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E-Procurement and Procurement Performance

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Abstract:

The Procurement system in Kenya has grown from a system without guidelines and principles to a legally controlled system consistent with international standards. Regardless of the presence of the legal framework and guidelines, procurement continues to be stained with corruption and losses amounting to billions of shillings. In the modern business environment, procurement entities depend more on their suppliers to deliver the right products at the right time at the right place and at the right price. Up till now often, suppliers are not capable of giving that satisfaction. Establishing, maintaining and enhancing good relationships with major suppliers over long period of time is the main issue facing managers in organizations. This study therefore sought to determine the effects of use of e-procurement on procurement performance. This was undertaken through the following specific objectives; to analyze the effects of access of procurement information online on procurement performance, assess the effect of information accuracy on procurement process, to assess the effects of adopting e-procurement on procurement performance and to evaluate the effects of number of documents exchanged online on procurement performance. This study was guided by the Transaction Cost Theory and the resource based theory, whilst the target population encompassed of all the public universities in Kenya; Moi University was carefully chosen using cluster sampling technique, Data was obtained using structured questionnaires. A pilot test was carried out to establish the validity and reliability of the questionnaires. A reliability coefficient of above 0.6 was accepted for this study. Data was analyzed using both descriptive statistics and inferential statistics. Findings indicated that the variables are statistically significance to influencing procurement performance of public universities. Public universities must adopt the use of E-Procurement in their procurement activities, parties in the procurement process should be able to easily access and quickly exchange accurate procurement information this will ensure decisions are made faster which will save on time and cost leading to efficiency and effectiveness in the procurement process. Exchanging business documents online as an indicator of use of E-Procurement has the greatest influence on procurement performance. Further studies be carried out incorporating different indicators of measuring procurement performance.

Keywords: Use of E-procurement and procurement performance

1. Introduction

E-Procurement is the use of the internet or a company's intranet to procure goods and services used in the conduct of business. E-Procurement tools include online supplier catalogues, electronic invoicing, emails, and tender evaluation software amongst others. Automation leads to efficiency and accuracy in processing transactions: Online supplier catalogue enables buyers to order online and suppliers are assured of continuous business as long as a good price is maintained and timely payments are done, supply chain is hastened and needs of customers are met quickly leading to customer satisfaction, retention and improved profit. An E-Procurement system can streamline all aspects of the purchasing process while applying tighter controls over spending and product preferences. E-Procurement manages the flow of documents by automating the document generation process and electronically passing on purchase orders to suppliers. Use of E-Procurement helps build outstanding relationships and hence influence the performance of the procurement function in public institutions. Technology helps to make communication much easier and effective and its adoption and use has an effect on the business process. An organization benefits from good buyer-supplier relationship through incorporating information technology in its procurement activities (Narasimhan & Das, 2001); this increases efficiency of service and work done and also improves speed which ensures time economization as there would be removal and handling of paperwork and also the time taken between identifying a need, issuing purchase orders and finally delivery of the product or service would be reduced.

E-Procurement ensures transparency by buyers and suppliers and also with the organization as there would be increased communication between the partners. Nagurney (2010) also noted that E-Procurement is an effective means of ensuring accuracy hence lessening in errors which minimizes costs. For a procurement organization to operate both efficiently and effectively in such a complex environment useful structures need to be created and suitable instruments put to use. Use of

internet to procure goods can offer smoother and faster process flow, efficient distribution of information, decentralization of tasks and decisions, increased transparency and better control. Faced with tight budgets and a retiring workforce, government agencies are operating in an environment defined by the need to 'do more with less'. Public authorities are expected to provide excellent service to their constituents in an effective and transparent manner, all the while working under constant resource constraints by adopting ICT (Ellram&Zsidisn 2002).In order to meet today's operating challenges, regional and local governments are turning to use of internet to procure goods to enhance the services for residents, businesses and visitors, and improve internal efficiencies by lowering costs and increasing productivity (Salim, 2018). Public authorities are implementing scalable communication infrastructures to promote economic development, attract new businesses and residents, and above all, provide excellent service to constituents.

Success of the procurement process is measured in terms of cost and time. Use of E-Procurement leads to reduction in cost and saves time: costs are reduced because there will be no paper work, no postage fee, and few numbers of staff will be required to monitor the process, less time will be utilized to source for suppliers, doing market research among others as compared to when paper work is done, i.e. writing, filling and even posting, information will be gotten online according to Mutangili (2019).Use of E-Procurement will also lead to transparency, there would be improved communication, partners will get information at their convenience, and there would be greater market access as most people will be able to view the same document, simplification of processes, reduced payment time, environmental benefit and also security of data. In respect of governance and supplier relationships E-Procurement has the potential to enhance leverage and improve transparency in supply management through greater consolidation of purchases (Narasimhan& Das, 2001; Nagurney, 2010). According to Ellram and Zsidisn (2002) E-Procurement is not a pre-requisite for closer relationships but E-Procurement transactions tended to exist with suppliers who were well known and trusted as such E-Procurement has the potential to enhance rather than damage buyer - supplier relationships. However, organizations need to effectively manage and safeguard the integrity of systems to ensure accuracy of information and data safeguards to avoid corruption (Stoneburner&Feringa, 2002)

Procurement performance is well-thought-out to be the outcome of two rudiments namely; procurement effectiveness and procurement efficiency (Van Weele, 2006) Efficiency takes into account how fruitfully the inputs have been changed into outputs, while effectiveness concentrates on how positively the system attains its looked-for targets. Haron, Patrick et al, (2014) defined procurement performance as achievement of employee's task that leads to customer fulfillment, efficient information flow and quality procurement management. Procurement performance encompasses gauging and assessing quality, effectiveness and efficiency by using output and outcome elements. Procurement performance can also be defined as the degree to which the procurement function is able to attain its set goals and targets at the expense of very minimal organization resources, consequently the four dimensions which measurement and evaluation of procurement activities can be founded on are; price/cost aspect a product /quality aspect; a logistics aspect and an organization aspect. (Cavinato and Kauffman, 1999)

According to Kiarie (2017), indicators of performance include production efficiency ,waste reduction improved quality of goods, decreased product defects ,decreased product costs among others ;For the purpose of this study, Procurement Performance is the degree to which procurement function is able to achieve its set goals while using minimum university resources and the performance indicators included processing of invoices, processing of emergency orders, and number of unsupplied orders. Examples of key performance indicators that can help business know their purchasing behaviors and give an indication of superior or inferior performance: when goods are delivered on time gives an indication of superior performance and vice versa. Completeness of deliveries means receiving incorrect order; either over-supply or under-supply designates financial difficulties, production challenges, poorly trained personnel. Cost of procurement in terms of resources, inexpensive product designates low quality, and organizations must make sure goods are bought and or sold within the market range. Quality refers to getting goods that meets specifications and this designates superior performance and vice versa (Kohl et al (2009) and Gooch et al (2009).

1.1. Objectives of the Study

The objective is to determine the effects of use of E-Procurement on procurement performance of public universities in Kenya.

1.1.1. Specific Objectives

- To assess the effect of adoption of E-Procurement on procurement performance of public Universities in Kenya.
- To analyze the effects of access of procurement information online on procurement performance of public Universities in Kenya.
- To assess the effect of information accuracy on procurement performance of public Universities in Kenya.
- To assess the effect of business documents exchanged online on procurement performance of public Universities in Kenya.

1.1.2. Research Hypothesis

- H₀1: There is no effect of adoption of E-Procurement on procurement performance of public Universities in Kenya.
- H₀2: There is no effect of access of procurement information online on procurement performance of public Universities in Kenya.
- H₀3: There is no effect of information accuracy on procurement performance of public Universities in Kenya.
- H₀4: There is no effect of business documents exchanged online on procurement performance of public Universities in Kenya.

2. Literature Review

2.1. Theoretical Review

2.1.1. Transaction Cost Theory

Main proponent of this theory was Ronald Coase who argued that firms organize production in their firms when the costs i.e. transaction costs, coordination costs, search cost, contracting costs and any other cost of coordinating production through the market exchange is greater than in the firm, i.e. the addition of all costs is considered when making pronouncement and not just the market prices i.e. make versus buy decisions. Williamson (1996) outlined three scopes of the transaction cost theory which are; transaction that have specific investment, the doubts (uncertainty) encompassing a transaction in terms of quality, dependability, timeliness among others and frequency which is the number of times a transaction occurs either once or it recurs. This theory is relevant to use of E-Procurement and procurement performance because of flexibility, performance and efficiency aspects. The major weakness of the theory is that there is requirement to move from the perspective of thin cost viewpoint to transactions that are benefits-based.

2.1.2. Resource Based Theory

This theory was developed by Peterat& Bergen (2003). It emphasized on the firm's possessions as the main elements of competitive advantage and performance i.e. firms compete based on their resources and competences. This theory assumes that firms may be varied to the number of resources that they own and that the exclusivity may continue over time for the reason that the resources used to implement firms' strategies do not apply to other firms. The main proponents of this theory were Cool et al (2002) and Pisano &Shuen 1997. The resource-based theory has taken the individual resources rather than strategy as the most applicable element of analysis to study competitive advantage. It has stressed on the inability of imitators to wear down the market position. It contains theory of sustainability but not a theory of competitive advantage. This theory is relevant to use of E-Procurement and procurement performance because of the idea of resources that are valuable and unique, use of E-Procurement can be treated as a valuable and a rare resource that offers competitive advantage. As such E-procurement has the ability to improve procurement performance.

2.2. Conceptual Framework

The conceptual framework shows the interdependence of use of E-Procurement and procurement performance measured by the following indicators: adoption of E-Procurement, frequency of access of procurement information online, frequency of information accuracy and number of business documents exchanged online.

This conceptual is therefore summed up in figure .1

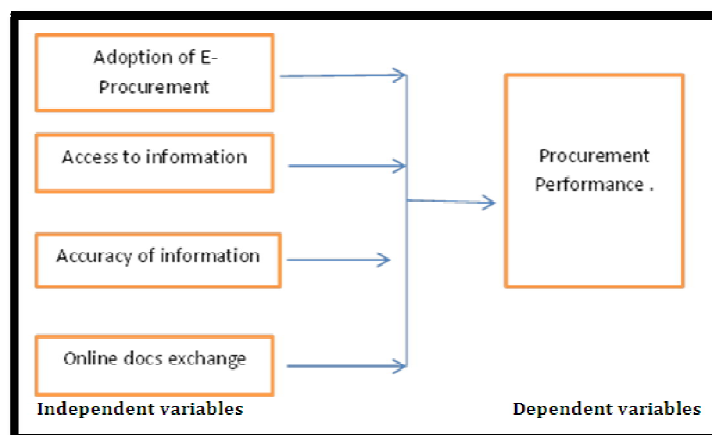


Figure 1 Conceptual Framework

2.2.1. Adoption of E-Procurement and Procurement Performance

Adoption of E-Procurement influence the performance of the procurement function as it makes communication much easier and effective hence is a sure means of ensuring accuracy hence lessening in errors which minimizes costs.

2.2.2. Access of Procurement Information Online and Procurement Performance

Online access of information leads to greater market access as most people view the same document, there would be simplification of processes, reduced payment time, environmental benefit and also security of data.

2.2.3. Information Accuracy and Procurement Performance

Information need to be accurate for it to be helpful, organizations need to effectively manage and safeguard the integrity of systems to ensure accuracy of information and data safeguards to avoid corruption.

2.2.4. Business Documents Exchanged Online and Procurement Performance

Exchanging documents online leads to efficiency and accuracy in processing hence the needs of customers are met quickly leading to customer satisfaction retention and improved profit.

2.3. Empirical Review

According to Salim (2018) Use of internet to procure goods enhances services and improves internal efficiencies by improving productivity and reducing costs. Accessibility of up-to-date information lures many suppliers, intensifies competition and creates an environment for well-organized procurement and in the long run improves the relationship between the buyer and the supplier (Ohashi, 2009). Adoption of IT improves buyer supplier relationship in terms of timely and accurate information access (Christian, 2006). Mickey (2015) in his research, concluded that honest communication between parties, involvement, knowing expectation and technology are the secrets to handle relationship between the buyer and the supplier. Literature reviewed revealed that most studies have been done on private rather than on government entities. Therefore, the study on use of E-Procurement and its effects on procurement performance in public universities has not been done, besides; literature review has not answered the specific objectives of the research as cited in the research problem statement, this study therefore, seeks to examine those aspects that emerged but left out in previous studies.

3. Research Methodology

3.1. Research Design

A cross-sectional –survey research design was used. This research design was preferred because the researcher was to collect data at one point in time translating to ease of data gathering and assessment, short study duration and moderate cost. There were different groups identified for the study i.e. the buyers and the suppliers and this research design is best for such scenarios, finally it enables data to be collected from a large number of samples. This study adopted primary data collection method; this was achieved through the use of group administered questionnaires, self-administered questionnaires and mail -out questionnaires.

3.2. Sample Size and Sampling Technique

The study targeted all the thirty-one public universities in Kenya. The researcher used cluster sampling technique, this method was preferred since there is homogeneity among public universities in Kenya and therefore selection of any one university allows for generalization of the results as well as mutual exclusivity. The target respondents comprised of procurement and finance profession from each of the public university. The researcher had twenty-four clusters; from the clusters, the researcher used simple random sampling to select Moi University which has a total of 60 professional staff at Procurement and Finance department; in addition, the university has 140 pre-qualified suppliers. Census technique was used to get the sample size. All the pre-qualified suppliers and members of staff were used as sample size because the population was not vast and it enabled the researcher to have minimum bias and reduce errors in interpreting data collected.

3.3. Data Analysis Procedures

After data was collected by the researcher, it was coded, checked for completeness edited transformed and organized into a database via the statistical package for social sciences (SPSS) version 20 which facilitated accurate and efficient analysis of inferential statistics. Once the coding procedures had been established, reliable output was delivered. The information was displayed by use of tables. Regression analysis was used to determine the degree of relationship in the patterns of variation through the calculation of the coefficient of correlation which was used to test hypothesis of the study. Multiple linear regression analysis was used to analyze the overall effect of the independent variables and the dependent variable.

4. Results

4.1. Use of E-Procurement and Procurement Performance

Respondents were asked questions relating to adoption of E-Procurement, access of procurement information online, accuracy and efficiency of the procurement information that is online and finally number of business documents exchanged online. Data was analyzed to determine the frequencies of use of e-procurement on procurement performance. The results are presented table 1 and 2.

	None	low	Moderate	high	Very high
Adoption of E-Proc.	0(0)	1(5)	7(3.8)	53(28.8)	123(66.8)
Accessed	0(0)	1(5)	6(3.3)	33(17.9)	144(78.3)
Accuracy	0(0)	1(5)	4(2.2)	56(30.4)	123(66.8)
Online	0(0)	0(0)	4(2.2)	43(23.4)	137(74.5)

Table 1: frequencies of Use of E-Procurement and Procurement Performance

The results in table 1; show that the majority of the respondents 123(66.8) indicated that the adoption of E-Procurement was very high, 144(78.3) indicated the access to procurement information was very high, 123(66.8) indicated the accuracy of online procurement information as very high, and finally 137(74.5) indicated that the online exchange of document was very high. This implies that there is use of e-procurement which helps fasten the procurement process and saves on costs. These findings are in agreement with the arguments of Ohashi (2009) who established that accessibility of up-to-date information lures many suppliers, intensifies competition and creates an environment for well-organized procurement and in the long run improves the relationship between the buyer and the supplier.

Further analysis was conducted to determine the relationship between the use of E-Procurement on procurement performance. The indicators of use of E-Procurement; adoption of e-procurement, accessing information online, accuracy of online information and documents exchanged online were regressed against procurement performance indicators.

				t	p
	B	S.E	β		
(Constant)	1.444	.801		1.803	.073
Adoption	.315	.145	.196	2.174	.031
Accessing	.294	.166	.168	1.772	.058
Accuracy	.294	.152	.182	1.937	.054
Online exchange	.516	.157	.270	3.297	.001

Table 2: Results of regression analysis of Use of E-Procurement and Procurement Performance

$R = .700$; $R^2 = .490$; $R^2_{adj} = .357$; $P \leq 0.05$

The results in table 2 indicates that the predictor contributes to 49% of the change and that the model was a significant predictor of procurement performance $F(1,183) = 102.449$, $P = .000$. Independently all the indicators contributed significantly to procurement performance that is adoption ($B = .315$, $p < .05$), accessing ($B = .294$, $p < .05$), accuracy ($B = .294$, $p < .05$), and finally online exchange ($B = .516$, $p < .05$) therefore, the null hypotheses were rejected;

- H_01 : There is no effect of adoption of E-Procurement on procurement performance of public Universities in Kenya.
- H_02 : There is no effect of access of procurement information online on procurement performance of public Universities in Kenya.
- H_03 : There is no effect of information accuracy on procurement performance of public Universities in Kenya.
- H_04 : There is no effect of business documents exchanged online on procurement performance of public Universities in Kenya.

The findings are in agreement with the arguments of Kim, Cavusgil, & Calantone, (2006) as well as Yi-Ming Tai, Chin-Fu HO & Wen-Hsiung (2009) that use of E-Procurement influences procurement performance.

5. Conclusion and Policy Implications

The study concludes that use of E-Procurement influences procurement performance in terms of accessing real time information, reduction of costs through online exchange of business documents and improved buyer-supplier relationship, therefore there is need for public universities to adopt the use of E-Procurement in their procurement activities, parties in the procurement process should be able to easily access and quickly exchange accurate and real time procurement information. This will ensure decisions are made faster which will save on time and cost leading to efficiency and effectiveness in the procurement process.

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