

## **EFFECT OF E-PROCUREMENT IMPLEMENTATION ON THE EFFECTIVENESS OF RWANDAN HOSPITALS: A CASE OF KABAYA DISTRICT HOSPITAL (2019- 2020)**

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ISSN 2277-7733

Volume 10 Issue 4,

March 2022

### **Abstract**

*E-Procurement is more than just a system for making purchases online. It has been advocated as a key performance indicator that can improve the performance and competence of procuring entities. Some procuring entities implement e-procurement and succeed while others fail. The purpose of this study was to examine the effect of e-procurement implementation on the effectiveness of Rwandan Hospitals, the case of Kabaya District Hospital. This study had three specific objectives: to examine the how electronic submission of bids affects the effectiveness of public tendering at Kabaya District Hospital; to find out the effect of easy access to all published tenders on the effectiveness of public tendering at Kabaya District Hospital; to determine the extent to which viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering at Kabaya District Hospital. The study adopted a descriptive approach to establish the effect of e-procurement implementation on the effectiveness of Rwandan Hospitals. The sample size of 24 respondents was selected from a list of 35 Suppliers that have contracts with Kabaya District Hospital and staff of Kabaya District Hospital. Data were collected from the respondents through a questionnaire. The collected data were analyzed by employing descriptive statistics and inferential analysis using a statistical package for social science (SPSS). The data were then presented in tables and charts. The independent variable (Electronic submission of bids) has an effect of 80.2% on the effectiveness of public tendering at Kabaya District Hospital as represented by R Square. The coefficient of correlation value of 0.839 indicates that there was a positive strong correlation between independent and dependent variables. The independent variable (easy access to all published tenders) has an influence of 74.3 percent on the effectiveness of public tendering at Kabaya District Hospital. The coefficient of correlation of 0.786 implies that the independent and dependent variables have a moderate positive relationship. The independent variable (viable communication between bidders and Procuring Entity) according to R Square has a 71.4 percent on effectiveness of public tendering at Kabaya District Hospital. The coefficient of correlation of 0.779 indicates a moderately positive correspondence between the independent and dependent variables. The findings indicate that there is a positive effect of e-procurement implementation on the effectiveness of Rwandan Hospitals. The study recommends that all the procuring entities should adopt e-procurement (Umucyo system).*

A state has different needs for its development and one of the strategies for satisfying the needs is using public procurement. Public procurement is the process by which government departments or agencies purchase goods and services from the private sector. It takes place at both a national and regional level,

and the process will usually be subject to specific rules and policies covering how the relevant decisions are made. The reason behind using public procurement is competition, transparency, and value for money. Judith Gebauer & Arie Segav 2001, defined procurement as “All of the activities involved in obtaining material and services and managing their inflow into an organization toward the end-user. The the-procurement process follows steps that are arranged in a determined order. These steps can be explained hereunder as procurement cycle comprises three main phases namely: pre-tendering including needs assessment, planning, and budgeting, the definition of requirements, determining priorities and choice of procedures; tendering including the invitation to tender, evaluation, and award; and post-tendering including contract management, order, and payment (Judith Gebauer & Arie Segav 2001). The key steps for planning and implementing a successful e-procurement strategy at any organization consists of assessing and documenting the current procurement process; assessing and documenting the desired future-procurement strategy; identifying the gaps between where you are now and where you want to be; identifying the process and system solutions that will be required to bridge the gaps; documenting the important benefits that will come from implementing an e-procurement system (hard, soft and intangible benefits); developing key performance indicators (KPIs) to measure success against your identified procurement goals. It also consists of creating a business case that addresses the most critical pain points of your buying organization; securing executive sponsorship and an internal champion for the initiative, developing a plan, and committing resources to the project (Judith Gebauer & Arie Segav 2001).

For the majority of public organizations, the process of implementing and adopting e-procurement systems is like any other IT system that presents challenges as a result of internal reasons such as organizational issues as well as external reasons such as lack of IT infrastructure, skilled personnel, and standardization in addition to the related legal issues (Lindskog, 2008; Choudhari et al., 2011; Manoharan and Carrizales, 2011; Padhi and Mohapatra, 2011).

Most articles did not have a formal discernable definition of electronic procurement. Instead, e-procurement was described in rather general terms, mentioning facets of it as illustrations. There is no single definition of e-procurement. That is why for Rwanda, the meaning of e-procurement as it is described is different from e-procurement in Europe (Richard, 2019).

E-procurement System aims at streamlining the government procurement process, enhancing service delivery, increasing transparency (Code name: Umucyo), providing one single window for government procurement, and reducing corruption loopholes and fraud (Richard, 2019).

The following was the timeline of the project (Umucyo system): May 2015 – June 2016 - System development in Rwanda (13 months), July 2016-June 2017 - Pilot phase with 8 entities, July 2017-2018 - Roll out 131 other Entities, July 2018 - Roll out 8 Extra Budgetary Entities, WB funded projects – ongoing now, July 2019 –

District Hospitals (Richard,2019). Umucyo system (e-procurement) implementation is followed by the benefits like reduced time & cost, 99% reduced bidders' movement, Improved security with PKI usage, improved transparency, reduced opportunity for corruption, reduced forgery with linkages, improved compliance to the Rwanda public procurement law(Richard,2019). E-procurement System automates the public procurement process and enables the interactions of Government to business services (G2B).

Although the government of Rwanda started using the online system to purchase goods, works, services, and non-consultancy services to help the Government to ensure the efficiency of public procurement with the standardization of electronic documents, supplier registration, goods and services information, and to streamline public procurement transactions for efficient government service delivery, still there is no research conducted on the effect of e-procurement implementation on the effectiveness of Rwandan Hospitals. Moreover, most e-procurement empirical research has focused on large economies, technology and smaller economies, and traditional industries (Tatsis; Mena Van Wassenhove & Whicker, 2006; Chipiro,2009).

Moreover, according to Uddin, (2015), in the USA, Australia, and Europe, there are very few empirical studies in the literature on the adoption of e-procurement and its effects as well as challenges facing its implementation in developing countries including Rwanda.

Therefore, there was a need to fill this gap by assessing how e-procurement is applied and what its effect is on the management of hospitals in Rwanda, and investigating challenges associated with the adoption of e-procurement in Rwanda. Further, the findings of this research added significant empirical information and findings to previous studies on the effect of e-procurement on the performance of managerial hospitals and challenges associated with its implementation in Rwanda. It is for that reason this research was conducted to shed light regarding the effect of Umucyo system (e-procurement) implementation on the effectiveness of Rwandan Hospitals especially in Kabaya District Hospital from 2019 to 2020.

### **Research Questions**

1) how the electronic submission of bids affects the effectiveness of public tendering at Kabaya District Hospital; 2) what are the effects of easy access to all published tenders on the effectiveness of public tendering at Kabaya District Hospital; 3) To what extent does communication between bidders and Procuring Entity leads to the effectiveness of public tendering at Kabaya District Hospital

### **Methodology**

It was stressed that methodological research is a controlled investigation of the theoretical and applied aspects of measurements, mathematics, and statistics, and ways of obtaining and analyzing data (Fred. N Kerlinger, 1964:700). Likewise, the Contemporary English dictionary (1995: 231), defines methodology as a set of methods and principles that are used when studying a particular kind of work. To

sum up, a method comprises all intellectual processes, an orderly system or arrangement that enables a researcher to reach one aspect of knowledge by using various techniques. This chapter intends primarily to highlight the methods and techniques that have been used to collect data to carry out this study.

It is primarily intended to make a description and analysis of the effect of the implementation of e-procurement in Rwandan Hospitals, especially in Kabaya District Hospital. For this reason, it will bear an exploratory aspect, especially because there has not been a similar study before.

This chapter gives a detailed presentation of the tools and techniques that were used to investigate the research issues in the field. It includes spelling out the area of the study and study population. It further describes the methods and techniques used the choosing the sample size and selection instruments like questionnaires, interviews, and documentation were used. It also includes data processing, analysis, and problems that were encountered in this research, finally, this chapter provides the background against which the findings and conclusions of the study were examined and appreciated regarding their reliability and validity.

### **Study population**

William fox (1992:06) defines population as “a set of cases from which a sample is drawn and to which a researcher wants to generalize”. He continues by asserting that population is data about all or almost all cases to which a researcher wants to generalize.

For any study to succeed, information needs to be representative of the population covered by the research questions. A population refers to the total number of elements covered by the research questions (Scottet al 1998:307). On the other hand, “population can be defined as the totality of persons or objects with which a study is concerned” (Grinnell et al., 1990:118).

Christensen (1991:101) asserts hat, population refers to all the events, things, or individuals that are the objects of investigation. This research is made to study the effect o e-procurement implementation in Rwandan Hospitals especially in Kabaya District HHospital thus the researcher surveyed a selected unit (Staff) technically determined. The population under study was made of suppliers.

As it has been indicated above, given the width of this topic under study, the population is also wide as it is located in procurement dominates. Indeed, the population under this study is derived from the selected staff and 24 suppliers that have contracts with Kabaya DistrictHospitall.

### **Findings**

Findings on the effect of electronic submission of bids on the effectiveness of public tendering at Kabaya District Hospital

The following section discusses the presentation, analysis, and interpretation of related findings. The answers to Likert scale questions are given as frequencies/percentages. *Strongly Disagree* was at the bottom of the scale, followed by *Disagree*, *Neutral*, *Agree*, and *Strongly Agree*. While correlation and regression tests were used to assess the relationship.

**Table 1 - Respondents’ views on electronic submission of bids and effectiveness of public tendering at Kabaya District Hospital**

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Electronic submission of bids affects effectiveness of public tendering at Kabaya District Hospital by time saving.	0	0	1	9	14	N= 24
	0.0	0.0	4.2	37.5	58.3	100 %
Electronic submission of bids affects effectiveness of public tendering at Kabaya District Hospital by flexibility.	0	0	2	10	12	N= 24
	0.0	0.0	8.3	41.7	50	100 %
Electronic submission of bids affects effectiveness of public tendering at Kabaya District Hospital by cost reduction.	0	0	3	5	16	N= 24
	0.0	0.0	12.5	20.8	66.7	100 %
Electronic submission of bids affects effectiveness of public tendering at Kabaya District Hospital by eliminating paper work	0	2	3	4	15	N= 24
	0.0	8.3	12.5	16.7	62.5	100 %

Source: Survey, August 2021

Table1 shows that the 58.3% position strongly agreed and the 37.5% position agreed while the remaining 4.2% were neutral on that the electronic submission of bids affected the effectiveness of public tendering at Kabaya District Hospital .The findings show that 50% of total respondents strongly agree, 41.7% of respondents agree and 8.5% were neutral that electronic submission of bids effectiveness of public tendering at Kabaya District Hospital by flexibility meaning that flexibility is among of benefits of e-procurement in Kabaya District Hospital.

Findings on how easy access to all published tendeth rs affects effectiveness of public tendering at Kabaya District Hospital.

The second objective of the study was to find out the effect of easy access to all published tenders on effectiveness of public tendering at Kabaya District Hospital. The following section discusses the presentation, analysis, and interpretation of related findings. The answers to Likert scale questions are given as frequencies/percentages. Strongly Disagree was at the bottom of the scale, followed by Disagree, Neutral, Agree, and Strongly Agree. While correlation and regression tests were used to assess the relationship.

**Table 2 - Respondents views on easy access to all published tenders at Kabaya District Hospital Hospital**

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
	0	1	2	7	14	N=24

Easy access to all published tenders affects effectiveness of public tendering by time saving.	0.0	4.2	8.3	29.2	58.3	100%
Easy access to all published tenders affects effectiveness of public tendering by transparency.	0.0	2	2	3	17	N=24
Easy access to all published tenders affects effectiveness of public tendering by competition.	0.0	0	2	6	16	N=24
Easy access to all published tenders affects effectiveness of public tendering by cost reduction	0.0	0.0	8.3	25.0	66.7	100%
Easy access to all published tenders affects effectiveness of public tendering by time saving.	0.0	1	2	3	18	N=24
Easy access to all published tenders affects effectiveness of public tendering by cost reduction	0.0	4.2	8.3	12.5	75.0	100%

Source: Survey, August 2021

Table 2 above shows that the 58 strongly agreed 29.2% agreed and, 8.3% were neutral while 4.2% disagree that easy access to all published tenders affects the effectiveness of public tendering by time-saving Kabaya District Hospital.

The findings back up Rama (2014) that electronic procurement enhances key principles of procurement namely; transparency, value for money (efficiency), and timeliness. E-procurement enhances transparency and fairness by bringing together procuring entities and bidders in a virtual environment. Enhanced transparency and fairness bring increased private practitioners' confidence in the procurement system. This confidence increases participation and competition.

Findings on how viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering at Kabaya District.

The third objective of the research was to determine the extent to which viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering at Kabaya District Hospital. The following section discusses the presentation, analysis, and interpretation of related findings. The answers to Likert scale questions are given as frequencies/percentages. Strongly Disagree was at the bottom of the scale, followed by Disagree, Neutral, Agree, and Strongly Agree. While correlation and regression tests were used to assess the relationship.

**Table 3 - Respondents views on how viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering at Kabaya District.**

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering by transparency.	0	2	1	8	13	N=24
	0.0	8.3	4.2	33.3	54.2	100%
Viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering by cost reduction.	0	0	2	5	17	N=24
	0.0	0.0	8.3	20.8	70.8	100%
Viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering by Competition.	0	2	3	4	15	N=24
	0.0	8.3	12.5	16.7	62.5	100%
Viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering by flexibility.	0	1	2	7	14	N=24
	0.0	4.2	8.3	29.2	58.3	100%

Source: Survey, August 2021

Table 3 shows that the 54.2% position strongly agree and the 33.3% position agree while 4.1 % position is neutral and 48.3 % position disagree on that the Viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering at Kabaya District Hospital by transparency meaning that the communication within e-procurement portal of Kabaya District Hospital is viable. When there is communication from bidders as request for clarification during tendering process, e-procurement its self stops the tendering process until the the requested clarification is responded.

Table 3 above shows that the 70.8% position is strongly agree and the 20.8% position is agree while 8.3% position is neutral on that the Viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering at Kabaya District Hospital by cost reduction meaning that one of the advantages of e-procurement to the suppliers dealing with Kabaya District Hospital is tendering cost reduction because after accessing all published tenders at their front desks and submission of their bids without getting out of their offices save their time, transport and printing costs.

Besides, table 3 above shows that the 62.5% position is strongly agree and the 16.7% position is agree while 12.5 % position is neutral and 8.3% disagree on that the Viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering at Kabaya District Hospital by competition meaning that the communication done through Kabaya District Hospital e-procurement portal leads to competition in tendering because using e-procurement, there reduction of cost in terms of saving time because everything is done on the front desk of the bidder, transport and printing costs and reduction of office supplies like papers & toners and reduction of office equipment like printers. The reduction in cost, its self encourages the bidders to submit their bids so that the Kabaya District Hospital receives a big number of bids competing for the published tender at the Kabaya District Hospital e-procurement portal.

The results are complementary to those made before by Robert E. et Al. (2007) where they also identify data transaction accuracy as a driver. These are all associated with “improving Communication”. Since e-procurement allows sections of electronic documentation to flow through the supply chain; it improves the speed of returns and subcontractor price visibility. As it is easier to communicate requirements in a quicker more accessible manner, it will result in a better understanding of requirements and due compliance.

World Bank Global (2017) reported that electronic procurement (e-procurement) systems have helped governments across the world to reduce costs and increase transparency in the-procurement process. From the beginning of 2014, the Rwandan government started the process of becoming the first country in Africa to realize those benefits, by partnering with a South Korean firm to develop its own e-procurement system.

### **Conclusion**

The purpose of this study was to examine the effect of e-procurement implementation on the effectiveness of Rwandan Hospitals, the case of Kabaya

District Hospital. This study had three specific objectives: To examine how electronic submission of bids affects effectiveness of public tendering at Kabaya District Hospital. To find out the effect of easy access to all published tenders on effectiveness of public tendering at Kabaya District Hospital. To determine the extent to which viable communication between bidders and Procuring Entity leads to the effectiveness of public tendering at Kabaya District Hospital. The study adopted a descriptive approach to establish the effect of e-procurement implementation on the effectiveness of Rwandan Hospitals. The sample size of 24 respondents was selected from a list of 35 Suppliers that have contracts with Kabaya District Hospital and staff of Kabaya District Hospital. Data were collected from the respondents through a questionnaire. The collected data were analyzed by employing descriptive statistics and inferential analysis using statistical package for social science (SPSS). The data were then presented in tables and charts. The findings indicate that there is a positive effect of e-procurement implementation on the effectiveness of Rwandan Hospitals.

### **References**

- Brousseau, E. (2000). *Information Technologies and Inter-firm Relationships: The Spread of Inter-organizational Telematics Systems and Its effect on Economic Structure*, International Telecommunications Society, Venice, June.
- Bubeck, B. and Fuchs, G. (2003) 'Strukturwandel der Verwaltung und e-Government – Das Fallbeispiel der elektronischen Beschaffung und Vergabe', in Bubeck, B. and Fuchs, G. (Eds.): *Strukturwandel der Verwaltung und e-Government – Das Fallbeispiel der elektronischen Beschaffung und Vergabe*, TA-Akademie, Informationsgesellschaft, Stuttgart, pp.1–27.
- Diane I (2016) *adoption of e-procurement and implementation of basic principles of public procurement in Rwanda*.
- Gilbert A. Churchill, (1992), *Basic Marketing Research*, 2<sup>nd</sup> edition, the Dryden Press, U.S.A
- Grinnel Richard M. Jr. and Williams Marget, (1990), *Research in social research*, Peacock publishes, inc. U.S.A
- Judith Gebauer& Arie Segav (2001). "Assessing Internet-Based procurement to Support virtual enterprise."
- Berger P.D, and Zeng A.Z (2006). Single Versus Multiple Sourcing in the Presence of Risks. *Journal of Operational Research Society*, vol. 57, no. 3, pp. 250-261
- Caridi, M., Cavalieri, S., Diazzi, G. and Pirovano, C. (2004). *Assessing the effect of EProcurement Strategies Through The Use Of Business Process Modeling and Simulation Techniques*, *Production Planning & Control Journal*, Vol. 15 No. 7, pp. 647-661.
- Lindskog, H. (2008) 'E-procurement of telecom services for the public sector', *Int. J. Knowledge Management Studies*, Vol. 2, No. 1, pp.17–28.
- Manoharan, A. and Carrizales, T.J. (2011) 'Technological equity: an international perspective of e-government and societal divides', *Electronic Government, An International Journal*, Vol. 8, No. 1, pp.73–84.
- Padhi, S.S. and Mohapatra, P.K.J. (2011) 'Information technology readiness index for adoption of e-procurement', *Electronic Government, An International Journal*, Vol. 8, No. 1, pp.20–39.