IMPLEMENTATION OF ELECTRONIC PROCUREMENT IN COUNTY GOVERNMENTS IN KENYA: A CASE STUDY OF NAIROBI COUNTY GOVERNMENT

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ABSTRACT

The interest of this study is to determine the reasons for unsuccessful implementation of E-Procurement in the county governments in Kenya. It focused on the Nairobi county government, which is guided by the Public procurement procedures. With the use of a short form questionnaire, the data was collected from a population sample of the Top managers of the institution and middle level operations staff. This was used to establish the pertinent factors that affect successful implementation of electronic procurement process in public institution. The business environment within which the county government operates is very volatile; the political anxiety, cartels, competition from the private sector, technological advancement, and global changes are some of the challenges that have greatly affected the success of the council’s operations. Whereas the people of Nairobi and Kenya at large expect nothing but efficient and reliable services from the county government, smooth process management is a subject of interest in order to achieve this goal and enhance accountability The main objective of this study was to investigate why implementation of electronic procurement system has not been successful in spite the attempts that have been made in the past and also the benefits that the public institutions will enjoy if electronic procurement is implemented. The study was done through data collected using a semi-structured questionnaire and analyzed based on descriptive statistics. The collected data was analyzed in tables, pie charts and graphs. The study found out that majority of the respondents agreed that Technological infrastructure, organization culture and professionalism contributed to the success of E-Procurement in the organization. A majority of the respondents felt that IT cost doesn’t hinder success of E-procurement however there should be budget allocated to that venture as an investment.
KEY WORDS: Electronic procurement in county governments in Kenya

INTRODUCTION

Electronic procurement and electronic markets are emerging as the critical infrastructure of modern electronically-enabled organizations in the globe today. The Internet and the Web provide a cost-effective mechanism for organizations to engage in search, negotiation and coordination with their suppliers anywhere in the world (Buxmann and Gebauer, 2007; Kalakota and Robinson, 2007). At the same time, the electronic technology is also being used to integrate and manage business processes across traditional firm boundaries to create an “extended enterprise” of the firm and its business partners (Shaw, 2004). In this context, managers responsible for implementing E-procurement systems are faced with the challenge of convincing all potential users, internal and external to the organization, of the real value of these systems (Nagy & Cenker 2003).

Reda (1998) states that, as the marketplace increasingly continue to operate in a global village through the use of information technology in the context of international trade, relations also become increasingly important. Indeed, the significant role that technology plays in the market today is unquestionable. Companies worldwide keep reinventing themselves to keep pace with these conditions in order to improve competitiveness and raise productivity (Schiele, et al. (2011).

As a result of these drastic transformations, the question as to how can companies convert themselves to become technologically-established while maintaining and increasing the effectiveness of its operations become the focal point of most procurement-technology paradigm. Nagy and Cenker (2003) established that the adoption of e-procurement solutions is increasing in Europe but the UK still lags behind by half in terms of adoption, and delivers fewer bids per competitive process than other major economies such as Spain, Germany, Portugal, Ireland and Iceland. The study found out that the Portuguese government made savings of 20% on its procurement contracts after e-procurement was introduced, whereas the Welsh government’s programme delivered benefits of £58 million across the three years following its introduction.

According to Eadie et al (2007), an organization which uses E-procurement has the following advantages: First, Price reduction in tendering: Empirical studies carried out Gebauer et al (1988) in the United States of America indicated that the two most important measures for the success of procurement processes are cost and time. In this method, there is no paperwork, postage fee and other costs associated with preparation and sending tender documents. It is also faster to send a
document electronically as compared to the traditional method of sending tender documents through post office. It results to improved order tracking and tracing, for it is much easier to trace the orders and make necessary corrections in case an error is observed in the previous order.

Secondly, there is reduction in time to source materials: Reduction in time has been proven as a relevant benefit by Knudsen (2003) quoted in Eadie et al (2007), who says “E-procurement is a rapid efficient method of finding and connecting new sources, being a lean channel for communication”. A lot of time is spent on paper invoicing in terms of writing, filing and postal communication but while in e-procurement, staff have sufficient time to engage on strategic issues of procurement. The time wasted in moving from one town or country to another to look for a potential supplier or buyer is greatly reduced since with a click of a button, one can readily get the information in the internet. By extension, E-procurement leads to reduction in maverick buying.

Thirdly, Lower Administration costs: in their study, Rankin et.al (2006) argued that e procurement result in reduction in paperwork and this leads to lower administration costs both in stationery and labor. Fourthly, reduction in procurement staff: since most of the procurement process is done electronically, the number of staff needed to facilitate the process reduces.

As Eadie et al (2007) noted, the reduction in staff is an important way of producing competitive advantage through reduced costs. This is further supported by Egbu et al (2003) in his study which revealed that through implementation of an e-procurement system, a steel supplier was able to carry out a multi-million pound project with only 20% of the staff the company would normally have used. Fifthly, e-procurement gives an organization competitive advantage over its competitors. Eadie et al (2007) observed that as a centralized department can oversee all procurement activities and different offices worldwide can access the same documentation when required, this gives a distinct advantage over the much slower process of having to post documentation between offices. This extends the supply chain beyond geographical boundaries to a much wider spectrum.

Statement of the Problem

In his study Nairobi City Council, The Den of Corruption, published in a Price Water House coopers report, Kiberenge (2012) observed that Nairobi county government has been engulfed with numerous cases of irregularities ranging from inappropriate land allotment, misappropriation
of funds and a compromised procurement system. Human IPO (2012) revealed how the Nairobi county town clerk attempted to implement e-ticketing in public parking with capabilities of making the process automated, however this idea failed to take effect. Oyugi and K’Akumu (2011) observed that allotment of land in the city was conducted in extremely irregular manner that saw land being allotted to more than one owner.

Electronic integration serves as a catalyst and gold standard for development (Kohane et.al 2005) in organizations including government corporations. According to Croom (2006), electronic procurement has various benefits, the most common ones being transactional costs and buying price reduction, speed in processing, improvement of information exchange and control. Schroenher and Tammala (2000) mentioned the benefits of e-procurement and their categories in their electronic procurement review and listed some of them as reduced transactional costs, more efficient negotiations, work flow automation, accountability amongst employee productivity and organization spending control and leverage. Davern and Kauffman (2006) highlighted other benefits to include improved process monitoring, co-ordination and control, information sharing and integration.

Shalle et.al (2013) observed that the impact of electronic integration in e procurement on a firm’s performance has long been a subject of intense research, with issues studied ranging from measurement of the impact, to the conditions that are necessary to realize these impacts. Mukhopadhyay (2001) uses such an approach to understand how electronic integration into electronic procurement benefits an organization. These studies however focused largely on the infrastructural and functional part of e-procurement implementation. The growing trends in poor service delivery at the Nairobi city council are of great concern that will continue seeing the tax payer lose more money and integrity due to in efficiency (Kiberenge, 2012). It was therefore the intention of this study to fill in the gap by examining factors that contribute to the implementation of e-procurement and what extent each of them contribute to successful or failed implementation. This study therefore sought to investigate what exactly are the factors affecting the implementation of electronic procurement system that could be the solution for efficiency in service delivery in the Nairobi City County.

**General objective**

The purpose of this study was to determine factors affecting the implementation of Electronic
Procurement in Kenya.

**Specific Objectives**

i. To establish the effect of technology infrastructure on implementation of E-procurement in Kenya.

ii. To analyze the effect of professionalism on the implementation of E-Procurement in Kenya.

iii. To examine the effect of IT cost on the implementation of E-Procurement in Kenya.

iv. To determine the effect of organizational culture on implementation of E-procurement in Kenya

**LITERATURE REVIEW**

**Transaction Cost Economics**

This theory of transaction cost theory is based on Williamson (1989) and it focuses on the organization of transactions that occur whenever a good or service is transferred from a provider to a user across a technologically separable interface. Huang et al. 2002 states that when transactions occur within an organization, the transaction costs can include managing and monitoring personnel and procuring inputs and capital equipment. The transaction costs of buying the same good or service from an external provider can include the costs of source selection, contract management, performance measurement, and dispute resolution. Thus, the organization of transactions, or “governance structure,” affects transaction costs.

Operations of the Nairobi county government is full of heavy transactions that lead to completion of the supply chain. During expedition of these transactions there are supervisory roles put forth to ensure that completion is achieved. According to Goffin, Szwejczewski and New (1997) transaction Cost Economics has been the most important new institutional theory which puts the accentuation on the decision on the sourcing predicament, if to outsource or not. As a result the study will show clearly the challenges facing the county government in regard to managing the cost of transactions and their relationship with the successful implementation of this technology.

**Resource Based view**

This theory states that a firm’s resources and competences are its most important asset, therefore presenting an environment for a firm to take up the opportunities and mitigate on the risks
presented the external environment (Robert M. Grant, 2001). Carter and Ellram (2003) identify the four most frequently explored content areas to be inventory/production, purchasing organization, contracting cost/price analysis and global purchasing. This will affect the decision an organization makes on whether to implement a new technology of managing such resources or further on how to do so. The case for making the resource and capabilities of the firm the foundation for its long-term strategy of implementing e-procurement system at the Nairobi County government rests upon two premises; first internal resources and capabilities provide the basic direction for a firm’s strategy, second resources and capabilities are the primary source of profit for government for service delivery as envisioned by Grant, (2001). Therefore this study will seek to assess the resources available to the county government that affect the implementation of electronic procurement system.

**Systems theory**

This theory brings together various components of supply chain including human resource, capital information, materials as well as financial resources that will form a larger system of supply chain or network. According to Nollet *et al.* (2005) systems theory states that for a holistic perspective system theory must be employed to understand the internal and external factors that shape up an organizations supply chain performance. The main focus of this theory is to address strategic issues and political forces related to supply chains as a whole in contrast to functional approach regarding individual supply chain firms (Schiele *et al.* (2011). Implementation of a new system is always characterized by resistance from a section of people within the supply chain for different reasons. Implementation of electronic procurement process system will only be successful if the users embrace it and work together towards its success, therefore this study will seek to understand the challenges within the system that affects its full implementation.

**Conceptual Framework**

According to Bogdan and Biklen (2003) a conceptual Framework is a basic structure that consists of certain abstract blocks which represent the observational, the experiential and the analytical/synthetically aspects of a process or system being conceived. It is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. The interconnection of these blocks completes the framework for certain expected outcomes. A variable is a measurable characteristic that assumes different values among subjects. The dependent variable responds to the independent variable. The dependent variables are the
implementation of electronic procurement process which is dependent on the factors that would lead to its successful implementation. Below is figure 1 showing the relationship between variables in this study:

**Figure 1: schematic diagram showing variable relationships**

[Diagram showing the relationship between variables]

Independent Variable: Infrastructure, Professionalism, IT Cost, Organisational culture

Dependent Variable: Implementation of electronic Procurement
Methodology

Research design

Research design refers to the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in the procedure (Babbie, 2002). This study adopted a descriptive research design. A descriptive survey research seeks to obtain information that describes existing phenomena by asking individuals about their perceptions, attitude, behavior or values. It determines and reports the way things are and attempts to describe characteristics associated with target population, estimates of proportions of a population that have these characteristics and discovery of associations among different variables. Descriptive research portrays an accurate profile of persons, events, or situations (Robson, 2002) in their current state. This study also used inferential statistics to give the relationship of the variables in the study. Both approaches were appropriate in explaining the factors affecting implementation of E-procurement at the Nairobi City County.

Data Analysis and Interpretation

Regression Analysis

In addition, the researcher conducted a linear multiple regression analysis so as to test the relationship among variables (independent) on the implementation of E-Procurement. The researcher applied the statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the study.

Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Square Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.896a</td>
<td>.881</td>
<td>.132</td>
</tr>
</tbody>
</table>

Source: Research, 2014
The adjusted $R^2$ is the coefficient of determination. This value explains how E-Procurement varied with Technological infrastructure, Professionalism, organization culture and IT cost. The four independent variables that were studied, explain 88% of the implementation of E-Procurement as represented by the $R^2$. This therefore means that other factors that are not studied in this research contribute only 11% of the implementation E-Procurement hence giving room for further research to investigate the other possible factors (11%) that affect E-Procurement implementation.

ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>11.534</td>
<td>5</td>
<td>2.868</td>
<td>52.410</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>186.555</td>
<td>27</td>
<td>2.139</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>198.089</td>
<td>32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to Mugenda & Mugenda, 2003, ANOVA is a data analysis procedure that is used to determine whether there are significant differences between two or more groups or samples at a selected probability level. An independent variable is said to be a significant predictor of the dependent variable if the absolute t-value of the regression coefficient associated with that independent variable is greater than the absolute critical t-value. The regression analysis also yields an F-statistic where if the calculated F-value is greater than the critical or tabled F-value, the prediction will be rejected. In this study, the significance value is .0073 which is less that 0.05 thus the model is statistically significant in predicting Technological infrastructure, Professionalism, organization culture and IT cost. The F critical at 5% level of significance was 3.23. Since F calculated is greater than the F critical (value = 52.400), this shows that the overall model was significant.
Coefficient of determination

<table>
<thead>
<tr>
<th>Model Sig.</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>3.757</td>
<td>1.033</td>
</tr>
<tr>
<td>Technological infrastructure</td>
<td>0.554</td>
<td>0.107</td>
</tr>
<tr>
<td>Professionalism</td>
<td>0.879</td>
<td>0.139</td>
</tr>
<tr>
<td>Organization culture</td>
<td>0.568</td>
<td>0.097</td>
</tr>
<tr>
<td>IT cost</td>
<td>0.685</td>
<td>0.069</td>
</tr>
</tbody>
</table>

**Source: Research, 2014**

The researcher conducted a multiple regression analysis so as to determine the relationship between E-Procurement implementation and the four variables. As per the SPSS generated table above, the equation \( Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon \) becomes:

\[
Y = 3.757 + 0.554 X_1 + 0.879X_2 + 0.568 X_3 + 0.685X_4 + \varepsilon \text{ where:}
\]

\( Y \) = Implementation of E-Procurement

\( X_1 \) = Technological infrastructure

\( X_2 \) = Professionalism

\( X_3 \) = Organization culture
X4= IT cost

ε = the margin of error

According to the regression equation established, taking all factors into account (Technological infrastructure, Professionalism, organization culture and IT cost) constant at zero, implementation of E-Procurement will be 3.757. The data findings analyzed also show that taking all other independent variables at zero, a unit increase in Technological infrastructure will lead to a 0.754 increase in E-Procurement implementation; a unit increase in Professionalism will lead to a 0.879 increase in implementation of E-procurement, a unit increase in IT cost will lead to a 0.568 increase in implementation of E-procurement and a unit increase in ethical practices will lead to a 0.685 increase in implementation of E-procurement. This infers that Professionalism contribute more to the implementation of E-Procurement followed by the Technological infrastructure.

At 5% level of significance and 95% level of confidence, Technological infrastructure had a 0.002 level of significance; Professionalism showed a 0.005 level of significant, IT cost showed a 0.013 level of significant, ethical practices had a 0.032 level of significant, and hence the most significant factor is Professionalism.

Conclusions

The study concludes that majority of the respondents agreed that Technological infrastructure contribute to the success of E-Procurement in the organization. The basic infrastructure is already available that would see successful implementation of E-procurement; on the other hand majority of the respondents stated that IT cost should be viewed as an investment not as a cost and therefore the county government ought to consider putting in more resources in procuring IT infrastructure equipment that are not currently available in order to have a successful implementation of E-procurement; with view of the far reaching benefits to be enjoyed in the long term. Whereas some of the respondents were of the opinion that Technological infrastructure doesn’t contribute to the success of E-Procurement in the organization, the management of the
The county government ought to embark on a sensitization program on policy that will bring them up to speed on the merits of E-procurement.

The study concluded that Professionalism contributes greatly to the success of E-Procurement in the organization. According to the findings, majority of respondents indicated that Professionalism contribute to the success of E-Procurement in the organization to a great extent. Whereas a majority of the respondents felt that IT cost does not contribute to the success of E-Procurement in the organization. The study also concluded that majority of the respondents argued that IT cost should be more of an investment than a cost due to the long term far reaching benefits of E-procurement that is capital intensive.

Finally the study concludes that organizational culture contributes to the success of E-Procurement in the organization, majority of the respondents indicated that organizational culture contributed to the success of E-Procurement in the organization. From the study findings, majority of the respondents indicated that organization culture contributes to the success of E-Procurement in the organization to a great extent and only a few respondents thought organization culture did not contribute to the success of E-Procurement in the organization at all.
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