IF : 3.62 | IC Value 70.36 Volume-5, Issue-10, October - 2016 • ISSN No 2277 - 8160

Original Research Paper Social Science

FACTORS AFFECTING EFFECTIVE IMPLEMENTATION OF ELECTRONIC PROCUREMENT IN GOVERNMENT MINISTRIES IN KENYA

Leonard Leken Kotikash Master Student, Jomo Kenyatta University of Agriculture and Technology

Dr. Geoffrey Makau Lecturer, Jomo Kenyatta University of Agriculture and Technology

ABSTRACT

The general objective of this study was to investigate the factors influencing the effective implementation of e-procurement in the government ministries in Kenya. The specific objectives included; to determine the influence of top management commitment, information technology infrastructure, staff competency and suppliers' capacity on implementation of e-procurement. The study adopted a descriptive research design and purposive sampling technique was employed to select a total of 90 employees from the 18 ministries. Questionnaires were used to collect data and descriptive statistics was used to analyze, present and interpret the data aided by Statistical Package for Social Sciences. From the findings, top management commitment and support, ICT infrastructure, staff competency and suppliers' capacity influences e-procurement implementation. The study recommends that top management share ideas and give maximum support, establish and develop the IT infrastructure and train staff to acquire the range of competencies, knowledge and skills and involve suppliers in e-procurement initiatives.

KEYWORDS : e-procurement, implementation, ICT infrastructure, top management commitment, staff competency, suppliers' capacity.

1. Introduction

In the recent past, electronic procurement has come out as a popular system that has been adopted by organizations to achieve their objectives (Knudsen, 2007). With the emergence of Information and Communication Technology (ICT), organizations have been forced to shift their operation from the traditional style to e-business, e-procurement and e-supply chain philosophy in order to sustain themselves (Lee *et al.,* 2008). In the automation of the supply chain process, e-procurement provides several advantages which every organization should consider adopting. E-procurement is seen as a powerful means of achieving efficiency and has an indirect effect on cash savings by providing the access to good deals (OGC, 2005). It helps suppliers in tendering for contracts by erasing spatial and distance constraints, by speeding up procedures and by reducing administration costs significantly

2. Statement of the problem

E-procurement as an internet-based purchasing system that offers electronic purchase, ordering processing and enhanced administrative functions to buyers, suppliers and management (Atkinson, 2007) helps an organization in the cost cutting process, in both public and private sector.

Research indicates that any e-government project has 70% chances of failure (Vaidya *et al.*, 2004). The same is true for the adoption of e-procurement for public procurements. This difference in adoption of e-procurement system is, among other things, influenced by national culture and this means that the level of adoption of e-procurement will vary from one country to the other and the factors influencing the same adoption will be different. Hence, this research is both timely and relevant because public sector organizations need to identify ways in which innovative technologies can be deployed to achieve improved performance. It follows that, awareness of barriers that could affect the successful adoption and implementation of such technologies in the public sector is of paramount importance to stakeholders involved in the process.

3. Objectives of the Study

3.1 General Objective

The general objective of this study was to investigate the factors influencing the effective implementation of e-procurement in the government ministries in Kenya.

3.2 Specific Objectives

The specific objectives of this study were:

i. To determine the influence of top management commitment on the effective implementation of e-procurement in government ministries

ii. To establish the influence of information technology infrastructure on effective implementation of e-procurement in government ministries.

iii. To assess the influence of staff competency on effective implementation of e-procurement in government ministries.

iv. To determine the influence of suppliers' capacity on effective implementation of e-procurement in government ministries.

3.3 Research Questions

From the specific objectives the following research questions were answered:

I. What influence does top management commitment has in the implementation of e-procurement in the government ministries?

ii. What influence does information technology infrastructure has in the implementation of e-procurement in the government ministries?

iii. What is the influence of staff competency on effective implementation of e-procurement in the government ministries?

iv. What influence does suppliers' capacity have in the effective implementation of e-procurement in the government ministries?

4. Conceptual Framework

According to Young (2009), conceptual framework is a diagrammatical representation that shows the relationship between dependent variable and independent variables. In this study, the dependent variable is e-procurement adoption while the independent variables are top management commitment, information technology infrastructure, staff competency and suppliers' capacity.

51. Research Methodology

5.1 Research Design

A descriptive research design was used in this study. It was also used to obtain information on the current status of e-procurement in Kenya and describes the affairs as they exist with respect to variables or conditions in the situation of its implementation.

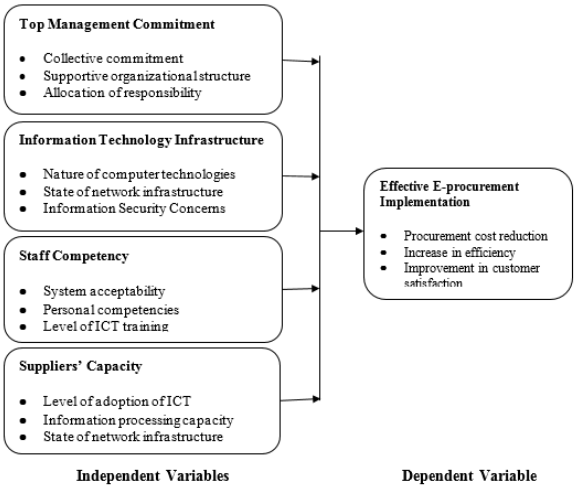

Figure 4.1 Conceptual Framework

5.2. Population and Sampling Design

5.2.1. Population

Data on effective implementation of e-procurement in government ministries in Kenya was collected from all the 18 government ministries and the subjects of the study were drawn from all these ministries.

5.2.2. Sampling Frame

In this study, the sampling frame consisted of all the procurement staff involved in e-procurement implementation within the 18 government ministries in Kenya.

5.2.3. Sample and Sampling Technique

Purposive sampling is where the researcher chooses the sample based on who they think would be appropriate for the study. In each of the 18 ministries in Kenya, 5 respondents were chosen to participate in the study. The respondents included the head of procurement, the head of ICT, the head of accounts, the head of stores and the head of training.

1.3 Data Collection Instruments

The study used questionnaires to collect primary data. Questionnaires were appropriate for the study since they intend to collect information that will not be directly observable as they inquire about feelings, motivations, attitudes, accomplishments as well as experiences of individuals (Mellenbergh, 2008). The questionnaire comprised of both open and close-ended questions. The data instrument was sub-divided into two sections and addressed the four research objectives. The first section of the questionnaire enquires general information about the respondents, while the next section sought to answer the four objectives, that is, top management commitment, information technology infrastructure, staff competency and suppliers' capacity.

1.4 Data Collection Procedures

After consent was given by the University to collect data and permission given by each Ministry, the researcher coordinated the data collection process. The researcher engaged three research assistants that assisted in data collection. The research assistants were then taken through training to clearly understand the research instruments, purpose of the study and ethics of research. The researcher and research assistants administered the questionnaires to the respondents face to face.

1.5 Pilot Testing

The rule of thumb is that 10% of the sample should constitute the pilot test. The pilot testing was conducted on 2 Ministries which comprise of 10 staff that were selected through random sampling.

1.6 Data Analysis and Presentation

Before processing the responses, the completed questionnaires were edited for completeness and consistency. The study generated both qualitative and quantitative data. Quantitative data was coded and entered into Statistical Packages for Social Scientists (SPSS Version 21.0) and analyzed using descriptive statistics. Qualitative data was analyzed based on the content matter of the responses. Responses with common themes or patterns were grouped together into coherent categories. In addition, the researcher used multiple regression analysis to establish the strength of the relationship between the dependent and independent variables. The data was presented according to the variables and objectives of the study. Descriptive statistics was used to analyze, present and interpret data. Quantitative data was presented in tables and graphs and explanation was presented in prose while qualitative data was presented in content analysis. According to The study also employed inferential statistics to establish the factors influencing effective implementation of e-procurement in government ministries in Kenya. Specifically, the study used Spearman correlation to establish this relationship.

The regression equation is: $Y=\beta 0+\beta_1 Tmc_1+\beta_2 ITi_2+\beta_3 St_3+\beta_4 Sc_4+\alpha$
Where: **Y** is the dependent variable (Effective Implementation of E-procurement),

β0 is the regression coefficient,
β_1, β_2 β_3 and **β4** are the slopes of the regression equation,
Tmc_1 is the Top management support
ITi_2 is the Information technology infrastructure,
St_3 is Staff competency,
Sc_4 is Suppliers capacity
α is an error term normally distributed about a mean of 0 and for purpose of computation, the α is assumed to be 0.

6. Research Findings And Discussion

6.1 Response Rate

The study targeted a sample of 90 respondents from the government ministries. Out of 90 questionnaires distributed 81 respondents completely filled in and returned the questionnaires, this represented a 90% response rate. This is a reliable response rate for data analysis as Mugenda and Mugenda (2003) pointed that for generalization a response rate of 50% is adequate for analysis and reporting, 60% is good and a response rate of 70% and over is excellent. However, 10% of the respondents were reluctant to fill out the questionnaire.

6.2 Positions Held by the Respondents

The study aimed at investigating the positions held by the respondents within the procurement department. From the findings, the majority of the respondents were heads of procurement (25%) and heads of accounts (25%) while 22% were heads of ICT. The minority were heads of stores (15%) while 13% were heads of training. This implies an appropriate sample of people with knowledge in e-procurement implementation.

6.3 Education Level of the Respondents

The researcher was also inquisitive to determine the highest level of academic qualification that the respondent held. Majority (63%) of the respondents were undergraduates, 22% of the respondents were postgraduates while the rest (15%) held a diploma as their highest level of education. This depicts that most of the staff working at the government ministries are literate and hence there is adequacy in understanding the questions and e-procurement process.

6.4 Duration of Service

Most (48%) of the respondents had worked in the government ministries for a period of less than 5 years, 27% had worked for a period of 16 years and above, 15% had worked for a period of 11 to 15 years while the rest (10%) had served in the government ministries for a period of 6 to 10 years. This implies that majority (52%) of the respondents have worked for five years and above and

have gained enough experience in e-procurement.

6.5 Implementation of E-procurement

According to the findings, majority (78%) of the respondents pointed that the ministries had adopted e-procurement in its procurement practices in their respective departments, 12% indicated that their department had not adopted e-procurement while the rest (10%) alleged that the ministries had adopted e-procurement only partially. This implies that most of the sampled institutions had e-procurement phenomenon in place and had recognized the advancement of ICT in tendering and service delivery.

6.6 Duration of E-procurement Application

From the findings most, (60%) of the respondents had used e-procurement for a period of less than 5 years, 30% had used for a period of 6 to 10 years, 7% had used for a period of 11 to 15 years while the rest, (3%) had used e-procurement for a period of 16 years and above. The majority of respondents (90%) have worked for 10 years and below while the rest (10%) have worked for more than 10 years. This implies that most of the government ministries in Kenya have started implementing e-procurement within the last ten years.

6.7 Top Management Commitment

On whether top management was committed and supports junior staff to implement e-procurement, majority (77%) of the respondents indicated that the top management gives them maximum support on e-procurement implementation while 23% indicated that they do not receive maximum support. The researcher concludes that nowadays most top management staff is committed and gives maximum support to junior staff to implement e-procurement in most government ministries in Kenya. This is in support of the Kenya government policy as outlined in the Public Financial Reform Management Strategy Paper 2001-2006 which recommends that all government ministries should automate and integrate key government functions such as the human resources, accounting, procurement and budgeting.

6.8 Information Technology Infrastructure

From the findings, majority (91%) of the respondents indicated that IT adoption influences e-procurement implementation while 9% cited a contrary opinion. The respondents who hold the opinion that IT adoption does not influence implementation of e-procurement have also indicated that their ministries had not adopted e-procurement. The researcher concludes that for a respondent to appreciate the contribution of IT in e-procurement implementation, he or she has to use it.

6.9 Staff Competency

The researcher investigated the opinion of respondents on whether staff competency has any influence on the implementation of e-procurement. Majority (98%) of the respondents alleged that staff competency influences implementation of e-procurement, while 2% cited that it does not influence. The respondents who hold the opinion that competency does not influence the implementation of e-procurement are from the category of diploma level of education. The researcher concludes that the respondents with low level of education are not of the opinion that staff competency influences implementation of e-procurement.

6.10 Suppliers' Capacity

The study investigated whether suppliers' capacity had an influence on e-procurement implementation. Majority (63%) of the respondents indicated that suppliers' capacity influences e-procurement implementation while the rest 37% were of the opinion that suppliers' capacity does not influence e-procurement implementation. In conclusion, the researcher notes that suppliers' capacity contributes immensely to the successful implementation of e-procurement. This view is supported by Wilson (2002) who pointed out that suppliers' capability to implement e-procurement brings with it a host of benefits that improve process efficiency, increase organizational effectiveness, facilitate collaboration with suppliers, and optimize control over demand and supply.

6.11 Benefits of E-procurement implementation

From the findings, the benefits that accrue from the implementation of e-procurement have been ranked in order of their popularity. Procurement cost reduction, access to information for decision making, reduction in time taken, improved customer satisfaction were some of the benefits that would accrue from their respective departments with the implementation of e-procurement as depicted by the mean scores of 3.71, 3.66, 3.62 and 3.56 respectively. Further, respondents alleged that increase in procurement efficiency; improved professional services delivery and increased confidentiality in the procurement system were also some of the benefits that would accrue from the implementation of e-procurement as shown by the mean scores of 3.54, 3.53 and 3.50 respectively.

7. Inferential Analysis

To establish the relationship between the independent variables (top management commitment, information technology infrastructure, staff competency and suppliers' capacity) and the dependent variable (e-procurement implementation) of the study, an inferential analysis which involved a coefficient of correlation, coefficient of determination and regression coefficient were carried out.

7.1 Correlation Results

From the findings, it was clear that there was a positive correlation between e-procurement implementation and top management commitment as shown by a correlation figure of 0.523, it was also clear that there was a positive correlation between e-procurement implementation and IT infrastructure with a correlation figure of 0.6140, there was also a positive correlation between e-procurement implementation and staff competency with a correlation value of 0.7460 and a positive correlation between e-procurement implementation and suppliers' capacity with a correlation value of 0.5210. This shows that there was a positive correlation between e-procurement implementation and top management commitment, IT infrastructure, staff competency and suppliers' capacity.

7.2 Determination Results

The four independent variables that were studied, explain only 83.4% of the factors influencing implementation of e-procurement as represented by the adjusted R^2. This therefore means that other factors not studied in this research explain 16.6% of the factors that influence the implementation of e-procurement. Therefore, further research should be conducted to investigate the other factors (16.6%) that influence implementation of e-procurement in the national government ministries.

7.3 Regression Results

As per the SPSS generated table 4.15, the equation ($\mathbf{Y= \beta 0+\beta_1 Tmc_1+\beta_2 ITi_2+\beta_3 St_3+\beta_4 Sc_4+\alpha}$) becomes:

$Y= 1.308+ 0.558X_1+ 0.785X_2+ 0.731X_3+0.620X_4$

The regression equation above has established that taking all factors into account (top management commitment, IT infrastructure, staff competency and suppliers' capacity) constant at zero, implementation of e-procurement will be 1.308. The findings presented also shows that taking all other independent variables at zero, a unit increase in top management commitment will lead to a 0.558 increase of e-procurement implementation; a unit increase in IT infrastructure will lead to a 0.785 increase of e-procurement implementation; a unit increase in staff competency will lead to a 0.731 increase in e-procurement implementation and a unit increase in suppliers' capacity will lead to a 0.620 increase in e-procurement implementation. This infers that IT infrastructure contributes the most to implementation of e-procurement followed by staff competency then suppliers capacity while top

management contributed the least to implementation of e-procurement.

At 0.05 level of significance and 0.95 level of confidence, top management commitment had a 0.276 level of significance; IT infrastructure showed a 0.285 level of significance, staff competency showed a 0.0202 level of significance and suppliers' capacity had a level of significance of 0.0249. Hence the most significant factor is IT infrastructure. The t critical at 0.05 level of significance at k = 4 degrees of freedom is 1.623. Since all t calculated values were above 1.623, then all the variables were significant in explaining the implementation of e-procurement.

8. Summary and Recommendations

8.1 Summary

From the study findings, top management in most of the departments under the ministries are very committed collectively to e-procurement implementation; monitoring processes; supportive organizational structures; set goals, strategies and baselines; and coordination of activities which influences e-procurement implementation to a great extent.

In regard to information technology infrastructures, the study found that the nature of computer technologies; information security concerns; spread of technology changes and state of network infrastructure influences e-procurement implementation to a great extent.

In the area of staff competency, the study established that system acceptability; system monitoring and evaluation; personal competencies; level of education and level of ICT training influences e-procurement implementation to a great extent.

On suppliers' capacity, the study found that majority (63%) of the respondents indicated that supplier capacity had an influence on e-procurement implementation. Level of ICT adoption by the supplier; supplier level of education; system information processing capacity; level of ICT technical skills and knowledge and suppliers' state of network and infrastructure influences e-procurement implementation to a great extent.

On the benefits of e-procurement implementation, the study found that procurement cost reduction; increase in access to important information; increased confidentiality in procurement system; increase in procurement efficiency; improvement in customer satisfaction and improvement in professional service delivery are some of the benefits that would accrue from the respective departments under the government ministries.

8.2 Recommendations

The study recommends that for e-procurement to be effective and become an important part of supply chain management, the following has to be done;

I. Top management need to share their ideas to reduce perceptions of risk. E-procurement initiatives only deliver the planned benefits if the users and buyers make changes to the way they work, which requires championing the project and senior management sponsorship.

ii. There is need to establish and develop the IT of supply chain staff so as to acquire the range of competencies, knowledge and skills which are necessary for the successful implementation of e-procurement. This can be done through comprehensive training need analysis.

iii. The government should provide continuing education and incentives to establish a career path in the profession. Government should play a crucial role in ensuring that IT infrastructure and thus technology is available to the public institutions so as to support e-procurement strategies. This can be done through increased budget allocations.

iv. On suppliers' capacity, the researcher recommends that if suppliers were involved early in e-procurement initiatives they would be able to play an active role in the process refinement and efforts in change management.

9. References

1. Atkinson B. (2007). How to Get the Most Value From e-Procurement Tools, available at http://www.mbtmag.com/article/CA6498473.html. Accessed during June, 2014
2. GOK. (2011). Integrated Financial Management Information System (IFMIS) IFMIS Re-Engineering From Modular to Full Cycle End–To-End Processes, Strategic Plan 2011-2013
3. Knudsen, J.L. (2007), Negotiation, email, and internet reverse auctions: how sourcing mechanisms deployed by buyers affect suppliers' trust, Journal of Operations Management, Vol. 25, pp. 184-202.
4. Lee, H., Irani, Z., Osman, I. H., Balci, A., Ozkan, S. & Medeni, T. D. (2008). Toward a reference process model for citizen-oriented evaluation of e-Government services. Transforming Government: People, Process and Policy, 2 (4), 297-310.
5. Mugenda, O.M., & Mugenda, A.G. (2003). Research Methods: Quantative and Qualitative Approaches. Nairobi: Acts Press.
6. Mugenda, A. G. (2008). Social Science Research. Nairobi: Acts Press.
7. Vaidya T S H, Lin S and Lai K-H (2004), Adopters and Non-Adopters of e-Procurement in Singapore: An Empirical Study, Omega, Vol. 37, No. 5, pp. 972-987.
8. Young, N. (2009). Understanding the Research Process and Methods. An Introduction to Research Methods. Las Vegas: Acts Press.
9. World Bank (WB) (2003). Electronic Government Procurement (e-GP). World Bank Draft Strategy. Washington, DC: Author.