

# Determinants of E-Procurement Strategy Implementation in State Corporations in Kenya: A Case Study of Kenya National Highway Authority (KENHA)

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**Abstract:** The purpose of the study was to examine the determinants of e-procurement strategy implementation in state corporations in Kenya: a case study of Kenya National Highway Authority (KENHA). The study aimed to establish how information technology, Skills, Government policies and availability of resources affected implementation of e-procurement strategy in KENHA. A questionnaire was used where all the 80 staff in all departments was issued with. Data was collected using self-administered questionnaires to collect data. The data collected is analyzed using descriptive statistics, regression and correlation analysis for quantitative data and content analysis for qualitative data. The study found and concluded that information technology, skills, government policies and availability of resources played critical roles in enhancing E-procurement strategy implementation in KENHA. From the correlation analysis, the study confirms that there were significant positive relationships between the independent variables (information technology, skills, government policies, resource availability) and dependent variable (E-procurement strategy implementation). The regression analysis further revealed that the four factors that were studied, explain 71.2% of e-procurement strategy implementation with resources availability contributing most to the E-procurement strategy Implementation followed by information technology, skills and government policies respectively.

**Keywords:** Supply Chain Management, Supply Chain Management, E-procurement.

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## 1. INTRODUCTION

Today, organizations find themselves facing rapid series of market shifts, new technological innovations, and changes in government policies (Eisenhardt & Brown, 2009). The mirror image of such phenomena is an increasingly turbulent environment that firms have to deal with (Bradley & Nolan, 2008). As a consequence, successful organizations are those that have learnt how to be innovative and creative without renouncing to the level of discipline that is instrumental in effectively executing plans. In doing so, they have to modify their organizational designs, taking advantage of Information and Communication Technologies (ICTs). ICT is a critical enabler of the redefinition of the organization. It permits the distribution of power, function, and control to wherever they are most effective; given the mission and objectives of the organization and the culture it enjoys (Morton, 2010).

### Statement of the problem:

E-procurement has been a common theme of many organizations and governments for the promotion of transparency and good governance in many developed and developing nations. Some of the early adopters began implementing e-procurement systems for 20 years ago as the internet and web services became a primary medium for the exchange and dissemination of information. The internet Procurement serves as a window through which the public sector interacts with

the private sector, how such interaction is managed in fostering a sense of fairness and widening the base of participating by private sector in public procurement (PPADA, 2015).

Since e-procurement is a key to government service delivery its strategic performance on state cooperation is not yet attracting many. This is because the area is perceived as prone to corruption causing waste of resources and compromising quality of service in both public and private sectors. Despite government effort to improve the e-procurement system, it is still marred by shoddy works, poor quality of goods and service. Improper implementation of recommended performance standard results in an unnecessary high operation costs, uncoordinated business activities, inability to achieve domestic policy goals and failure to attract and retain professionals. For instance, chicken gate and Anglo-leasing scandal

Generally, it appears that e-procurement is still in its early stages of adoption in the corporate world. A recent Aberdeen group (2001) study of spending analysis practice of 157 firms revealed that only few firms truly know and understand how much they spend, on which products and with which suppliers (Bushell, 2004). Rupperts (2003) noted user's reluctance to be subjected to significant changes in business processes as a major barrier to implementation of e-procurement system.

In a recent survey of 102 international active e-marketplaces and procurement service providers, (Kheng & Al-Hawandeh, 2002) investigated the adoption of e-procurement strategy in Singapore and stumbling blocks to this initiative from the point of view Singaporean firms. First there were issues about security and privacy of e-procurement transaction data. Secondly, requires significant investment of hardware, software and personal training. Thirdly, the laws governing B2B commerce crossing over to e-procurement are still undeveloped. For instance, questions concerning the legality and force of e-mail contract, role of electronic signatures and application of copyright laws to electronically copied documents are still unresolved. In addition, technical difficulties related to information and data exchange and conversion such as insufficiencies in locating information over the internet using search engines and the lack of common standards that get in the way of the easy integration of electronic catalogs from multiple suppliers.

Geoffrey (2015) understands the concept of e-procurement strategy and the associated benefits, a number of studies had been done. For instance, studies have been done on implementation of e-procurement, challenges of implementation of e-procurement and benefits of e-procurement. Studies had also related e-procurement with other variables like operational and overall organizational performance. No study had been done on determinants of e-procurement strategy implementation. Therefore, this study sought to bridge this gap by investigating the determinants of e-procurement strategy implementation in state corporations in Kenya: a case study of Kenya National Highway Authority (KENHA).

#### **Objectives:**

1. To determine how information technology affect e-procurement strategy implementation in State Corporation in Kenya.
2. To evaluate how skills affect e-procurement strategy implementation in State Corporation in Kenya.
3. To assess how government policies affect e-procurement strategy implementation in State Corporation in Kenya.
4. To find out how resource availability improves e-procurement strategy implementation in State Corporation in Kenya.

## **2. THEORETICAL REVIEW**

### **Innovation Diffusion Theory:**

Diffusion of innovations is a theory that explains how, why, and at what rate new ideas and technology spread. Rogers suggests that there are four main elements that influence the spread of a new idea: the innovation itself, communication channels, time, and a social system. This process relies heavily on human capital. The adaption of the innovation should be spread in mass so that it has wide coverage. The last element is the social context of the new systems (Rogers, 1997). Diffusion of innovation strategies requires evolution and reinvention of products and people so that they are able to perform better (Les Robinson, 2009)

### **Traditional procurement theory:**

Traditional theory is often said to have originated in the seminal 1961 article by William Vickrey. While Vickrey's insights were initially unrecognized and it would be many years before his work was followed up by other researchers, it

eventually led to a formidable body of research by pioneers. The first wave of theoretical research into auctions concluded in the mid-1980's, by which time there was a widespread sense that it had become a relatively complete body of work with very little remaining to be discovered. See McAfee and McMillan (1987) for an excellent review of the first wave of auction theory. The original idea of an e-procurement is that one can procure goods and services through the use of a bidding mechanism.

#### Disruptive Innovation Theory:

Barahona & Elizondo (2012) seek to explain the theory of disruptive innovation. A disruptive innovation theory is an innovation that creates a new market and value network and eventually disrupts an existing market and value network, displacing established market leading firms, products and alliances. Not all innovations are disruptive, even if they are revolutionary. For example, the first automobiles in the late 19th century were not a disruptive innovation, because early automobiles were expensive luxury items that did not disrupt the market for horse-drawn vehicles. The market for transportation essentially remained intact until the debut of the lower-priced Ford Model T in 1908. (Christensen, 2003) Disruptive innovations tend to be produced by outsiders and entrepreneurs rather than existing market-leading companies.

#### Technology Perspective Theory:

It has been claimed that e-procurement has become the catalyst that allows organizations integrate their supply chains from end-to-end, from supplier to the end user (krai & Ngai, 2008). In summation, it is noted that the extent of e-procurement adoption mains in a formative stage, falling short of the type of e-sourcing and e-collaboration suggested (Morris *et al.*, 2000). The transition to modem c-procurement calls for strategic adoption (Masekeran & Ngai, 2008). Therefore, this theory links effect of government policy on implementation of e-procurement.

#### Conceptual Framework:

A conceptual framework helps simplify the proposed relationships between the variables in the study and show the same graphically or diagrammatically, (Mugenda & Mugenda, 2003). The conceptual framework of this study is based on three independent variables namely; Information Technology, skills, government policies and resource availability. The dependent variable of this study is the e-procurement strategy implementation in State Corporation in Kenya. Figure 2.1 below shows how the various independent variables affect the dependent variable under study.

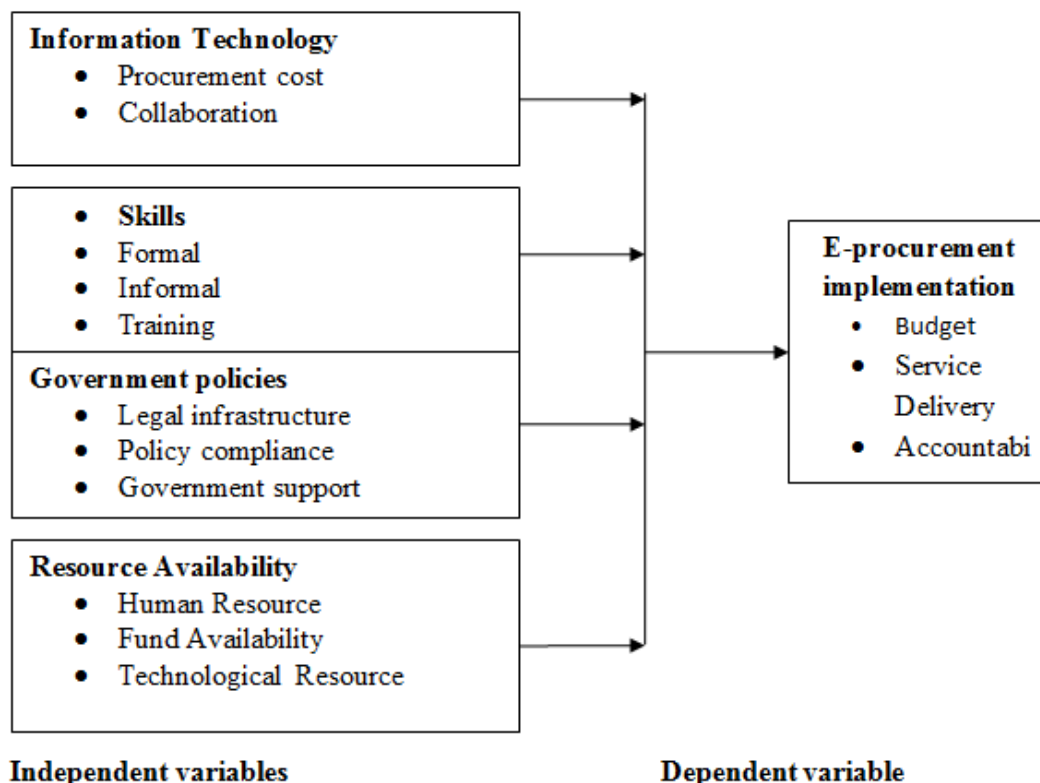


Figure 2.1 Conceptual frameworks

**Critique of Existing Literature:**

Literature on ICT adoption shows that the public procurement systems that have adopted ICT have effective management systems that support the e-procurement strategy (Kramer & Katz, 2007). However, this cannot be generalized to all cases, for instance in Kenya, where public procurement is not fully ICT compliant, thus it remains unclear how this omission is affecting the e-procurement strategy. Literature review shows the important role of the ICT in the management of the E-procurement. An efficiently upheld ICT would mean adherence to the PPDA in Kenya and compliance to set internal policy guidelines. The literature however, falls short of the ICT effectiveness and its effect on the management of the E-procurement in Kenya. This is because past studies have in most cases been centered in the developed world, since E-procurement is a new concept in developing countries such as Kenya.

**Research gaps:**

Despite the increasing pace of the e-procurement phenomenon, there remains a lack of theoretical underpinning linking e-procurement and performance, especially on the strategic level. In an attempt to advance theory research hypotheses developed based on a review of the e-procurement literature. This study focused on the e-procurement challenges facing the company. However, there is need for further research on these challenges since everyday more and more difficulties arise due to changes. In the past research work, it is clear that much has been written on matters pertaining e-procurement in the road industry. Nevertheless, those researchers left out gaps which require further investigations. For instance, competition is said to be one of the key factor affecting price for certain goods and services. It is also argued that this may lead to fluctuation of demand for those goods and services. There is need therefore to carry out research so as to establish what the required level of competition is and price which shall guarantee that quality of goods services will be obtained in the business operating processes (COG, 2007).

**3. RESEARCH METHODOLOGY**

The research design used in this study was descriptive research design. The target population was all KeNHA staff in all its branches all over the country. Thus the study targeted 400 employees of the KeNHA. The sample size of this study consisted of 80 staff of the KeNHA using a simple random sampling. The researcher used questionnaires as the research instrument to gather the relevant information needed related to the study.

**Model:**

Analysis of data used multiple regressions to test the research questions

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where; Y = e-procurement implementation

$\beta_0$  = Constant

$\beta_1, \beta_2, \beta_3, \beta_4$  = Coefficients of determination

X1 = government policy

X2 = Information technology

X3 = Resource availability

X4 = skills

**4. RESULTS AND DISCUSSION****Regression Analysis:**

The researcher conducted a multiple regression analysis so as to test relationship among variables (independent) on the E-procurement in state corporations in Kenya. The researcher applied the statistical package for social sciences (SPSS V 21.0) to code, enter and compute the measurements of the multiple regressions for the study. Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (e-procurement strategy implementation in state corporations in Kenya) that is explained by all the four independent variables (information technology, skills, government policies, resource availability).

**Model Summary:**

The model summary findings are as shown in Table 1.

**Table 1 Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.844	0.712	0.694	0.2767

The four factors that were studied, explain only 71.2% of e-procurement strategy implementation in state corporations in Kenya as represented by the  $R^2$ . This therefore means that other factors not studied in this research contribute 28.8% of e-procurement strategy implementation in state corporations in Kenya.

**ANOVA Results:**

The study ANOVA results are as shown in Table 2.

**Table 2 ANOVA**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11.915	4	2.979	38.906	.000 <sup>b</sup>
	Residual	4.823	63	.077		
	<b>Total</b>	16.738	67			

The significance value is 0.000 which is less than 0.05 thus the model is statistically significant in predicting how information technology, skills, government policies, resource availability influence E-procurement strategy implementation in state corporation in Kenya. The F critical at 5% level of significance was value 38.906 Since F calculated is greater than the F critical (3.23), this shows that the overall model was significant.

**Coefficient of Determination:**

Multiple regression analysis was conducted as to determine the relationship between Information Technology, Skills, Government policies, Resource Availability and E-procurement strategy implementation in State Corporation in Kenya.

**Table 3 Coefficient of Determination**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.399	0.308		4.549	0.000
	information technology	0.648	0.079	0.159	4.223	0.002
	Skills	0.602	0.065	0.003	3.724	0.030
	government policies	0.513	0.085	0.014	3.936	0.007
	resources availability	0.744	0.105	0.923	3.247	0.001

As per the SPSS generated Table 4.13, the equation:  $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \epsilon$  becomes:  $Y = 1.399 + 0.648X_1 + 0.602X_2 + 0.513X_3 + 0.744X_4 + \epsilon$ . According to the regression equation, taking all factors (information technology, skills, government policies and resources available) to be constant at zero, e-procurement strategy implementation will be 1.399. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in Information Technology leads to a 0.648 increase in E-procurement strategy Implementation; a unit increase in skills will lead to 0.602 increase in E-procurement strategy Implementation, a unit increase in Government Policies will lead to a 0.513 increase in E-procurement strategy Implementation, while a unit increase in Resources Available will lead to a 0.744 increase in E-procurement strategy Implementation. This infers that resources availability contributes most to the e-procurement strategy implementation followed by information technology, skills and government policies respectively. At 5% level of significance and 95% level of confidence, the significance values for the four factors were as follows; information technology (0.002); skills (0.030); government policies (0.007) and resources available (0.001). The significance values obtained indicate that the most significant determinant influencing e-procurement strategy implementation in KeNHA is Resources Availability, followed by IT, skills and Government Policies respectively.

The findings are in agreement with Hung, Chang & Yu (2006) who revealed that resources availability contribute most to the e-procurement strategy implementation followed by information technology, skills and government policies respectively. According to Omany, Njeri & Mungai (2013) the most significant factor influencing e-procurement strategy implementation among Selected Firms in Kisii Town was resources availability followed by IT, skills and government policies respectively.

### Test for normality

The test for normality was conducted and the findings are as indicated in Table below.

**Table 4. Test for normality**

Tests of Normality						
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
IT	.233	78	2.000	.863	78	.800
Government policy	.209	78	2.000	.905	78	.601
Skills	.280	78	2.000	.821	78	.700
Resource availability	.334	78	2.000	.781	78	.500

According to the findings, information technology, skills, government policies and resource availability were normally distributed as their significance value of the Shapiro-Wilk Test were greater than 0.05, hence the data is normally distributed. Similarly, Sarkis & Geng (2009) established a normal distribution of data about information technology, skills, government policies and resource availability.

## 5. CONCLUSION

The study concludes that privacy and security risks arising from inappropriate information collection and information transparency and commitment among trading partners as well as transaction risks resulting from wrong products purchased due to incomplete or misleading information Inadequate. Clear communication of the strategic plan to all stakeholders leads to better and informed involvement of all key stakeholders.

The study concludes that formal skills gained helped in E-procurement implementation Skills gained by staff in trainings was adequate in implementation process where training helped in improving personal skills on e-procurement.

The study concludes that the government policies streamlined the bureaucracies previously experienced in the procurement processes which leads to Policy fulfillment in different departments.

Finally, the study concludes that; resources available were readily available in the corporation as structures and platforms for implementation of E-procurement were in place. Further loans were easily accessible for the corporation when need be and that technological resources were sufficient in the implementation of E-procurement` in the corporation.

## 6. RECOMMENDATION

The findings from this study have policy implications on the e-procurement strategy implementation in state corporations in Kenya. Therefore based on the findings this study suggests the following policy recommendations:

- The study recommends that the government should closely monitor the IT platforms of corporations to ensure compliance with recommended IT best practices by the management.
- It is also recommended that the government should continuously review the existing public procurement policies to bridge the gaps that impede e-procurement in KENHA and other state corporation
- The study also concludes that skills played a critical role in enhancing E-procurement strategy implementation by promoting the skills through training.
- Finally, the study recommended that the government should rigorously monitor the resource available and their use to avoid misappropriation in state corporations to ensure optimization of resources.

**Suggestions for Further Research:**

Since research is the search of new knowledge, what has been dealt with is not exhaustive due to dynamic change in e-procurement strategy implementation in state corporations in Kenya. In view of this therefore the following suggestions are made for further research

- Given that the study focused on determinants of e-procurement strategy implementation in states corporations in Kenya, the study recommends that further studies should be done in cooperatives in Kenya for comparison and generalization of findings.
- The study recommends that a study be done on the role of employees in the state corporation on the adoption and use of new strategies. This would help in determining the extent of influence of the employees on the adoption and use new strategies.
- The four factors that were studied, explain only 71.2% of e-procurement strategy implementation in state corporations in Kenya as represented by the  $R^2$ . This therefore means that other factors not studied in this research contribute 28.8% of e-procurement strategy implementation in state corporations in Kenya.

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