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The Impact of E-Procurement on the Performance of Public Institutions in Rwanda

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Abstract

The general objective of this study was to assess the impact of electronic procurement on the performance of public institutions in Rwanda. This study was mainly carried out following the reports that emerged citing poor performance of Rwandan public institutions which was mostly been attributed to ineffective and inappropriate running of the public finance during procurement processes. In order to reach the achievement of the research objectives, a combination of questionnaires, interviews, documentary reviews and analyzing reports were used to gather both primary and secondary data respectively from 42 respondents. Findings revealed that e-bidding offers a more efficient communication infrastructure with lower transaction costs. This was followed by the finding that MINECOFIN has experienced an improvement in the efficiency of procurement indicated by the application of electronic procurement. Hence, e-procurement has improved the performance of the ministry since it reduced its expenses from 24.4 million in 2015 to 18.6 million in 2016. Lastly, from the Chi-square test, the researcher learnt that e-procurement in terms of electronic bidding, electronic supplier registration, electronic billing and electronic payment is significantly related to the performance in MINEFCOFIN. Regarding functionality analysis by the top management should be looked into and made a culture by the responsible personnel at the ministry. The ministry was recommended to sensitize the general public on e-procurement system called ?"UMUCYO?". Strong relationship between the study?s variables was revealed after the chi-square test which was done out of the data gotten from the respondents. From the findings P-value (0.019) is less than the significance level (0.05), we then conclude that there is a correlation between e-procurement and performance at MINECOFIN.

Index terms— e-procurement, e-bidding, performance.

1 Introduction

ver the years the world has seen a massive change in the management of businesses; from organizations replying more on specialized inhouse service functions, conventional multipurpose service functions to outsourced services. Information technology (IT) has helped many businesses in improving their operational efficiencies by providing internet based solutions for their supply chain networks and electronic solutions. From the late 1990s a raft of new e-commerce technologies emerged which revolutionized working practices, threatening existing business models. As a result of this development on the use of e-commerce in business-to-business market, there has been significant adoption of new supply chain related technology and applications by organizations globally **??**Sheng, 2002).

A study on a Japanese company named Suzuki Manufacturers in 2001 stated that as has been evident for the past decade; Asian consumers have flocked to digital technologies, with adoption rates for some devices,

especially mobile phones, outstripping Western rates. IT usage has skyrocketed in Asia, and across age segments the "consumer decision journey" has increasingly moved online. The pattern for most purchases now is that they are researched online and concluded in the branch, but we are beginning to see online purchasing as well. A significant constraint on the progress of this trend is the state of regulation in many countries, which require purchases to be finalized by customers signing documents in branches, in the presence of branch employees **??**Kossowki, 2007).

In Malaysia, the government at some point issued a statement calling for all suppliers to use the eprocurement system. Kaliannan et al. **??**2009) pointed out that Malaysian public sector are going through a rapid change especially as far as adoption of technology is concerned. Adoption of e-government and particularly e-procurement is inevitable for the government. Eprocurement is associated with benefits to the purchasing and supplying organizations, its implementation comes with a number of challenges. He categorizes these challenges into organizational and economic-legal challenges. Organizational challenges include: restructuring difficulties and resistance to change while economic-legal challenges include: regulatory framework, technological requirement, capital requirement and the general education level of the employees.

A review conducted by Commonwealth of Australia indicates that the National governments of Italy, New Zeeland, Scotland, New South Wales and Western Australia in 2005 revealed that these countries were already using e-procurement system for public procurement activities.

Implementation of eprocurement is an elaborate process and requires transformation and restructuring of government procurement structures. The process requires electronic systems for: demand estimation, budget definition, needs notification, sourcing, contracting and ordering and supply monitoring **??**Howard et al, 2005).

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In Africa, the concept of e-procurement is just gaining popularity especially in the public sector. To deal with the problems of lack of accountability and transparency in procurement activities in the public sector, most African countries have resorted to legal reforms and adoption of procurement. Tanzania for instance put into place e-procurement systems to allow e-sharing, e-advertisement, e-submission, e-evaluation, e-contacting, e-payment, e-communication and echecking and monitoring to ensure all public procurement activities are conducted online **??**Leo Sun, 2009).

According to Murphy (2000), e-procurement is associated with increased efficiency, lower transactional costs, reduced corruption and enhanced control and monitoring of public procurement process. On the other hand pointed out that e-procurement can lead to improved labor productivity.

In Kenya, the government actively got involved in adoption of e-procurement when the Jubilee government came into power. Since then there has been a lot of pressure and reforms to ensure all public procurement functions are conducted online. The Kenyan government made it mandatory for procurement of all public goods, works and services to be procured through online platforms. For County governments in particular, there is a directive for all procurement and finance operations to be conducted online. For instance, the government introduced integrated financial management information system (IFMIS) that is mandatory for all the 47 counties. IFMIS was introduced to improve governance by providing real time financial information and effectively programs, formulate budget budgets. It also enhances transparency and accountability and acts as a deterrent to corruption and fraud **??**Kitwa, 2008).

Over the last decade, the Government of Rwanda has undertaken a number of reforms including business registration, public finance management and procurement reforms which have initiated changes to the law and regulations; it has also successfully developed Financial management information system FMIS and has installed country wide fiber optic backbone -both of these are huge developments and critical to the success of its vision. Building from these achievements, the Government of Rwanda initiated a project to automate the public procurement cycle known as e-Procurement and was designed to facilitate the transformation of the procurement discipline within Rwanda for the future. The electronic Government Procurement project was aligned with the e-Government project; eProcurement System' as outlined in the Government of Rwanda National ICT Strategy 2015 (MINECOFIN, 2015).

Rwanda's only system that has made eprocurement possible is termed as "Umucyo." It is a single channel, portal and point of access for Rwanda procuring entities allowing to negotiate better contract terms and to realize savings and achieve value for money. It provides suppliers with increased access to markets without additional marketing efforts and a faster and more efficient method for quoting and increased order accuracy through receipt of electronic orders. Some public institutions in Rwanda among others RRA, commercial banks, insurance companies, MINIFRA, MINECOFIN, PPA, RDB and the districts in Kigali city have implemented this system of to embrace eprocurement which will be expected to be used by all public institutions in the whole country. Therefore, this study aims at finding out the success story about the implementation and the impact of e-procurement on the performance of public institutions in Rwanda with reference to Ministry of Finance and Economic Planning. Performance in the public sector is indeed a necessity and public organizations are always advised to ensure transparency of public decisions and the use of public funds to boost their respective performance. To note is that performance in the public sector requires the existence of a relationship between the

national vision, mechanisms and results; and the results should be simultaneous exertion of proper budgeting, efficiency and effectiveness. When a public institution fails to meet its desired objectives as planned, it becomes a big threat to both the government and the general public who are the stakeholders in such public institution ??Egbide, 2015).

Poor performance of public institutions has mostly been attributed to ineffective and inappropriate running of the public finance during procurement processes. It is therefore a good time to be aware of the necessity to give value for money and to effectively implement performance on all levels of the public sector during procurement process to eradicate the cases of speculative performance and achieve sustainable performance. Providing information on the performance of the public sector the public's need to know is satisfied and can also can be a useful tool for government in order to assess their own achievements (Public Account Committee, 2014). In addition, MINECOFIN reports emerged citing poor performance of the ministry which was mostly been attributed to ineffective and inappropriate running of the public finance during procurement processes. The ministry used a lot of sums of money between 2013, 2014 and 2015 worth 20.4 million, 23.2 million and 24.4 million respectively.

In addition, the issue of e-procurement has gained currency as a topical issue for discussion on several platforms in recent times; its potential is less researched in Rwanda being recently implemented. In view of this, a study in this area is imperative. The research is prompted to problem hence raising a need to find out whether electronic procurement has an

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Volume XVIII Issue II Version I Year ( ) impact on the performance of public institutions in Rwanda with reference to MINECOFIN.

4 II.

5 Objectives

The main purpose of the study was to assess the impact of electronic procurement on the performance of public institutions in Rwanda in particular Ministry of Finance and Economic Planning. Specifically 1. To ascertain the effectiveness of e-procurement activities in the Ministry of Finance and Economic Planning of Rwanda; 2. To evaluate the performance level of the Ministry of Finance and Economic Planning of Rwanda; 3. To find out the relationship between the eprocurement and the performance of the Ministry of Finance and Economic Planning of Rwanda.

III.

6 Literature Review

The research under study was guided by three theories namely: disruptive innovation, innovation diffusion and technology acceptance theory. Barahona and Elizondo (2012) discussed the theory of disruptive innovation. The theory points out that e-procurement are an innovation. As such it requires continual improvement. Because of such improvements, it disrupts the normal procurement operations and processes. It is characterized by: small and costly client base and non-attractiveness at the initial stages of implementation, some level of acceptance as the system is implemented, new competition as innovation continues and continuous quality improvement to improve adaptability to user and stakeholders needs.

It requires critical resources, processes and values. Critical resources include resources supporting the normal business activities such as; People, technologies, product designs, brands, customer and supplier relationships, relationship management with its clients and suppliers and marketing activities. Critical processes include decision making protocols and coordination patterns that supports operations of an existing business operations. In addition, organizational cultural values, belief system and assumptions are also critical (Barahona & Elizondo, 2012). According to Barahona and Elizondo (2012), the theory of disruptive innovation recognizes the fact that public organizations and systems are less flexible. Therefore, the adoption of eprocurement strategies requires a strategic and proactive approach so as to build the system within the existing structures rather than adoption of completely new systems. Adequate preparation in terms of the right technology, leadership to foster change process, training of the employees and awareness campaign among users is critical. It is important to note that sometimes disruptive innovations may only work in the short run.

Innovation diffusion theory was proposed by Rogers ??1962). The theory presents that innovation is a process aimed to improve economic development. According to innovation diffusion theory, innovation is defined as an idea perceived as new by individuals. OECD (1997) cited by Naale et al (2006) defined innovation as all the scientific, technological, organizational, financial, and commercial activities necessary to create, implement, and market new or improved products or processes Innovation theory brings on board four important elements. The first element is innovation that puts attention on the ability to come up with more efficient and better ways of doing things.

Rogers ??1962) asserted that this theory categorize adopters of innovation into five categories; innovators, individuals who want to be the first to try the innovation, Early Adopters, people who represent opinion leaders,

Early Majority individuals who need to see evidence that the innovation works before they can adopt it, Late Majority, skeptical individuals who only adopts an innovation after it has been tried by the majority and Laggards, individuals who are very skeptical of change and are the hardest group to involve in the innovation process.

The theory of technology acceptance is one of the most popular theories in understanding adoption of computer technologies. Adoption of any innovation or especially information technology based requires investment in computer based tools to support decision making, planning communication. However, these systems may be risky. It is therefore very critical that the systems are specified on organizational preference and logic. It is also necessary to understand that people may resist technological changes. There must be an effort to understand why people resist changes and the possible ways through which such issues can be resolved. Appropriate organizational culture must be inculcated; the change must be adopted in an incremental way accompanied by communication. Everyone involved must be informed on their roles and empowered to perform the respective roles (Graham, 2005). Thus the three theories fit to conduct the whole study. This will help the researcher to avoid deviation on the research variables and the research statement. Related study also was reviewed in the next paragraph.

Colander (2003) conducted a study on critical factors that influence e-procurement Implementation Success in the Public Sector. They found out that despite the efforts put by the governments through reforms towards adoption of e-procurement, adoption of e-procurement still remains a major challenge for many procurement functions. The findings further revealed that successful implementation of e-procurement established systems and feedback mechanism. They

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Volume XVIII Issue II Version I Year ( ) D associated e-procurement with improved procurement performance. Findings of study done by Cooper and Schindler (2003) on e-procurement revealed that eprocurement facilitates documentation of the bidding process which in turn enhances transparency and accountancy especially in public procurement. The research further revealed that e-procurement is associated with improved efficiency and enhanced procurement operations. Other benefits of e-procurement include: increased customer satisfaction, improved professionalism in the procurement functions improving public perceptions the procurement function.

The findings of William (2009) showed that implementation of ERP enhances flexibility which translates to improved earning management. A part from flexibility, ERP systems enhance management accounting and decision making that in turn enhances management's ability to manage accruals and other factors that may constrain organizational abilities. In his study on security for Enterprise Resource Planning Systems established that e-procurement enhances security of management data which may enhance procurement performance. The above finding is in agreement with the findings of Kalinnan et al **??**2009) implementation of e-procurement itself is not a guarantee for success in the procurement operations. For this system to succeed there is need for regulations and policies if the system is to succeed. The study also noted that a number of e-procurement programs fail because of poor technology and lack of leadership. Other factors that lead to such failures include: lack of awareness, resistance to change, poor coordination of functions and ineffective implementation programs. McKenzi (2006) in his study on The Impact of E-Procurement on the Number of Suppliers: Where to Move to reported that a lot of empirical literature already exists confirming that e-procurement leads to increased number of suppliers. This study also revealed that different organizations adopt different online strategies for their procurement functions.

Leo Sun (2009) conducted a study on Essentials of e-Sourcing: A Practical Guide for Managing the Process in an Environment. The study revealed that e-sourcing can be used as a tool to reduce process time, generate sourcing savings and to drive incremental revenues. He further found out that implementation of e-sourcing starts with selection of an e-tool to complement an organizational strengths, followed by change management and training of the staff and other stakeholders where possible. Similarly, Colander (2003) conducted a study on the critical factors that influence successful implementation of eprocurement in the public sector and identified end user uptake and training, supplier adoption, system integration, security and authentication, re-engineering process, performance measurement, top management performance, change management program and communication systems as the critical factors that determine the success of implementation of e-procurement.

Most researchers such as Khan (1998) urged that public institutions are assaulted by the pressure of globalization and competition from private run institutions new ways to add value to the services. The question of what drives performance is at the top in understanding superior performance and hence striving for it. Substantial research efforts have gone into addressing this question, starting from the strategic level and going down to operational details.

However, for the present study, the researcher believes Rwanda is still faced with some challenges which need to be addressed in order to promote effective and efficient institutional performance and these are: The development of an efficient monetary transfer system in Rwanda that has been hampered by so many factors. Rwanda is faced with infrastructural deficiency such as erratic power supply and communication link in some areas, inadequate skilled managers and requisite tools on end users and client systems, high charge or cost for the e-payment terminals so the strong legislation should set out Huppert (2010) found out that e-procurement solutions leads to improved satisfaction of customer demands, improved contract compliance, enhanced supply chain capacity, reduced inventory costs and improved inventory management. The group identified the keys to e-procurement success. They pointed out that e-procurement should not be treated as a strategy, the organization must know

what is spent on, the organization must have a plan, the implementation of eprocurement begin by benchmarking, the implementation of e-procurement must be led from the top, the implementation of e-procurement must be supported by other functional areas.

standard charges for e-services. Hence, these factors are believed to be hampering e-procurement services effectiveness in the country hence affecting performance of most public institutions.

8 IV.

9 Research Methodology

This section intends to explain how the data was collected from the field work of MINECOFIN and then analysed.

10 a) Research Design and data collection techniques

The study adopted a descriptive research design and correlational study design where descriptive statistics was applied to analyze data from questionnaires and interview guide. The data was sourced from tools used and from MINECOFIN reports and internets documentsto gather primary and secondary data respectively. In this research, the primary data composes of information got from questionnaires and interviews were held with selected respondents while secondary data of this research was extracted from different text books, and other previous research documents in the same field.

11 b) Target Population

According to Cooper and Schindler (2003), a population is referred to as the total collection of elements about which the researcher wishes to make some inferences. the population of this research involved forty two (42) staff from five departments which include the following: Procurement, Treasury, finance, IFMIS and IT. These departments were selected because they are the departments which are so much related with the subject of this study. Therefore, the researcher was able to access adequate and reliable information from the respondents. The researcher took the entire population due to its affordability and therefore the universal approach was applied. Thus a universal sampling technique was applied.

12 c) Validity and Reliability

Concerning reliability of the instrument, a pilot study was conducted with a few employees from other public institutions. The researcher's target in conducting pilot study is to ascertain the reliability of the instruments before distributing them to the respondents. This also aims at ensuring that the instrument would give the same results when given the second time to the respondents, in other words to collect the same data consistently under similar conditions. The concept therefore deals with the accuracy of the instrument and the consistency of the data collected by it.

13 d) Data Analysis

The primary data was analyzed using both descriptive and correlation statistical through SPSS version 22. Phelan and Weran (2005) urged that SPSS is one of the most widely used available and powerful statistical software packages that covers a broad range of statistical procedures, which allows a researcher to summarize data. In addition, the study used chi-square analysis since the researcher interested in establishing the impact of e-procurement on performance of MINECOFIN.

14 e) Ethical Considerations

A formal consent was requested from each interviewee before interviewing him/her or engaging in any kind of discussions; respondents were informed that they have the right to refuse any participation in the study; respondents were granted confidentiality regarding any information given and its use exclusively for the research purpose. Anonymity was guaranteed; No interview was done with children.

V.

15 Results and Discussion

As mentioned, a sampled number of employees were selected to help the researcher be equipped with sufficient information in order to assess the factors concerning the appreciation of respondents on eprocurement in MINECOFIN. These factors were described in terms of electronic bidding, electronic supplier registration, electronic billing and electronic payment.

16 a) Practices of E-procurement analysis at MINECOFIN

According to the results acquired, the intention was to assess the appreciation level of respondents on e-procurement effectiveness in MINECOFIN as regards to the ministry's e-billing bidding. As indicated in the table, among all the statements provided there were only two issues that respondents were undecided on and the

rest agreed and strongly agreed. In the table it is indicated the results of these practices as follows; E-bidding offers a more efficient communication infrastructure with lower transaction costs was agreed at 76.2%, Top management of MINECOFIN always assesses functionality of e-bidding was also agreed at 33.3%, MINECOFIN uses e-bidding components to watch over safety measures and risk was agreed at 76.2% whereas the use of e-bidding involves reducing costs and optimizing information flows in MINECOFIN was strongly agreed at 59.5% of the total respondents. However, the issues in which respondents were undecided include; functionality analysis by the top management at 26.2% and this was also disagreed by 16.7%; and that MINECOFIN uses e-bidding components to watch over safety measures and risk at 9.5% of the whole population that was reached.

Therefore, since most practices were agreed and strongly agreed the researcher learnt that e-bidding in the MINECOFIN are supported for better performance.

i. Views on electronic supplier registration This sub section discusses the respondents' level of appreciation on e-supplier registration; and the results are clearly indicated in the table whereby the findings are in form of percentages whereas explanations are under the table. Regarding the above question, the researcher wished to understand if e-procurement at MINECOFIN is in a better position as a kind of enjoying its contribution towards the institution's performance. Results gathered revealed that in most issues tackled, most of the respondents strongly agreed and agreed on the preset statements such as; Electronic supplier registration has considerably reduced computational errors was strongly agreed at 58.3%, With e-supplier registration, transaction data is stored was agreed at 75.0%, MINECOFIN's e-registration has restricted the access of accounting data to only staff concerned was agreed at 83.3% and that E-registration services offered in MINECOFIN have considerably reduced manpower costs was agreed at 40.5%.. However, when it came to the activity; eregistration services offered in MINECOFIN have considerably reduced manpower costs; some respondents represented by 26.2% had to disagree.

Hence, e-supplier registration is generally recognized and supported by the staff of MINECOFIN which helps to improve their performance. This is because most practices were agreed and strongly agreed.

ii. Views on Electronic Billing This sub section discusses the respondents' level of appreciation on EBM use compliance and the results are clearly indicated in the table whereby they in form of percentages. The explanations are under the table.

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Volume XVIII Issue II Version I Year ( ) As revealed in the table, E-billing offers a paperless mode of transaction was agreed at 76.2%, Ebilling is both customer friendly and also beneficial was agreed at 66.7%, E-billing provides a great advantage of saving time was strongly agreed at 40.3% and lastly there is no loss of bill when making use of the electronic mode of billing was strongly agreed at 66.75%. Therefore, findings as indicated in the table majorly indicate that e-procurement has been complied with since the electronic supplier registration was mainly agreed and strongly agreed by the study's respondents.D

From the table, the researcher learnt that the biggest percentage of the bidders and the MINECOFIN staffs embrace the electronic registration of suppliers for the better and effective procurement process at the ministry.

iii. Electronic payment In the sub section underneath, the researcher inquired from the respondents such that she could be informed about their level of appreciation as far as credit risk controlling is concerned. The findings that were collected were presented in the table 10 as shown below.

As revealed in the table, the researcher targeted the respondents so as to get information about the factors for implementation of electronic payment whereby these issues were stated for the respondents to identify their appreciation degree in terms of strongly agree, agree, disagree or strongly disagree with. It was clearly witnessed that all the practices were strongly agreed and agreed apart from with electronic payment, the number of MINECOFIN bidders has increased which was disagreed by 9.5%. In an interview with the procurement manager on the question which was targeting more information from him on the above disagreed issue; he revealed that one of the challenges is due less knowledge of the public about ICT which has to some extent stopped some bidders to register online. However, he went ahead to mention that the government is trying hard to sensitize the general public on electronic procurement.

18 iv. Respondents' views on performance in MINECOFIN

This section presents the respondents' appreciation degree concerning the performance in MINECOFIN. The results are later explained under the table for better understanding. As revealed by the respondents in the table, in relation to appreciation on the performance level following the practices which stated that e-procurement has reduced the costs at MINECOFIN, and this was agreed at 50.0%. E-procurement led to time saving in the procurement process at MINECOFIN and it was agreed at 59.5% and that w E-procurement has promoted quality supply of services and goods at MINECOFIN which was strongly by the 59.5% of the total respondents whereas 66.7% agreed that eprocurement has reduced paper transactions at MINECOFIN.

Therefore, since all the practices that were set were both agreed and strongly agreed, it is enough to understand that there is evidence of the existence of the fact as far as the contribution of e-procurement to the performance in MINECOFIN.

The findings are supported by Gill (2010), who urged that using electronic procurement in public intuitions is a great medium of maintaining performance by the authorities for efficiency and effectiveness. He added that weak revenue administrations, low taxpayer morale, and poor governance closely linked though not unique to lower-income countries, are especially entrenched there.

19 b) The analysis of procurement expenditure of MINECOFIN

The annual reports of MINECOFIN were reviewed in order to analyse performance of MINECOFIN and in particular the expenditure the ministry experiences before and after application of eprocurement. From the findings indicated in the table, the researcher learnt that MINECOFIN has experienced an improvement in the efficiency of procurement as indicated by the following the application of electronic procurement. Hence, e-procurement has improved the performance of the ministry since it reduced its expenses from 24.4 million in 2015 to 18.6 million in 2016.

20 c) Correlation analysis

This helped the researcher to understand the relationship that lies between an independent variable and independent variable of this study. The major use of the chi-square test is to examine whether two variables are independent ("not correlated with" or not related) or not. From the findings in the table, Chi-square test shows that a P-value of 0.019 is less than alpha which is 0.05 hence this elaborate a significant correlation level between the variables of this study. In addition, since the P-value (0.019) is less than the significance level (0.05), we conclude that there is a correlation between eprocurement and performance at MINECOFIN.

From the Chi-square test therefore, the researcher learnt that e-procurement in terms of electronic bidding, electronic supplier registration, electronic billing and electronic payment is significantly related to the performance in MINEFCOFIN.

21 VI. Conclusion and Recommendations

The general objective was to assess the impact of electronic procurement on the performance of public institutions in Rwanda in particular Ministry of Finance and Economic Planning. This study was guided by the following specific objectives: to ascertain the effectiveness of e-procurement activities in the Ministry of Finance and Economic Planning; to evaluate the performance level of the Ministry of Finance and Economic Planning; to find out the relationship between the e-procurement and the performance of the Ministry of Finance and Economic Planning. In order to reach the achievement of the above objectives, a combination of questionnaires, interviews, documentary reviews and analyzing reports were used. Questionnaires were distributed to a group of 42 respondents who included the staffs of the MINECOFIN.

The study was prepared in five chapters which include; General Introduction, Review of related literature and studies, Research Methodology, Data Analysis and Presentation. The following paragraphs summarize how the above objectives were achieved.

First and foremost, as indicated in different tables, among all the statements provided there were only a few issues that respondents were undecided on or disagreed on and the rest were agreed and strongly agreed. The e-bidding offers a more efficient communication infrastructure with lower transaction costs which was agreed by 76.2% and that optimizing information flows in MINECOFIN which was strongly agreed by 59.5% of the total respondents. Also, the eregistration has restricted the access of accounting data to only staff concerned was agreed at 83.3%. Hence, eprocurement activities are generally effective since they all recognized and supported by the staff of MINECOFIN. This is because most practices were agreed and strongly agreed as revealed in these tables. Secondly, thee-procurement has reduced the costs at MINECOFIN and this was agreed at 50.0%. In addition, the researcher learnt that MINECOFIN has experienced an improvement in the efficiency of procurement as indicated by the following the application of electronic procurement. Hence, e-procurement has improved the performance of the ministry since it reduced its expenses from 24.4 million in 2015 to 18.6 million in 2016.

From the findings, Chi-square test shows that a P-value of 0.019 is less than alpha which is 0.05 hence this elaborates a significant correlation level between the variables of this study. In addition, since the P-value (0.019) is less than the significance level (0.05), we then conclude that there is a correlation between eprocurement and performance at MINECOFIN.From the Chi-square test therefore, the researcher learnt that eprocurement in terms of electronic bidding, electronic supplier registration, electronic billing and electronic payment is significantly related to the performance in MINEFCOFIN.

22 a) General conclusion

This research's interest was to understand whethere-procurement has an effect on the performance of public institutions in Rwanda with reference to MINECOFIN. Basing on a sample of 42 employees and review of reports, all specific objectives were achieved [1] [2]

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Figure 1: Table 1 :

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Practices of electronic supplier registration	Strongly Agree		Agree		Undecided		Disagree		Strongly Di	
	F	%	F	%	F	%	F	%	F	%
Electronic supplier registration has consid-erably reduced compu-tational errors	25	58.3	17	41.7	0	0	0	0	0	0
With e-supplier registration, transaction data is stored	10	23.8	32	76.2	0	0	0	0	0	0
MINECOFIN's e-regi s tration has restricted the access of accounting data to only staff concerned	7	16.7	35	83.3	0	0	0	0	0	0
E-registration services offered in MINECOFIN have considerably reduced man power costs	7	16.7	17	40.5	7	16.7	11	26.2	0	0

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Figure 2: Table 2 :

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Practices of Electronic Billing	Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree	
	F	%	F	%	F	%	F	%	F	%
E-billing offers a paperless mode of transaction	10	23.8	32	76.2	0	0	0	0	0	0
E-billing is both customer friendly and also beneficial	14	33.3	28	66.7	0	0	0	0	0	0
E-billing provides a great advantage of saving time	25	59.5	17	40.5	0	0	0	0	0	0
There is no loss of bill when making use of the electronic mode of billing	28	66.7	14	33.3	0	0	0	0	0	0

Source: P

Figure 3: Table 3 :

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Figure 4: Table 4 :

Performance appreciation level	F	Strongly Agree %	F	Agree %	F	Undecided %	F	Disagree %	F	S
E-procurement has reduced the costs at MINECOFIN	11	26.2	21	50.0	10	23.8	0	0	0	0
E-procurement led to time saving in the procurement process at MINECOFIN	18	42.9	25	59.5	0		0	0	0	0
E-procurement has promoted quality supply of services and goods at MINECOFIN	25	59.5	18	42.9	0		0	0	0	0
E-procurement has reduced MINECOFIN paper transactions at	14	33.3	28	66.7	0		0	0	0	0

Figure 5:

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Years	2013	2014	2015	2016
Before e-procument	20.4	23.2	24.4	-
After e-procurment	-	-	-	18.6

Source: MINECOFIN, Annual reports (2013-2016)

Figure 6: Table 6 :

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Figure 7: Table 5 :

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Model	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.325 a	2	.019
Likelihood Ratio	.883	7	.015
Linear-by-Linear Association	.610	1	.014
N of Valid Cases	42		

a) 2 cells (17.7%) have expected count less than 5.

Figure 8: Table 6 :

as indicated in the previous sub section. The four activities of electronic procurement were studied fully and the findings indicated that MINECOFIN has all of them and they are fully supported under their specific departments. Strong relationship between the study's variables was revealed after the chi-square test which was done out of the data gotten from the respondents. From the findings P-value (0.019) is less than the significance level (0.05), we then conclude that there is a correlation between e-procurement and performance at MINECOFIN.

.1 b) Recommendations

Regarding functionality analysis by the top management should be looked into and made a culture by the responsible personnel at the ministry. On public awareness, the ministry together with other responsible stakeholders in the government is recommended to sensitize the general public on electronic procurement so as to increase the number of bidders through eprocurement system called "UMUCYO".

Further researchers are suggested to increase on the sample size and techniques in order to obtain a more representative of the population. The researchers are also recommended to carry out studies on:The impact of auditing on the performance in public institutions in Rwanda, Effects of promotion on the performance of Public institutions in Rwanda, The role of strategic management on public institutions in Rwanda.

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