

## **FACTORS AFFECTING THE ADOPTION OF E- PROCUREMENT IN KISUMU COUNTY, KENYA**

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### **Abstract**

*Estimates by the Treasury showed that the government losses more than Sh70 billion annually due to fraudulent manipulations in procurement process. This is due to the use of manual procurement system which does not enhance accountability. This study analyses factors affecting the adoption of e- procurement in Kisumu County. The study was guided by objectives such as to establish how performance expectancy affects adoption of electronic procurement implementation in Kisumu County government, to determine how user attitude affects electronic procurement adoption in Kisumu County government and to find out whether technical capabilities affect electronic procurement adoption in Kisumu County government. The study concluded that there is need for the institutions to adopt a clear performance expectancy guideline to ensure their employees understand what is expected of them in terms of delivery as an institution adopts a technological system like e- procurement. The study also concluded that the organization should have a training policy that provides guidelines on training of employees on e- procurement, an aspect most respondents agreed to, as training improved the acceptance of e-procurement system and changed the attitude towards E-procurement system. Finally, the study concluded that technical capabilities stand out as a key component for successful adoption of e- procurement. It is therefore prudent for the two institutions to invest on the necessary structure required for smooth running of e- procurement system.*

Keywords: e-procurement, performance expectancy, user attitude

### **INTRODUCTION**

Electronic procurement (e-procurement) is the process of electronically purchasing the goods and services needed for an organization's operation (Beauvallet, Boughzala & Assar, 2011). It entails implementing electronic means to process purchase orders and store information concerning procurement without a paper medium. Hence, in concrete terms it consists of publishing calls for tenders on the internet, sending out documents and specifications (consultation files for companies,

binding tender forms, etc.) in digital form, receiving tenders electronically, and so on, with a view to ensuring greater efficiency in managing procedures for awarding procurement contracts (Beauvallet et al., 2011). It offers tangible and intangible benefits (Beauvallet et al., 2011). The tangible benefits include opportunities for cross-sales, cost reduction, reduced inventory and shorter cycle time in ordering (Beauvallet et al., 2011). The intangible benefits include enhancement of brand and corporate image communication (Beauvallet et al., 2011). Electronic procurement accounts for

euro one billion dollars per annum worldwide and is promoted by progressive governments since it coincides with environmental sustainability initiatives (Done, Liao & Maedler, 2011).

E-procurement is a phenomenon that started in the developed economies but due to the spread of the internet, it has been increasingly adopted in the developing world. Organizations and individual business people have come to embrace it due to the integration benefits and the immense possibilities it brings about: collapsing space, distance and time (European Union, 2012). Organizations adopt e-procurement due to the myriad benefits: integration, tap digitization benefits, improve procurement efficiency, cost management and elimination of sourcing errors (Done et al., 2011, European Union, 2012 & Reddick, 2004). Efficiencies are generated from the adoption of e-procurement technologies which enables transaction processes to less mistake, and more efficient purchasing (Singh & Punia, 2009). Many automobile companies have adopted e-procurement due to the benefits of digitization, easy management of catalogs and the advantage of convenience (Singh et al., 2009). There is, however, a flipside to this: integration issues, language barriers, legal bottlenecks and network challenges (European Union, 2012, Singh et al., 2009). In this sense, therefore, it is imperative for automobile companies to take a long look ahead before they fully cut-over to e-procurement technologies.

E-procurement is also becoming more popular because of the sensitivity of jobs that it can. In any organization, procurement is the hot spot for corruption and inefficiencies. Its ability in improving efficiency and transparency is making it popular but also a system that the governments want to embrace in line with their procurement policies.

Adoption as making an active contribution towards the implementation or use of the e-procurement tool. Adoption includes using the tool, contributing

towards the usage by others, or stimulating the spread of adoption of the tool. This definition implies that an actor can be considered an adopter of the tool, as soon as the actor contributes to a further spread of the tool, without using the tool himself.

In general, adoption models and social network only consider positive influences and exclude the possibility of one actor negatively influencing another when it comes to adoption behavior. Arguably, adoption does not only have a positive dimension, but can also include a negative dimension, i.e. active deviation of the implementation objective. This active resistance can also spread through interactions between actors, causing competing social networks of adopters and non-adopters within an organization

Some individuals will be inclined to adopt an innovation earlier than others, despite of any management efforts and social influences. Argarwal & Prasad (1998) recognize this human characteristic as the personal dispositional innovativeness (PDI), which describes an individual's willingness to adapt to an innovation, independent of internal or external influences. Goldsmith & Hofacker (1991) show that PDI is domain specific, which suggests inherent differences between for instance the procurement domain and the IT domain. Other traits of a person might influence the PDI or the adoption directly. Some authors stress certain individual factors related to PDI like innovativeness, computer self-efficacy, and experience (Venkatesh & Davis 2000).

According to the Price Waterhouse Coopers (PWC) (2012), East Africa's automotive industry is getting Busier as new vehicle brands enter the regional market in anticipation for the economic boom resulting from economic integration. The Automotive industry in Kenya is primarily involved in the retail and distribution of motor vehicles. There are a number of motor vehicle dealers operating in the country, with the most

established being Toyota (East Africa), Cooper Motor Corporation, General Motors, Simba Colt and DT Dobie. There are also three vehicle assembly plants in the country, which concentrate on the assembly of pick-ups and heavy commercial vehicles (PWC, 2012). The established dealers face intense competition from imported second-hand vehicles, mainly from Japan and United Arab Emirates (PWC, 2012). These imports now account for about 70% of the market. The last decade witnessed a significant decline in the number of new vehicles sold in the country. There has been a steady recovery in the last four years, but the numbers achieved still fall far short of the numbers recorded a decade ago. In 2004, the leading motor vehicle companies recorded sales of 9,979 units. Although 27% better than the previous year, this is still well below the levels achieved in the early 1990's (PWC, 2012).

The second hand motor dealers import the vehicles from destinations such as Japan, Singapore, United States of America and Europe (PWC, 2012). Technological advancements have led to the motor traders using the latest technological means in the procurement process. The process widely used is the electronic procurement. This method is convenient and reliable given that the trader's don't have to travel overseas to view and procure the merchandise (PWC, 2012).

### **Statement of the Problem**

The world is increasingly getting interconnected by electronic networks and, hence, progressively shrinking with each passing day (Gates, 2009). According to Friedman (2006), the business transactions across all organizations are steadily transitioning to electronic platforms. The barriers of time, distance and space are collapsing at a rapid pace (Gates, 2009). The trend to electronic commerce spawns new risks that require innovative and discontinuous thinking to mitigate (Friedman, 2006). Electronic procurement (e-procurement) implementation is a strategy by organizations aimed at reducing administrative and logistic

complexity in the purchasing process (Van Weele, 2005).

Organizations have not always been successful in attaining the full benefits of e-procurement (Van Weele, 2005).

In Kenya a wide range of organizations are struggling to adopt information and communication technology in their procurement functions despite proven benefits which include enhancing transparency and shortening tender process. These could be due to financial constraints, inaccessibility of technology or inability to use technology. Reddick (2004)

This could just be a tip of the iceberg given that the devolved system is still at its infancy.

A survey done on February (2015) by national treasury showed that 30 per cent of the state corporations have partially automated procurement systems while 14 per cent had fully automated their procurement process. The treasury indicated that emphasis on e-procurement system is to ensure transparency in how tenders were awarded. Estimates by the Treasury showed that the government losses more than Sh70 billion annually due to fraudulent manipulations in procurement process. KenGen was identified to have fully implemented e-procurement system though the system was not meeting the expected benefits (Wanzala, 2015)

It is against this background that the researcher seek to analyze factors affecting the adoption of E-procurement in Kisumu County.

### **Objective of the study**

To determine the factors affecting adoption of electronic procurement in Kisumu County Government.

### **Significance of the Study**

This study has a fresh and relevant significance and is expected to provide recommendations to facilitate adoption of electronic procurement

practices in the automobile industry. The recommendations will benefit the motor vehicle importers who employ e-procurement technology. The findings will also help the motor vehicle merchants who sell their produce in the electronic market places. Thirdly, the study will generate literature that will be of practical use by procurement scholars and supply chain practitioners.

## LITERATURE REVIEW

### Theoretical review

The study was guided by Technology Acceptance Model and The Unified Theory of Acceptance and Use of Technology

### Technology Acceptance Model

TAM has proven to be a theoretical model in helping to explain and predict user behavior of information technology (Legris, Ingham, & Collette, 2003). TAM is considered an influential extension of theory of reasoned action (TRA), according to Ajzen and Fishbein (1980). Davis (1989) and Davis, Bagozzi, and Warshaw (1989) proposed TAM to explain why a user accepts or rejects information technology by adapting TRA. TAM provides a basis with which one traces how external variables influence belief, attitude, and intention to use. Two cognitive beliefs are posited by TAM: perceived usefulness and perceived ease of use. According to TAM, one’s actual use of a technology system is influenced directly or indirectly by the user’s behavioral intentions, attitude, perceived usefulness of the system, and perceived ease of the system.

### The Unified Theory of Acceptance and Use of Technology

This theory is based on the comprehensive review of 8 major IS and behavioral theories available during the last decade. The Unified Theory of Acceptance and use of Technology states that actual use of an Information system for an individual is directly influenced by the facilitating

conditions and indirectly influenced by the factors such as Performance expectancy, effort expectancy and social conditions. UTAUT also confirms the positive relationship between behavioral intention and Actual behavior similar to the Theory of Planned Behavior, Theory of Reasoned Actions and Technology Acceptance Model. There are expected performance standards that are expected by the adaptation of the e-procurement in the organization. As Kisumu County adapt the use of ICT in their operation, they anticipate to improve their service delivery and ensure that the customers are more satisfied and that the process is more effective.

## RESEARCH METHODOLOGY

### The Research Design

The study employed descriptive survey with a target population of 200 employees of procurement department in Kisumu County from which a sample size of 35 respondents was drawn. Data was collected by use self- administered questionnaire. Completed questionnaires were edited for completeness and consistency. The data was analyzed using descriptive statistics and result from quantitative data were presented by use of frequencies distribution informs of percentages and tables while responses from qualitative data were grouped into themes and reported. Data results were presented using different forms of tables such as frequency tables and tabulation tables.

### Sample Size

Cresswell (2003) assets that the entire population may not be easy to study. A researcher, therefore, has to draw a sample from the study population. In this study the Yamane model will be used to obtain the sample size.

According to the model,

$$n_s = \frac{N}{(1+N(e^2))}$$

Where;

$n_s$  - Sample size

N- Population Size

e- Precision level (at .90 confidence interval, e = 0.1)

Given N = 54, then;

$$n_s = \frac{54}{1 + 54(0.1^2)}$$

= 35 respondents

**RESEARCH FINDINGS AND DISCUSSIONS**

**Performance Expectancy**

The analysis showed that 77% of the respondents were in agreement of the fact that e- procurement has improved their performance ability.

From the above findings it is clear that most respondents from the two institutions believe that e-procurement has the ability to improve procurement function of their organizations. They therefore would support their institutions in adoption process. The above findings are in line with what various authors have said on the benefits of e- procurement. For example, Beauvallet et al., 2011 gave the tangible benefits of e- procurement to include opportunities for cross-sales, cost reduction, reduced inventory and shorter cycle time in ordering). The intangible benefits include enhancement of brand and corporate image communication (Beauvallet et al., 2011). Electronic procurement accounts for euro one billion dollars per annum worldwide and is promoted by progressive governments since it coincides with environmental sustainability initiatives (Done, Liao & Maedler, 2011).

*Table 1*

**Ability to perform well due to e- procurement**

		Frequency	Percentage
Valid	Yes	27	77.0
	No	5	14.0
	Total	32	91.0
Missing	System	3	9.0
Total		35	100.0

**Effort expectancy associated with e-procurement**

The analysis showed that 51% of the respondents were in agreement of the fact that use of e-procurement technology will be easy and effortless. However, 40% were not in agreement. Hence there could be need to empower more employees on how to use to the e- procurement technology. The above finding are in with what other researchers have said in their previous work for example, Davila et al., 2002 failure to integrate these technologies with existing platforms creates duplicative work steps and jeopardizes the reliability of e-procurement information. Beauvallet et al., 2011 also noted E-procurement implementation can suffer performance handicaps due to incomplete technological development of the virtualization platforms. The World Bank blames the inadequate access and connectivity to limited absorption and usage of e-procurement technologies (World Bank, 2004). E-procurement implementation is affected by the lack of a widely accepted and standardized solution and this blocks the integration of different e-procurement software across the supply chain (Davila et al., 2002).

*Table 1*

**Effort expectancy associated with e-procurement**

		Frequency	Percentage
Valid	Yes	18	51.0
	No	14	40.0
	Total	32	91.0
Missing	System	3	9.0
Total		35	100.0

Table 2 show departmental objectives on e-procurement adoption available in the respondent’s organization

**Achievement of departmental objectives on e-procurement adoption available in the respondent’s organization**

From table 2, 86% the respondents believe that they would be able to achieve their departmental

objectives if there organizations were to adopt e-procurement while 5% do not agree. The above findings are supported by a number of various research; Companies that use e-procurement technologies report savings of 42% in purchasing transaction costs. This cost reduction is associated with less paperwork, which translates into fewer mistakes and a more efficient purchasing process. The simplification of the purchasing process that e-procurement technologies are credited with also has a favorable impact on the purchasing cycle time. While not directly quantifiable into dollars, faster cycle time provides increased flexibility and more up-to-date information at the time of placing a purchasing order. E- Procurement technologies users also report a reduction in the number of suppliers—with the associated cost benefits of lower managerial complexity, lower prices, and a headcount reduction in the purchasing p

The table 4 shows various parameters including customer satisfaction, effort expectancy and social influence as key to adoption of e- procurement with regard to performance expectancy. From the results above it is clear that majority of the respondents strongly agree that the above parameters would have strong impact to the adoption of e-procurement by their organizations. The above findings are in accordance with the benefits associated with e- procurement according to Beauvallet et al., 2011 gave the tangible benefits of e- procurement to include opportunities for cross-sales, cost reduction, reduced inventory and shorter cycle time in ordering). The intangible benefits include enhancement of brand and corporate image communication (Beauvallet et al., 2011). Electronic procurement accounts for euro one billion dollars per annum worldwide and is promoted by progressive governments since it coincides with environmental sustainability initiatives (Done, Liao & Maedler, 2011).

Table 2

**Achievement of departmental objectives on e-procurement adoption available in the respondent’s organization**

		Frequency	Percentage
Valid	Yes	30	86.0
	No	2	5.0
	Total	32	91.0
Missing	System	3	9.0
	Total	35	100.0

**User attitude**

**Extent in which user attitude has affected e-procurement adoption in the respondent’s organization**

Table 5 below show various parameters of user attitude which affect e- procurement adoption. From the results it can be seen that majority of the respondents believe that user knowledge, user training and user acceptance would greatly influence adoption of e- procurement. According to Beauvallet, Boughzala and Assar (2011), the e-procurement lack of user-friendliness and confidence affects its usability and service level agreements drafting. The lack of governmental support for e-procurement as the default means of purchasing affects the confidence level among the players (European Commission, 2012). The European Commission (2002) identified several barriers affecting e-procurement: leadership failures, financial inhibitors, digital divides and choices, poor coordination, workplace and organizational inflexibility, lack of trust and poor

**Extent in which performance expectancy has affected e- procurement adoption in the respondent’s organization**

Table 4

**Parameters affecting adoption of e- procurement**

Parameters	Strongly agree	Agree	Disagree	Strongly disagree	Not sure	Missing system	%
Customer satisfaction	10%	42%	25%	5%	9%	9%	100
Effort expectancy	15%	41%	24%	7%	4%	9%	100
Social influence	10%	40%	33%	3%	5%	9%	100

technical design. These failures have an impact on the purchasing contracting within the e-procurement platforms. The e-procurement implementation in the automobile industry is also affected by apparent lack of standardization in the electronically exchanged documents (Kubicek, Hansen & Cimander, 2009). Such a challenge has a direct impact on the contracting process since the parties must have a common and solid understanding before entering into contracts (Kubicek et al., 2009). According to the World Bank (2004) the e-procurement implementation is affected by commonly low awareness, understanding, or skill in relation to evolving technologies.

Table 5

User attitude							
Parameters	Strongly agree	Agree	Disagree	Strongly disagree	Not sure	Missing system	%
User knowledge	10%	40%	26%	5%	5%	14%	100
User training and skills	20%	38%	24%	5%	4%	9%	100
User acceptance	9%	39%	35%	3%	5%	9%	100

**Extent in which user training has influenced adoption of e- procurement**

Table 6 shows the extent which user training has influenced the adoption of e- procurement at KPLC, Kisumu. It can be seen that user training has affected the operations of procurement department to a large extent due to various reasons including acceptance of the system among the employees, knowledge of operating the system hence confidence among the users.

Table 3

**Influence of user training on e- procurement adoption**

		Frequency	%
Valid	To no extent	4	11.0
	To some extent	5	14.0
	To moderate extent	10	29.0
	To a large extent	12	34.0
	To very large extent	1	3.0
	Total	32	91.0
Missing	System	3	9.0
Total		35	100.0

Figure 2 show the extent to which e- procurement affects procurement functions. From the graph it clear that e- procurement has large extent on procurement functions.

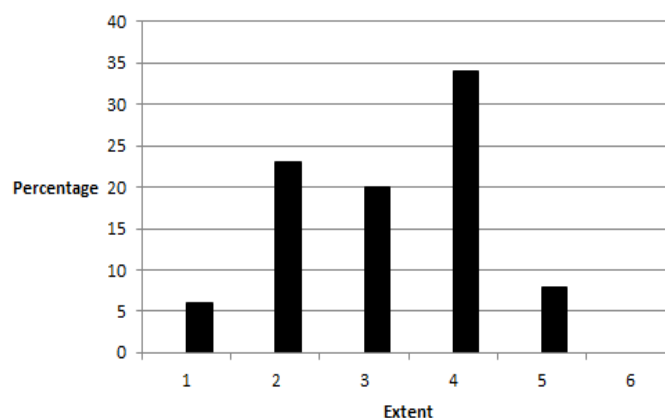


Figure 2: e-procurement on procurement functions

Where;

- 1 represents no extent
- 2 represent some extent
- 3 represent moderate extent
- 4 represent large extent
- 5 represent very large extent

**Technical capabilities**

**Explaining whether technical capabilities affect adoption of e- procurement**

From table 7, the result shows that a technical capability of an institution influences the adoption of e- procurement. The above finds are in line with Batenburg (2007) conducted a research on the e- procurement adoption by European firms. The quantitative research established that technical factors are very key in determining the successful implementation of e-procurement (Batenburg, 2007). According to the research, companies that faced technical compatibility issues and those that lacked information technology expertise tended to reap minimally from the e-procurement implementation. These research findings tend to dovetail with Pires and Stanton (2005) who indicate that the common important drivers for e- procurement adoption are technical process design, international operational efficiency, and cost reduction and organizational leadership. The Pires and Stanton (2005) global research pointed to the e- procurement technical architecture as very critical in the e-procurement implementation.

Beauvallet, Boughzala and Assar (2011), the e- procurement lack of user-friendliness and confidence affects its usability and service level agreements drafting. The lack of governmental support for e-procurement as the default means of purchasing affects the confidence level among the players (European Commission, 2012). The European Commission (2002) identified several barriers affecting e-procurement: leadership failures, financial inhibitors, digital divides and choices, poor coordination, workplace and organizational inflexibility, lack of trust and poor technical design. These failures have an impact on the purchasing contracting within the e- procurement platforms. The e-procurement implementation in the automobile industry is also affected by apparent lack of standardization in the electronically exchanged documents (Kubicek, Hansen & Cimander, 2009). Such a challenge has a

direct impact on the contracting process since the parties must have a common and solid understanding before entering into contracts (Kubicek et al., 2009). According to the World Bank (2004) the e-procurement implementation is affected by commonly low awareness, understanding, or skill in relation to evolving technologies.

*Table 4*

**Table Explaining whether technical capabilities affect adoption of e- procurement**

		Frequency	Percentage
Valid	Yes	29	83.0
	No	3	8.0
	Total	32	91.0
Missing	System	3	9.0
	Total	35	100.0

**Extent in which technical capabilities have influenced adoption of e-procurement in the respondent’s organization**

Table 8 shows various parameters of technical capabilities which influence adoption of e- procurement. The parameters include poor technical design, inadequate skilled personnel and access rights. It can be seen that majority of the respondents strongly agree that the above parameters have great impact on the adoption of e- procurement. Batenburg (2007) conducted a research on the e-procurement adoption by European firms. The quantitative research established that technical factors are very key in determining the successful implementation of e- procurement (Batenburg, 2007).



Table 8

**Parameters of technical capabilities**

Parameters	Strongly agree	Agree	Disagree	Strongly disagree	Not sure	Missing system	%
Poor technical design	10%	42%	25%	5%	9%	9%	100
Inadequate qualified personnel	15%	40%	24%	7%	5%	9%	100
Access rights	10%	40%	34%	2%	5%	9%	100

**Summary of Findings**

**Influence of Performance expectancy on Procurement functions**

There is need for organizations to come up with a clear performance expectancy guideline to ensure her employees understand what is expected of them in terms of delivery as an institution adopts a technological system like e- procurement. This is evident from the data which has been analyzed which showed that 77% of the respondents were in agreement of the fact that e- procurement has improved their performance ability. From the findings it is clear that most respondents from the two institutions believe that e- procurement has the ability to improve procurement function of their organizations. They therefore would support their institutions in adoption process. The above findings are in line with what various authors have said on the benefits of e- procurement. For example, Beauvallet et al., 2011 gave the tangible benefits of e- procurement to include opportunities for cross-sales, cost reduction, reduced inventory and shorter cycle time in ordering.

**Influence of User attitude on Procurement functions**

The study identified that the organization has a training policy that provides guidelines on training of employees on e- procurement an aspect most respondents agreed to. Training improved the

acceptance of e-procurement system and changed the attitude towards E-procurement system.

**Influence of Technical Capabilities on Procurement functions**

It is clear that technical capabilities stand out a key component for successful adoption of e-procurement. It therefore prudent for the two institutions to invest on the necessary structure required for smooth running of e- procurement system.

**Conclusions**

The study concluded that there is need for the institutions to adopt a clear performance expectancy guideline to ensure her employees understand what is expected of them in terms of delivery as an institution adopts a technological system like e- procurement.

The study also concluded that the organization has a training policy that provides guidelines on training of employees on e- procurement an aspect most respondents agreed to. Training improved the acceptance of e-procurement system and changed the attitude towards E-procurement system.

Finally the study concluded that technical capabilities stand out a key component for successful adoption of e- procurement. It therefore prudent for the two institutions to invest on the necessary structure required for smooth running of e- procurement system.

**Recommendations**

1. Performance expectancy evaluation should be done in Kisumu County to equip employees of institutions with expected levels of service delivery while using a system.
2. E- procurement training should be done to equip the employees of the two institutions with relevant skills to be able to operate the system.
3. The two institutions should invest adequately on the relevant infrastructure to ensure that they are

able to smoothly operate the e- procurement system.

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