to

enter into a contract, which locks it into a fixed price for an extended period of time (Arrowsmith, 2002).

2.6. Research gap

Limited empirical studies to establish the level of preparedness, receptiveness and impact of the e-procurement and implementation of public procurement principles in Rwanda has been carried out. Being a new system in the Rwandan public procurement process, several operational adjustments and additional investment into training and purchasing of infrastructural facilities need to be in place before the actual roll out. Therefore, the study aims at establishing the readiness of the public sector to adopt e-procurement system in Rwanda through the study entitled “assessing the effect of e-procurement application and implementation on public procurement principles in Rwanda”.

CHAPTER THREE: RESEARCH METHODOLOGY

3.2. Research Design

According to Trochim and William (2006), research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem. It is actually a blueprint for the collection, measurement, and analysis of data. Descriptive research used in this study .

3.3. Study population

Study population is a whole set of individuals, instances or objects with a few not unusual observable characteristics (Young, 2003). The researcher acquired information from Rwanda Public Procurement Authority staff. The researcher concerned these categories in the examine due to the fact I believe that they possess the important examine facts .Rwanda Public Procurement Authority (RPPA) has 120. The total population for this study will be 120 persons who are employees of Rwanda Public Procurement Authority. **ample size**

Sample size is part of the population that the researcher chooses to use in a research as a representation of the total

population. The population of the study will take the whole population which is 120

3.4. Sampling technique

Kothari (2007) defines sampling design/technique as a definite plan for obtaining a sample from the sampling frame. The sampling techniques used will be purposive sampling technique, whereby the participant of the research was selected based on the purpose of this research.

3.5. Data collection method

Both primary and secondary data were the main sources of data to be used in the study. For the secondary data, the researcher reviewed books, articles and documents from university library and other libraries in Kigali related to the topic under the study; secondly the researcher used questionnaire as a major tool of primary data collection.

3.5.1 Questionnaire

The questionnaire will include closed-ended questions where respondents chose from the alternative answers. Questionnaire is chosen because of the following advantages: it saves time

since many respondents can be dealt with at once, it allows easy analysis of

data collected, it is easy to administer when the sample is literate.

In designing questionnaires, the researcher will use Likert scale to measure the respondents' views on the critical factors of e-procurement strategies and Procurement implementation. The same rating scale will be also used for the factors of performance of public institutions. Using Likert Scale, the respondent indicated whether he/she strongly agree (SA), agree (A), disagree (D), or strongly disagree (SD).

3.6. Reliability and validity

Mugenda & Mugenda (2008), emphasized that reliability is done using Cronbach's Alpha Model on SPSS and that consistency is the assessment of the degree to which study instrument gives reliable results or data after repetitive trials. Reliability is the consistency of measurement, or the extent to which an instrument measures the same method every time it is used under the same circumstance with the similar subject (Bryman, 2015). The questionnaire's reliability was statistically measured by measuring the internal consistency using Cronbach's alpha. Cronbach alpha, which is a measure of internal

consistency, was used to test the internal reliability of the measurement instrument.

3.7. Data processing

Raw data will be transformed into meaningful interpreted report using different techniques. In order to get quality information, there is generally need for standard checking so that the researcher could end up with realistic data, which clearly reflect the depicted situation. Thus, stand checking will be done through editing, coding, and tabulation.

Data analysis

Spearman (Pearson) 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. If, as the one variable increases, the other decreases, the rank correlation coefficients is negative. Statistical correlation is measured by what is called coefficient of correlation (r). Its numerical value ranges from +1.0 to -1.0. It gives us an indication of the strength of relationship. In general, $r > 0$ indicates positive relationship, $r < 0$

indicates negative relationship while $r = 0$ indicates no relationship (or that the variables are independent and not related). Here $r = +1.0$ describes a perfect positive correlation and $r = -1.0$ describes a perfect negative correlation.

Closer the coefficients are to $+1.0$ and -1.0 , greater is the strength of the relationship between the variables. As a rule of thumb, the following guidelines on strength of relationship are often useful (though many experts would somewhat disagree on the choice of boundaries).

Description of Regression Analysis

The model used in the study will take the form below:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where: Y = procurement principle and as measured by integrity. α = Constant Term

β = Beta Coefficient – This measures how many standard deviations a dependent variable will change, per standard deviation increase in the independent variable

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1. Introduction

This chapter presents facts findings, analysis and discussions which were obtained from questionnaires, observations given to the respondents between the research and staff of RPPA to Assessment of e-procurement application and the implementation of public procurement principle. This section presents the research findings, data analysis, presentation and interpretation of the findings. The data presented includes response rate, background information of the respondents and a presentation of findings against each individual objectives of the study.

4.2 Inferential Statistics

Further the study carried out inferential statistics to examine the model as conceptualized in chapter one. Correlation analysis was used to show the strength of the relationship between dependent and independent variables while regression analysis was used to

confirm or reject hypothesis of this research. In addition, correlation analysis was used as a multicollinearity test whereby if two independent variables had correlation coefficient of + or - 0.7, then multicollinearity was a problem.

4.3.1 .Table Correlation analysis

Pearson correlation	1	2
Accountability	1	
E-Procurement	.992**	1
	.000	
** Correlation is significant at the 0.01 level (2-tailed).		
* Correlation is significant at the 0.05 level (2-tailed).		

Key 1- Accountability 2- E-procurement

Source: Primary data, 2022

Results in Table 4.15 revealed that there was a positive and significant relationship between e- procurement policies and Accountability (rho=0.992, p value<0.05). This implies that a unit increases in the e-procurement in RPPA increases Accountability by 99.2%.

Table 4.9 Table of Coefficients

Model	Unstandardized Coefficients		T	Sig.
	B	Std. Error		
(Constant)	.324	.863	.375	.001
E-biding	.389	.255	1.525	.046
E-evaluation	.800	.482	1.659	.047
E-contract	.812	.288	0.281	.012

Source: Primary data, 2022

a. Dependent Variable: E-procurement implementation

From the data in table 4.10, the established regression equation was:

$$Y = 0.324 + 0.389X_1 + 0.800X_2 + 0.812X_3$$

Table 4.10, revealed that holding e-bidding, E-evaluation, E-contract, to a constant zero, E- procurement implementation would be 0.324. Indeed, this constant called y-intercept is not realistic but it is a needed parameter in the model.

Also, a unit increase in e-bidding, would lead to increase in E-procurement implementation by a factor of 0.389, a unit increase in E-evaluation,, lead to increase in E-procurement implementation by a factor of 0.800 and a unit increase in E-contract, would lead to increase in E-procurement implementation .The study also found that all the p-values were less than 0.05, this indicates that all the variables were statistically significant in influencing the E-procurement implementation.

R squared is coefficient of determination which tells us the variation in the dependent variable due

to changes in the independent variable, from the findings in the table 4.16 the value of adjusted Rsquared was 0.746, an indication that there was variation of 74.6% on E-procurement implementation due to changes in E-procurement application of RPPA which are: procurement policies, e-bidding, E-evaluation, E-contract,. This shows that 74.6% changes in RPPA E- procurement implementation delivery could be accounted by E-procurement strategies of this institution. A strong positive relationship between the study variables marked by $R=0.746$ is shown

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CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Summary of the major findings

Based on the **first objective of this research which is effect of E-Bidding on competition** and The use of E-Bidding has effect on implementation of public procurement principle in Rwanda Public Procurement Authority most respondent strongly agree with those statement which is 1.3667 of mean, 0.53 of standard deviation, and for E-Bidding prevent fraud and corruption in procurement process in Rwanda Public Procurement Authority, they have 1.5 of mean and 0.6 of standard deviation which mean they strongly agree also with statement. Most number of respondent they strongly agree that organizations level of compliance with E-procurement regulations Rwanda Public Procurement Authority, researcher also wanted to know about level of Transparency and accountability of procurement funds and average of respondent they

strongly agree without doubt that in e-bidding brought transparency because it avoid human contact which also limit corruption .The use of E- bidding lead to increase the efficiency in implementation of public procurement principle ,most of respondent they agree with that statement which is good for any institution with 2.1 of average,1.4 of standard deviation and They neither agree nor disagree that E-Bidding encourages competition. Because of 3.5 and 1.1 standard deviation.

Second objective was to assess the effect of E-Evaluation on transparency the use of E- Evaluation increases effectiveness in public procurement entities and researcher was interested to know whether E-Evaluation motivates openness and transparency in public procurement And

finally I found that most respondent agree with it with 1.3 of mean and 0.9 of standard deviation .I also wanted to know if E-Evaluation reduced time consuming and average of respondent does not agree or agree which is represented by 3.8 of mean and 1 of standard deviation. The next question it was they agree that E-Evaluation encourages local and international supplier to participate in public tenders with 1 of mean.

They did not agree or disagree whether E-procurement provide effective communication between supplier and procuring entity. With 3.7 of mean and 1.1 standard deviation

Third objectives was to establish the effect of E-Contract on effectiveness

first question was If E-Catalogue provides full description of items or services and 2.6 average agree with it. RwandaPublic Procurement Authority (RPPA) provide periodic training to the users of E-Procurement here respondent they were in dilemma so they do not agree with 3.9 average and 0.27 of standard deviation. And also does not provides cost efficiency in E – procurement with 4 of mean and 1.6

of standard deviation and also they weather that have a good internet or not with 3.6 of average

Fourth objective was to establish the relationship between E-procurement and accountability,

there was a positive and significant relationship between e-procurement policies and Accountability ($\rho=0.992$, $p \text{ value} < 0.05$). This implies that a unit increases in the e- procurement in RPPA increases Accountability by 99.2%.

5.2. General conclusion

The study tried to present the findings of assessing the expectations and perceptions of e- procurement application and the implementation of procurement principle in public institutions context in Rwanda. The assessment of procurement principle expectations and perceptions investigated in this study has proved to be reliable in Rwanda Public Procurement Authority though a remarkable number of respondents remained neutral in terms of e-procurement application in Rwanda Public Procurement Authority and some disagreed with the statements

related to procurement principle.

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The research revealed that E-bidding , E-evaluation, E-contract in Rwanda Public Procurement Authority; this indicated by the fact that there was big number of agreement with the statements related to the e-procurement application and the implementation of procurement principle in Rwanda Public Procurement Authority. Thus; the researcher concluded that E-procurement application have an affect procurement principle in Rwanda Public Procurement Authority.

5.3. Recommendation

The researcher recommends Rwanda Public Procurement Authority to put in place rigorous measures to ensure that E-procurement application are based

on carefully crafted plans that take into consideration the regulations of the E-procurement. The management of Rwanda Public Procurement Authority should customization E-procurement website that is suitable for the Rwandan. And also it would not be advisable as management to use it for negotiating purchases that are part of large and expensive deals and management should also select tech-savvy suppliers to fully benefit from e-procurement this can reduce internet hack . Effective coaching in understanding E-procurement application and procurement principle should continuously be organized to refresh Rwanda Public Procurement Authority staff and user.

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