

## **EFFECT OF E-REVERSE AUCTIONING ON SERVICE DELIVERY IN THE COUNTY GOVERNMENT OF KISUMU, KENYA**

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**Abstract:** *Organizations invest huge sums of money to obtain differentiated goods and services at different phases of manufacturing and service delivery. IT has changed the landscape of operations in organizations and governments. This has led to significant adoption of supply chain related technology, namely e-procurement. Similarly, a buying process used by businesses to conduct electronic trades of products and services is referred to as an electronic reverse auction (e-RA). This study was a purposive effort to establish the effectiveness of e-procurement using specified service delivery section with a specific objective to determine the effect of e-reverse auctioning on service delivery, in Kenya. The study was conducted in Kisumu County as a representation of counties in Kenya. For the study, a descriptive research approach was chosen. The Kisumu County Government's target population consisted of 97 staffs from procurement departments in the nine ministries. Purposive sampling was used to select key personnel, who are procurement staffs only and a sample size of 78 staffs working in procurement departments in the various ministries was drawn. The regression analysis of the study showed that E-Reversing played a significant role in affecting service delivery in the County Government. The study concludes that E-Reversing influences service delivery in the County and enhancing their levels would increase the service delivery to higher heights.*

**Keywords:** *E-Reverse Auctioning, E-Procurement, Service Delivery*

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### **Background of the study**

The term "procurement" refers to a process used by both public and private entities to get the goods and services needed for their operations. In order to make sure that consumers downstream get the necessary goods or services, the procurement function is carried out in the upstream section of the supply chain. Large sums of money are spent by organizations to obtain different goods and services at different phases of manufacturing or service offering (Snider & Rendon, 2001).

E-procurement was reported globally, including in the United States of America, in the early 2000s, soon before the recession. Since then, e-procurement has grown in acceptance, particularly with the development of technology. It was stated that by the end of the same year, all state agencies maintained a web presence during at least some stage of their procurement operations, with some of them engaging in online bidding (Reddick, 2004). At some point, the Malaysian government made a statement urging all vendors to utilize the e-procurement system (Croom & Brandon-Jones, 2011). Chew, Temkin and Hudson (2003) noted that the Malaysian public sector is undergoing a rapid shift, particularly with regard to the adoption of technology. The government must adopt e-government and e-procurement in particular. According to a Commonwealth of

Australia analysis, the national governments of Italy, New Zealand, Scotland, New South Wales and Western Australia used e-procurement systems for public procurement activities as early as 2005.

### **Concept of E-Reverse Auctioning**

A buying process used by businesses to conduct electronic trades of products and services is referred to as an electronic reverse auction (e-RA). E-RA, according to research by Beall, Carter, Germer, Hendrick, Jap, Kaufmann, Maciejewski, Monczka, and Peterson (2003), is an online, real-time dynamic auction between a procuring organization and a group of pre-qualified suppliers who compete against one another to win the business of supplying goods or services with precisely defined specifications. E-RA has taken the place of conventional requests for proposals (RFP) that were submitted by email or paper, followed by in-person negotiations.

Reverse electronic auction (also known as e-auctions) is "an online, real-time auction between a buying organization and two or more invited suppliers, where suppliers can submit multiple bids during the course of the auction and where suppliers have some level of visibility regarding the actions of their rivals" (Carter et al, 2004). In the past ten years, e-reverse auctioning has proliferated as a crucial component of many firms' purchasing strategies, enabling its users to achieve considerable cost savings on the products they purchase (Beall et al, 2003). E-auction is a subject of controversy despite the clear benefit of cost savings. According to some researchers (Tassabehji 2006), they can substantially harm relationships between suppliers and buyers, or the savings are difficult to sustain (Emiliani & Stec, 2005). E-auctions can produce some conflicting outcomes in real life though majority of authors contend conceptually that when an item being bid in an online auction is a commodity, it should produce better results (greater savings) and is thus an appropriate technique for organizations to acquire their purchases.

There have been four major categories of auctions proposed: Forward auction: In this type of auction, items or services are put up for bid at an increasing price, and at the end of the bidding, the bidder with the highest bid (price) wins the item. Sealed-bid auction is the second type. It provides a sealed bid to auctioneers, whose job it is to open all the bids and sell the object to the highest bidder. Bidders and auctioneers communicate with one another in a single round to complete it. Reverse auction, often known as Dutch auction, is the third form. With the exception of the bidding price fluctuating over time, it is quite comparable to a forward auction. The price is reduced until the seller agrees to pay the price in this reverse auction. Open declining price auction is another name for this kind of auction. The winner of a Vickrey auction, the fourth form of auction, must pay the next-highest amount that the runners-up bid (Dong-Her Shih, David Yen, Chih-Hung Cheng & MingHung Shih, 2011).

Reverse auction demands meticulous identification of all specifications for the good or service, a necessity referred to as precisely by (Kaufmann, L. and Carter, 2004). Specifically includes the attributes of the good or service, such as quantity, specialized labor needs, frequency of services, quality standards and inspection needs, delivery dates, physical attributes, transportation needs and storage information, cost drivers for production, manufacturing processes, lead times for production, and profitability impact. Reverse auctions provide cost savings of between 5% and 40% per unit (Tully, 2000).

### **Concept of Service Delivery**

Service delivery is the timely provision of fundamental services and goods that are sufficient, inexpensive and of high quality while adhering to a specific system's guiding principles, rules and policies. In order to give a

specific customer in a business environment, a consistent service experience, service delivery frameworks provide guidelines for how services are offered by a service provider. According to (Helmsing, 2015), the provision of services under a responsible and required arrangement and the distribution of services to the stated beneficiaries constitute the aspect of service delivery. Time and cost are used to gauge a business' success in ensuring service delivery, (Haynes and DuVall, 1992; Mandell, 1991). In many nations, the public sector provides services like; military, upkeep of public roads, public transportation, free education, healthcare and protection of government employees. The public ensures that services are delivered to the entire society, not just to particular groups of people. County governments are part of the public sector that deals in offering various government services through provision of products, services and works.

According to (Lovelock & Wright, 2002), providing services and goods involves leveraging innovation to do so in a way that is profitable, cost-effective and also value adding. According to Arrow Smith and Trybus (2012), a key factor in determining an organization's competency and success is how well it provides services. The provision of services describes how well consumer needs are addressed, usually under the guiding principle that the customer is always right (Croom & Brandon-Jones, 2011). To close the gap between customer expectations and customer experience is the primary goal of service delivery. Service innovation becomes the best approach for a corporation to accelerate its growth rate and profitability when competitive advantage cannot be sustained and products or services become homogeneous (Chen, Tsou & Huang, 2009).

The study took into account the following service delivery characteristics: lower administration and transaction costs, quicker sourcing of materials, real-time information access, higher product/service quality, increased transparency, shorter cycle times and fewer unwarranted delays in processing tenders. According to Doubler (1996), "organizations might apply proactive measures of procurement strategies and techniques to maximize profit in order to contribute to the organization's service delivery achievement. E-procurement increases the transparency of tender processes and makes global competition more accessible, both of which contribute to service delivery (Bausà, 2013). E-procurement, when successfully implemented and adopted, helps all stakeholders, including employees, customers, non-governmental organizations, communities and enterprises.

### **E-Reverse Auctioning and Service Delivery**

Reverse electronic auction(e-auction) is "an online, real-time auction between a buying organization and two or more invited suppliers, where suppliers submit numerous bids during the course of the auction and where suppliers are aware of the activities of their rivals to some extent" (Carter et al., 2004).

According to a study by Nzuve (2013), one of the e-procurement forms included in the study to examine the factors influencing implementation of e-procurement among private healthcare service providers in Nairobi was an e-reverse auction, from which it was concluded that the NHIF accredited hospitals have implemented e-procurement to a moderate extent. The study used Nairobi-area hospitals that have received NHIF accreditation. However, a comparable study was required to examine county government ministries, particularly those that dealt with e-procurement and service delivery.

A study was conducted in 2019 to look at the effects of adding new players to the auction process by Delina, Senderáková, Olejárová, and Macik. The largest provider of reverse auction solutions in central Europe assembled a database of 4,442 real auction data instances from diverse companies, including both public and private entities, and from various types of auctions. The effects of new participants in the computerized reverse auction were supported by the research findings. According to the study's findings, adding additional members had a favorable impact on the amount of money saved in the end. The current study was conducted in Kisumu

County, Kenya, as opposed to the prior study's location in Europe. Additionally, whereas the current study concentrated on the influence of e-reverse auction on county governments' service delivery, the previous study concentrated on the impact of new participants in the auction.

Majanga (2021) conducted a research to determine the impact of electronic reverse auctions on Kenya's multinational pharmaceutical companies' procurement performance. The study had three goals: determining the extent of electronic reverse auction adoption in multinational pharmaceutical corporations in Kenya; identifying the link between electronic reverse auction and procurement performance in multinational pharmaceutical corporations in Kenya; and identifying the difficulties encountered by these corporations in putting electronic reverse auctions into practice. The methodology used was a descriptive research design, and first-hand information was gathered through questionnaires that were distributed via email. A total of 68 respondents, of which 54 completed and returned the questionnaires, were included in the population, which consisted of all 34 global pharmaceutical businesses. While objective two was examined using regression analysis, objectives one and three were examined using descriptive statistics. The results revealed that multinational pharmaceutical businesses in Kenya had adopted access to global suppliers, competitive pricing, and having a level playing field to a considerable extent. Cost, punctuality, and dependability were found to be influenced by; access to international suppliers, competitive pricing, and having a level playing field. In general, it was discovered that electronic reverse auctions affect Kenya's multinational pharmaceutical businesses' procurement

performance. The global pharmaceutical businesses have had difficulties implementing computerized reverse auctions, including expensive setup and maintenance costs, a lack of top-level management support, a lack of ICT literacy, and disruptions brought on by technical issues. The study suggested that, in order to improve their procurement performance, global pharmaceutical businesses should heavily invest in electronic reverse auction (big pool of suppliers, equal playing field, and competitive prices) (cost, timeliness and dependability). In the study, a survey of Kenyan pharmaceutical companies was conducted; in the present study, the Kenyan county government of Kisumu was the subject.

### **Statement of the Problem**

The adoption of e-procurement has streamlined the procurement process and improved efficiency and transparency. The cost of purchasing including transaction expenses and the cost of products and services, has significantly decreased. Public sector organizations have adopted and implemented e-procurement in their various procurement processes as a result of reforms that have ensured waste reduction. (Addison, 2016). The Kenyan Government through the County and National Governments begun to use the e-procurement module to increase efficiency in public procurement (GoK, 2015). There is however inadequate literature on its effect on service delivery. This study is therefore a deliberate effort to determine the effect of e-procurement specifically e-reverse auctioning on service delivery. It will be carried out in Kisumu County to represent the other counties in Kenya.

### **Study Objectives**

The main objective was to research the effect of e-procurement on service delivery guided by a specific objective to establish the effect of e-reverse auctioning on service delivery in the County Government of Kisumu.

**Scope of the Study**

The study was conducted in the County Government of Kisumu, one of the 47 counties in the Republic of Kenya. It is the third-largest city in Kenya after Mombasa and Nairobi.1, 155, 574 people call it home, according to the 2019 National Census. Kisumu County has a total land area of 2085.9 km<sup>2</sup>. The focus of the study was on; effect of e-sourcing, e-tendering and e-reverse auctioning on service delivery in Kisumu County Government for a duration of three years (2020-2022).

**Research Methodology**

A descriptive research approach was chosen. The Kisumu County Government's target population consisted of 97 staffs from procurement departments in the nine ministries. Purposive sampling was used to select key personnel, who are procurement staffs only and a sample size of 78 staffs working in procurement departments in the various ministries was drawn, using Yamanes’(1967) formula . Structured Questionnaires were used in this research.

**Results and Discussion**

The study objective was to establish the effect of e-reverse auctioning on service delivery in Kisumu County Government. The five-point Likert scale of 1-strongly disagree, 2-disagree, 3-undecided, 4-agree, and 5-strongly agree used as the basis for the responses.

*Table 1: Response*

<b>E-reverse auctioning</b>	<b>1=SD</b>	<b>2=D</b>	<b>3=U</b>	<b>4=AG</b>	<b>SA</b>
Increased customer power intensity as a result of increased competition among bidders.		11		30	24
Increased quality of purchases			17	37	11
Reduction in procurement cycle time		5	16	36	8
Increased visibility in the entire auctioning process.		5	4	42	14
Cost savings on acquisition of purchases		5	41		19
<b>TOTAL</b>	<b>0</b>	<b>26</b>	<b>78</b>	<b>145</b>	<b>76</b>

*Table 2: Descriptive Statistics of e-reverse auctioning and service delivery*

<b>Statement</b>	<b>N</b>	<b>M</b>	<b>SD</b>
Increased customer power intensity as a result of increased competition among bidders.	65	4.03	1.030

Increased quality of purchases	65	3.91	.655
Reduction in procurement cycle time	65	3.72	.781
Increased visibility in the entire auctioning process.	65	4.00	.771
Cost savings on acquisition of purchases	65	4.14	.768
OVERALL MEAN SCORE	65	3.96	0.801

M=mean; SD= standard deviation

Source: Survey Data (2022)

According to Table 2 respondents agreed that e-reverse auctioning had resulted into increased customer power intensity as a result of increased competition among bidders (M=4.03; SD=1.030); increased quality of purchases (M=3.91; SD=.655); reduction in procurement cycle time (M=4.00; SD=.771) and cost saving on acquisition of purchases (M=4.14; SD=.7687). The overall mean score revealed that respondents agreed that e-reverse auctioning had effect on service delivery (M=3.96; SD=.801) and highest frequency.(145).

The results are illustrated in the bar chart.

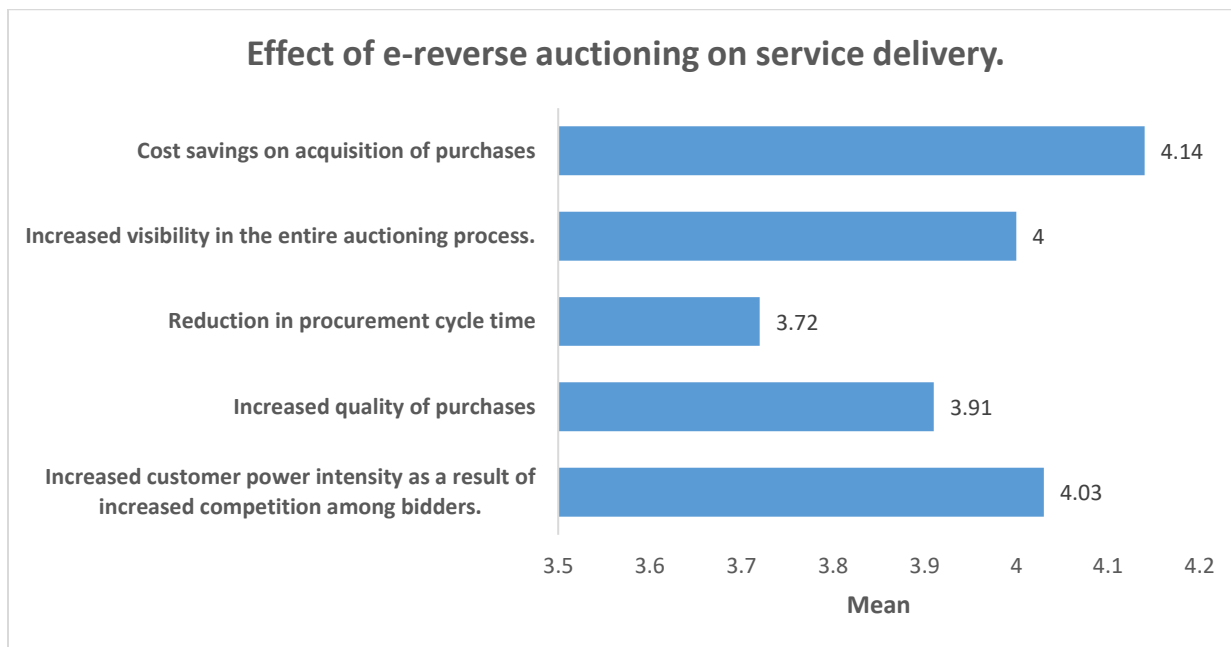


Figure 1: Effect of e-reverse auctioning on service delivery

To confirm the significance of the relationships between e-reverse auctioning and service e delivery, regression analysis was conducted. The findings were shown below.

Table 3: Model Summary of e-reverse auctioning and service delivery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.515a	.265	.253	.36536

a. Predictors: (Constant), e-reverse auctioning

Table 3 shows that there was a positive moderate effect of e-reverse auctioning on service delivery. The calculated R-square (.265) implies that 26.5% of service delivery was affected by e-reverse auctioning while 73.5% was influenced by other factors.

**ANOVA Results**

The F-critical (1, 63) is less than the F-calculated. This implies a linear relationship between the independent variables and the dependent variable. In addition, the p-value was 0.000, which was less than the significance level (0.05). Therefore, the model can be considered to be a good fit for the data and hence it is appropriate in predicting the influence of E-reverse auctioning on the dependent variable (service delivery in Kisumu County).

Table 4: ANOVA of e-reverse auctioning and service delivery

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.034	1	3.034	22.729	.000b
1 Residual	8.410	63	.133		
Total	11.444	64			

a. Dependent Variable: service delivery  
 b. Predictors: (Constant), e-reverse auctioning

Table 5: Coefficients of e-reverse auctioning and service delivery

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.325	.371		6.271	.000
e-reverse auctioning	.443	.093	.515	4.763	.000

a. Dependent Variable: service delivery

Regression model was represented as in Equation 1.

$$\text{Service Delivery} = 2.325 + 0.443 * e\text{-reverse auctioning} \dots\dots\dots (\text{Eq. 1})$$

The findings in Table 5 shows that for every change of unit in service delivery was contributed by .443 units of e-reverse auctioning at a constant value of 2.325 (P-value < 0.05).

**Summary of Findings**

The study's findings were in agreement with Setia's (2009) claim that e-reverse auctions can lower procurement costs. He also highlighted that e-reverse auction reduced the procurement cycle times by 90%. Similarly, the findings were in line with Hockey (2009), who found out that e-reverse auction caused procurement efficiency in the UK, it improved procurement processes, realized cost savings and reduced delivery times. Majanga (2021) postulated the impact of electronic reverse auctions on Kenya's multinational pharmaceutical companies' procurement performance. It was discovered that electronic reverse auctions affect Kenya's multinational pharmaceutical businesses' procurement performance. The study recommended that, in order to improve their procurement performance, global pharmaceutical businesses should heavily invest in electronic reverse auction (big pool of suppliers, equal playing field, and competitive prices) (cost, timeliness and dependability). The study however did not link e-reverse auction to service delivery.

Therefore, there is a need for the procurement departments of the county government ministries to ensure that they enhance e-reverse auctioning since it could increase customer power intensity as a result of increased competition among bidders and also increase quality of purchases. Further, county governments will realize reduction in procurement cycle time and cost saving on acquisition of purchases if they adopt the e-reverse auctioning. On the other hand, if the procurement departments of the county governments will fail to adopt e-reverse auctioning, they will experience poor quality of purchases and also prolonged procurement cycle time.

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