

Factors Affecting the Adoption of E-Procurement Practices in Public Sector in Kenya: (A Case of the Department Of Refugee Affairs in Dadaab)

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Abstract: *The purpose of the study was to establish the factors affecting the adoption of e-procurement practices in public sector in Kenya, a case of the department of refugee affairs in Dadaab with an aim of making recommendations on proper adoption of e-procurement practices. The study aimed to establish how technological infrastructure, technical skills, ethical malpractice and noncompliance affect adoption of e-procurement. To achieve this, the researcher reviewed both theoretical and empirical literature and proposed the research methodology that addressed the gaps identified in literature as well as answer the stipulated research questions. This research study adopted a descriptive research design approach. The researcher preferred this method because it allows an in-depth study of the subject. A census was conducted where all the 102 staff in procurement department was issued with questionnaires. Data was collected using self-administered questionnaires. The data collected was analyzed by use of descriptive and inferential statistics. Multiple regression models was used to show the relationship between the dependent variable and the independent variables. The quantitative data generated was keyed in and analyzed by use of Statistical Package of Social Sciences (SPSS) version 22 to generate information which was presented using tables, charts, frequencies and percentages.*

Key Words: *Technical Infrastructure, technical skills, ethical malpractice, non-compliance & Performance.*

1.3 Objectives of the Study

1.3.1 The General Objective of the Study

The main objective of the study was to establish the factors affecting the adoption of e-procurement practices in public sector in Kenya.

1.3.2 Specific Objectives

1. To assess how technological infrastructure affects the adoption of e-procurement practices in public sector in Kenya.
2. To establish how technical skills affect the adoption of e-procurement practices in public sector in Kenya.
3. To determine how ethical malpractice affects the adoption of e-procurement practices in public sector in Kenya.
4. To evaluate how noncompliance affects the adoption of e-procurement practices in public sector in Kenya.

1.4 Research Questions

These research questions helped the researcher in his quest to collect the relevant information on the research topic:

1. How technological infrastructure does affect the adoption of e-procurement practices in public sector in Kenya?
2. How do technical skills affect the adoption of e-procurement practices in public sector in Kenya?
3. To what extent does how ethical malpractice affects the adoption of e-procurement practices in public sector in Kenya?
4. How does noncompliance affect the adoption of e-procurement practices in public sector in Kenya?

2.1 Theoretical Review

This consists of concepts together with their definitions and reference to relevant scholarly literature (Mugenda & Mugenda, 2008), existing theory that is used for a particular study. Here a demonstration of understanding of theories and concepts that are relevant to the topic of the research paper and that relate to the broader areas

of knowledge being considered (Kasomo, 2007). Thus, it is a collection of interrelated statements or principles that explains the major theories in relation to the factors affecting the adoption of e-procurement practices in public sector in Kenya.

2.1.1 Technological Infrastructure

Innovation Diffusion theory

Diffusion of innovations is a theory that seeks to explain how, why, and at what rate new ideas and technology spread. Everett Rogers popularized the theory in his book *Diffusion of Innovations*; the innovation must be widely adopted in order to self-sustain. Diffusion of Innovation (DOI) theory is a popular model used in information systems research to explain user adoption of new technologies. Rogers defines diffusion as 'the process by which an innovation is communicated through certain channels over time among the members of a social society' (Bulmer, 2004). An innovation is an idea or object that is perceived to be new.

According to DOI, the rate of diffusion is affected by an innovation's relative advantage, complexity, compatibility, trialability and observability. Bird (2009) defines relative advantage as 'the degree to which an innovation is seen as being superior to its predecessor'. Complexity, which is comparable to perceived ease of use construct, is 'the degree to which an innovation is seen by the potential adopter as being relatively difficult to use and understand'. Compatibility refers to 'the degree to which an innovation is seen to be compatible with existing values, beliefs, experiences and needs of adopters'. Trialability is the 'degree to which an idea can be experimented with on a limited basis'. Finally, observability is the 'degree to which the results of an innovation are visible' (Aberdeen Group, 2005).

The diffusion theory is relevant because it explains the reason why supply chain partners adopt technical innovations. One of the reasons why organizations adopt technical innovations is relevant advantage. This means that organizations that adopt technical innovations have relatively better comparative advantage than those who do not (Thai, 2007).

2.1.2 Necessary Skills

Human Capital Theory

The theory of human capital was proposed by Schultz and developed by the Nobel prize-winning economist Gary S. Becker in his seminal work on the economics of employer provided training.

Human capital theory advocates that education or training imparts useful knowledge and skills to workers which in turn increase their productivity and incomes (Croom & Brandon-Jones, 2004). Becker distinguishes between specific human capital and general human capital. Specific human capital includes expertise acquired through education and training which is specific to a particular firm (firm-specific or context-specific skills).

Davila, Gupta and Palmer (2003) have pointed out that economists and other social scientists have overestimated the payoffs from increased education and ignored complimentary inputs such as, training, contract terms, and management practices which must exist for education to improve productivity. Productivity is largely characteristic of jobs rather than of workers; employers use education credentials to select workers because better educated workers can be trained for specific jobs more quickly and at a lower cost than their less-educated peers. Farzin and Nezhad (2010) also posits that education may simply be a market signal of the potential productivity of a worker since there is hardly any other way for firms to determine the productive attributes of a worker. Notwithstanding these criticisms, "Becker's human capital theory has been resilient and still remains the principal theoretical construct that is used for understanding human capital investment, both from the perspective of the individual and the firm" (Eadie, Perera & Heaney, 2011).

2.1.3 Non Compliance

Human Service Delivery Theory

The theory of human service delivery entails an understanding of how people work within systems to deliver services. People are a resource unlike any other in that their value and availability can be difficult to quantify. Services are judged partly by subjective criteria, so understanding the quality that is provided by any service system can be tricky. Theorists attempt to understand how to build the best system for the best services. Services are fundamentally intangible (Oyediran & Akintola, 2011). They cannot be touched or handled. They exist as events and cannot be resold or shared between parties. Delivering a service to a person involves having a real person interact with her and meet her needs.

For delivering any service to a person, the system designer must first consider the human element involved. The people delivering the service must be capable of interacting in a positive and effective

manner. Given that services exist as events, they tend to be more variable than other products that an organization can provide (Palvia, Klingenberg & Kronhamn, 2000). The quality of one service to the next will differ more sharply. Organizations can improve the quality and consistency of their services only by great effort. A constant attempt must be made to gain customer feedback and to understand the ways that service can be improved. Often it is necessary to institute a training program. The fundamental limit on the service that any organization can provide is the number of people that it has in its workforce (Klein, Conn & Sorra, 2001).

2.1.4 Ethical Malpractice The Theory of Accountability

Azadegan and Teich (2010), explained accountability theory as the perceived need to justify one's behaviors to another party causes one to consider and feel accountable for the process by which decisions and judgments have been reached. In turn, this perceived need to account for a decision-making process and outcome increases the likelihood that one will think deeply and systematically about one's procedural behaviors. This theory was originally developed by Tetlock, Lerner, and colleagues and has been effectively applied in organizational research.

Importantly, as explained carefully by Bird (2009), a useful way to understand accountability is to distinguish between its two most prevalent uses: as a virtue and as a mechanism. As a virtue, accountability is seen as a quality in which a person displays a willingness to accept responsibility, a

desirable trait in public officials, government agencies, or firms; hence, in this use, accountability is a positive feature of an entity (Bulmer, 2004). As a mechanism, accountability is seen as a process in which a person has a potential obligation to explain his or her actions to another party who has the right to pass judgment on the actions as well as to subject the person to potential consequences for his or her actions. Accountability theory focuses on the process of accountability.

The theory of technological connectivity is important to the success of e-procurement as it is the bedrock of e-procurement. Connectivity is the red line between manual procurement and e-procurement. Technical skills are also important as the staff carrying out the e-procurement must be IT compliant. This is because the computers cannot work by themselves. Ethics in e-procurement is paramount as without it, bidders who do not comply with the set procurement regulations and regulations will be awarded contracts which they do not deserve. Therefore compliance with set regulations and rules should be adhered to.

2.2 Conceptual Framework

Conceptual framework is a detailed description of the phenomenon under the study accompanied by the graphical or visual depiction of the major variable of the study (Kothari, 2008). According to Ogula (2005) conceptual framework is diagrammatical representation that shows the relationship between dependent variable and independent variables.

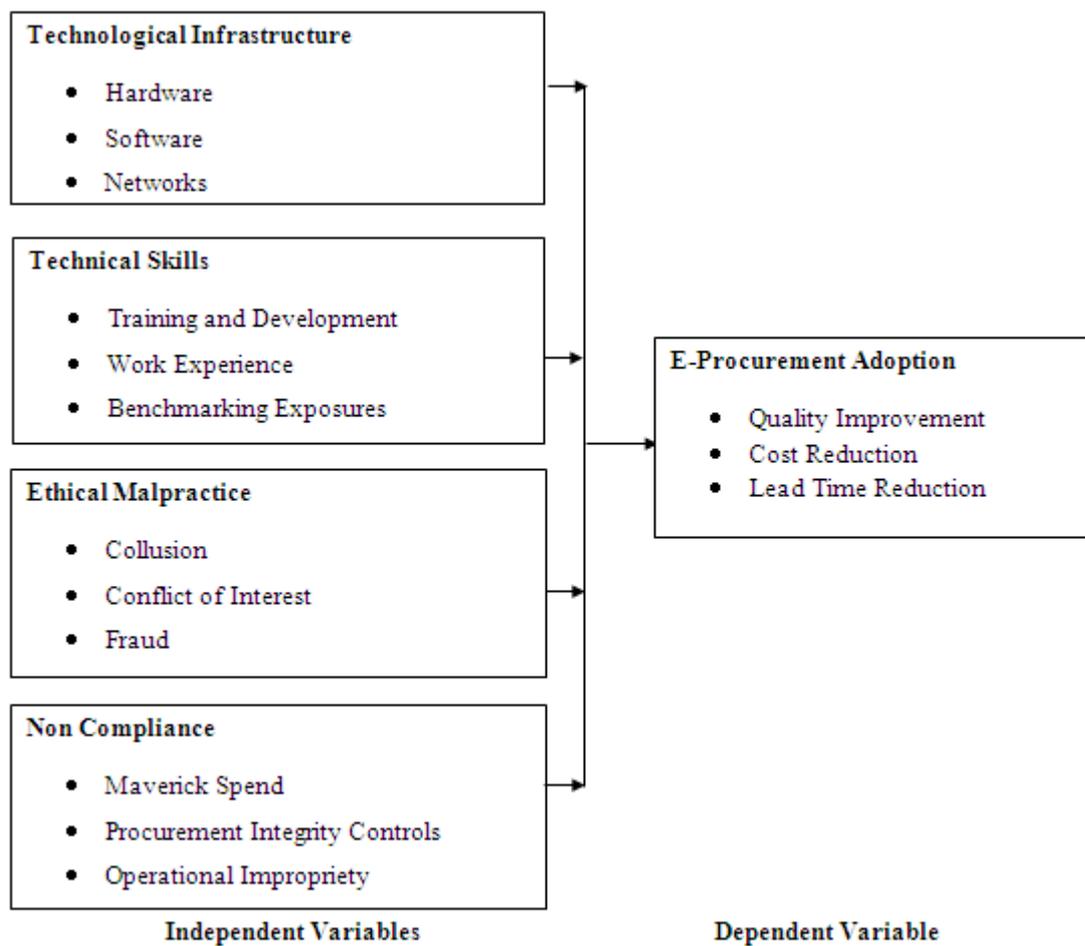


Figure 2.1: Conceptual Framework

RESEARCH METHODOLOGY

3.1 Research Design

Research design is the scheme, outline or plan that is used to generate answers to research problems. It is 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 procedure. This study employed a descriptive research design to investigate the factors affecting the adoption of e-procurement practices in the public sector in Kenya: a case study of department of refugee affairs in Dadaab. Descriptive research design was used to allow researcher to gather, summarize, present and interpret information for the purpose of clarification. It is mainstreamed to fact finding and may result in the formulation of important principles of knowledge and solution to significant problems. The design was selected for this study because it can provide numeric description of the population and describe events as they are, as they were or as they will be (Dunn,

2001). This study therefore generalized the findings on the factors affecting the adoption of e-procurement practices in the public sector in Kenya: a case study of department of refugee affairs in Dadaab.

3.2 Target Population

According to Ngechu (2009) a population refers to the entire group of persons or elements that have at least one thing in common. Target population is defined as all members of a real or hypothetical set of people, events or objects to which a study wishes to generalize the results of the research study (John & Johnson, 2002). The target population consisted of public sector state agencies, study population was the department of refugee affairs and unit of analysis was procurement department. The unit of observation was 102 employees in procurement department composed of senior managers, middle-level managers and support staff.

Table 3.1 Target Population

Sections	Target Population	% of Population
Top Management	12	11.76
Middle Level Management	36	35.29
Support staff	54	52.94
Total Population	102	100.0

3.3 Sample and Sampling Technique

The study employed a census approach to collect data from the respondents hence no sampling techniques was used. According to Orodho (2009),

a census is a count of all the elements in a population. The sample size was taken from 102 respondents; this comprises of 12 senior managers, 36 middle level management staff and 54 support staff.

Table 3.2 Sample Population

Sections	Target Population	Proportion %	Sample Size
Top Management	12	100	12
Middle Level Management	36	100	36
Support Staff	54	100	54
Total Population	102	100	102

3.4 Instruments

3.5

The study used self-administered questionnaires and observation schedules. A questionnaire is a research instrument that gathers data over a large sample and is one way to elicit self-values (Orodho, 2003). The questionnaires had both closed and open-ended questions. Likert scale of measurement was used. A questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from respondents.

The study considered questionnaires which have advantages over other types of research instruments.

3.6 Data Collection Procedure

This study utilized both primary and secondary data. Questionnaires were used to collect primary data which was distributed to the staff. The researcher made personal follow-ups to ensure that the questionnaires are filled and collected. The respondents were assured of confidentiality of their names and responses and that the responses would not be handled by any other person but rather was to be used purely for academic purposes (Trochin, 2006). Each questionnaire was be coded and only the researcher got to know which person responded. The coding technique was only be used for the purpose of matching returned completed questionnaires with those delivered to the respondents.

3.7 Pilot Study

Before the actual study, it is crucial to conduct a pilot study. Sekaran (2003) argued that piloting provides opportunity for researchers to test their confidence in identifying shortcomings that may affect the actual collection of useful data. The pilot study evaluates the effectiveness and validity of the instruments. The purpose is not to collect data but to refine the process and instrument. It provides an opportunity to detect and remedy potential problems such as questions that respondents don't understand; questions that combine two or more issues in a single question (double-barreled questions); and questions that make respondents uncomfortable.

3.7.1 Validity of the Research Instruments

Validity is the extent to which a research instrument performs what it is designed to do. Validity therefore has to do with how accurately; the data obtained in the study represent the variables of the study (Mugenda & Mugenda, 2008). Validity of the instrument begins at the design stage. Valuable contribution from the researcher, supervisors and relevant academic staff was taken into consideration to determine the validity of research instruments. The researcher modified the items in the questionnaire using the suggestions put forward by the said experts.

3.6.2 Reliability of the Research Instruments

The study conducted a pilot study to test the reliability of the questionnaires. According to Sekeran (2003), a pilot study is necessary for testing the reliability of data collection instruments. Isaac and Michael (2005) explain reliability of research as determining whether the research truly measures that which it is intended to measure or how truthful the research results are. Pilot study is thus conducted to detect weakness in design and instrumentation and to provide accurate data for selection of a sample (Kothari, 2008).

3.7 Data Analysis and Presentation

After administering questionnaires, they were collected from the respondents ready for analysis. Before processing the responses, the completed questionnaires were checked for completeness and consistency. The data was then coded and grouped into various categories. Quantitative and qualitative data collected was summarized using descriptive statistics as well as inferential statistics (Dunn, 2001). The Statistical Package for Social Sciences (SPSS) Version 22 was used for data analysis. SPSS version 22 has got descriptive statistics features that assisted in variable response comparison and gave a clear indication of response frequencies (George & Mallery, 2003).

Descriptive statistics describe what is, what the data shows and include the use of percentages, mean, and standard deviation. Frequency distribution tables and pie charts were used to present the data (Isaac & Michael, 2005). The Pearson correlation coefficient is a correlation coefficient that in this study was used to indicate one on one association between each of the independent variable to the dependent variable. Multiple regression analysis was used to give a measure of the relationship between two or more variables and establish if there is any relationship or there exists a cause effect relationship between the variables. Multiple regression analysis is adopted when the researcher has one dependent variable which is assumed to be a function of two or more independent variables. The coefficient of determination (R-Square) resulting from the linear regression was used to determine the goodness of

fit (Kasomo, 2007). The research used a multiple regression model.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where:

Y	= E-Procurement
β_0	= Constant
$\beta_1, \beta_2, \beta_3, \beta_4$	= Beta Coefficients
X1	= Technological Infrastructure
X2	= Technical Skills
X3	= Ethical Malpractice
X4	= Non Compliance
ϵ	= Error Term

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents results arising from the analysis of data collected using questionnaires. The current study sought to establish the factors affecting the adoption of e-procurement practices in public sector in Kenya. The data collected was analysed using descriptive and inferential statistics and the findings presented in tabular summaries and their implications discussed.

4.2 Descriptive Statistics

The study set out to establish the factors affecting the adoption of e-procurement practices in public sector in Kenya. To this end, four variables were conceptualized as components of adoption of e-procurement practices affecting public institutions thereof. These include; technological infrastructure, technical skills, ethical malpractice, and noncompliance.

4.2.1 Technological Infrastructure

The first objective of the study was to investigate the influence of technological infrastructure on adoption of e-procurement practices of public institutions. The respondents were asked to indicate to what extent did technological infrastructure influence adoption of e-procurement in the department. Results indicated that majority of the respondents 34% agreed that it was to a very great extent, 28% said that it was to a great extent, 22% said it was moderate, while little extent and not at all tied at 8%.

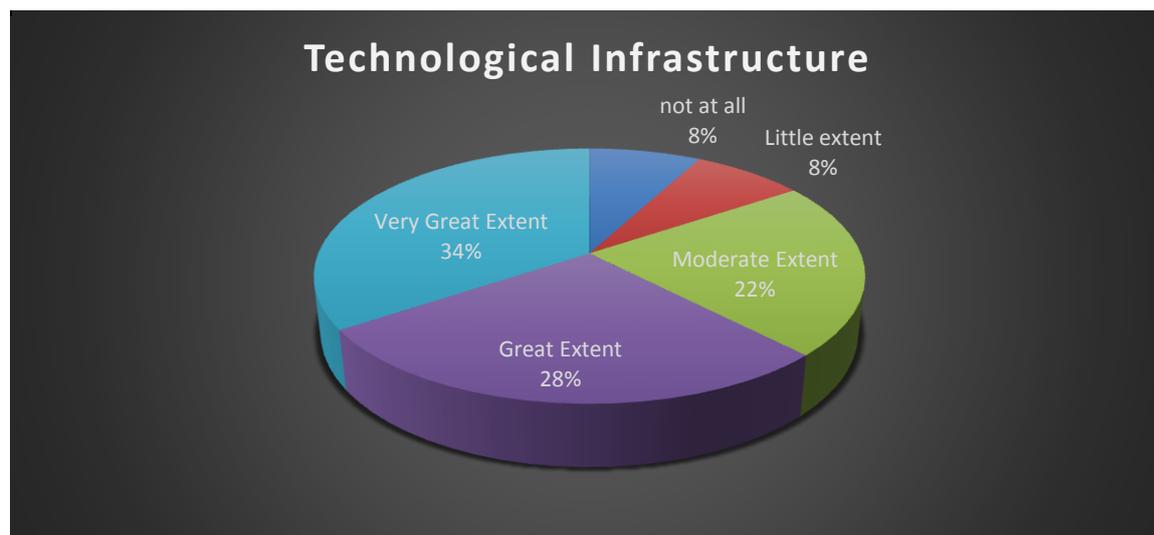


Figure 4.2 Technological Infrastructure Effect on Adoption of E-Procurement

The respondents were also asked to comment on statements regarding technological infrastructure influence on adoption of e-procurement in the department. The responses were rated on a likert scale and was rated on a 5 point Likert scale ranging from; 1 = strongly disagree to 5 = strongly agree.

The scores of ‘strongly disagree’ and ‘disagree’ have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of ‘neutral’ has been taken to represent a statement agreed upon, equivalent to a mean score of 2.6 to 3.4. The score of ‘agree’ and ‘strongly agree’ have been taken to represent a statement highly agreed upon equivalent to a mean score of 3.5 to 5. The results presented in Table 4.6 below.

Results indicated that majority of the respondents 82.2% agreed on the statement that installation of hardware systems played a great role in quality improvement. 88.8% of the respondents also agreed on the statement that installation of software systems played a great role in quality improvement. Results also showed that 100% of the respondents agreed on the statement that networks installations play a great role in quality improvement.

88.9% of the respondents agreed to the statement that installation of hardware systems played a great role in cost reduction. 94.5 % of the respondents agreed on statement that installation of software systems played a great role cost reduction. 94.4% showed that majority of the respondents agreed on the statement networks installations play a great role in cost reduction.

Table 4.6: Effect of Technological Infrastructure on Adoption of E-Procurement Practices

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation
Installation of hardware systems plays a great role in quality improvement	6.7%	6.7%	4.4%	42.2%	40.0%	4.0	1.2
Installation of software systems plays a great role in quality improvement	4.4%	4.4%	2.2%	54.4%	34.4%	4.1	1.0
Networks installations play a great role in quality improvement	0.0%	0.0%	0.0%	60.0%	40.0%	4.4	0.5
Installation of hardware systems plays a great role in cost reduction	4.4%	4.4%	2.2%	41.1%	47.8%	4.2	1.0
Installation of software systems plays a great role cost reduction	2.2%	2.2%	1.1%	45.6%	48.9%	4.4	0.8
Networks installations play a great role in cost reduction	2.2%	2.2%	1.1%	54.4%	40.0%	4.3	0.8
Installation of hardware systems plays a great role in lead time reduction	2.2%	2.2%	1.1%	53.3%	41.1%	4.3	0.8
Installation of software systems plays a great role in lead time reduction	4.4%	4.4%	2.2%	46.7%	42.2%	4.2	1.0

Networks installations play a great role in lead time reduction	6.7%	6.7%	3.3%	36.7%	46.7%	4.1	1.2
Average						4.2	0.9

4.2.2 Technical Skills

The second objective of the study was to investigate the influence of technical skills on adoption of e-procurement practices in public institutions. The respondents were asked to indicate to what extent did technical skills influenced

adoption of e-procurement practices in the department. Results indicated that majority of the respondents 29% agreed that it was to a very great extent, 33% said that it was to a great extent, 26% said it was moderate, while little extent had 8% and not all was at 4 %.



Figure 4.3 Technical Skills Effect on Adoption of E-Procurement

The respondents were also asked to comment on statements regarding how technical skills influenced adoption of e-procurement in the department. Results indicated that majority of the respondents 45.5 % agreed on the statement that training and development played a great role in quality improvement. 51.1 % of the respondents were neutral on the statement that work experience plays a great role in quality improvement. Results also showed that 44.4 % of the respondents were neutral on the statement that benchmarking exposures plays a great role in quality improvement.

44.4 % of the respondents agreed to the statement that training and development a great role in cost

reduction. 94.5 % of the respondents agreed on statement that work experience played a great role cost reduction. 94.4% showed that majority of the respondents agreed on the statement benchmarking exposures play a great role in cost reduction.

Training and development plays a great role in lead time reduction had a majority of 86.6% of the respondents agreeing. 92.2% of the respondents agreed to the statement that work experience played a great role in lead time reduction. Finally 82.2% of the respondents agreed to the statement that networks installations played a great role in lead time reduction.

Table 4.7: Effect of Technical Skills on Adoption of E-Procurement Practices

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
Training and development plays a great role in quality improvement	11.1%	6.7%	36.7%	31.1%	14.4%	3.3	1.1
Work experience plays a great role in	4.4%	7.8%	51.1%	31.1%	5.6%	3.3	0.9

quality improvement			%	1%			
Benchmarking exposures plays a great role in quality improvement	7.8%	4.4%	44.4%	38.9%	4.4%	3.3	0.9
Training and development a great role in cost reduction	5.6%	5.6%	44.4%	44.4%	0.0%	3.3	0.8
Work experience plays a great role in cost reduction	3.3%	3.3%	43.3%	50.0%	0.0%	3.4	0.7
Benchmarking exposures plays a great role in cost reduction	0.0%	0.0%	53.3%	46.7%	0.0%	3.5	0.5
Training and development plays a great role in lead time reduction	0.0%	0.0%	43.3%	43.3%	13.3%	3.7	0.7
Work experience plays a great role in lead time reduction	7.8%	0.0%	37.8%	54.5%	0.0%	3.4	0.8
Benchmarking exposures plays a great role in lead time reduction	4.4%	4.4%	41.1%	41.1%	8.9%	3.5	0.9
Average						3.4	0.8

4.5.3 Ethical Malpractice

There was also need to establish how ethical malpractice influences adoption of e-procurement adoption among public institutions in Kenya. The respondents were asked to indicate to what extent did ethical malpractice influence adoption of e-

procurement practices in the department. Results indicated that majority of the respondents 44% agreed that it was to a very great extent, 49% said that it was to a great extent, 2% said it was moderate, while little extent had 2% and not all was at 3%.

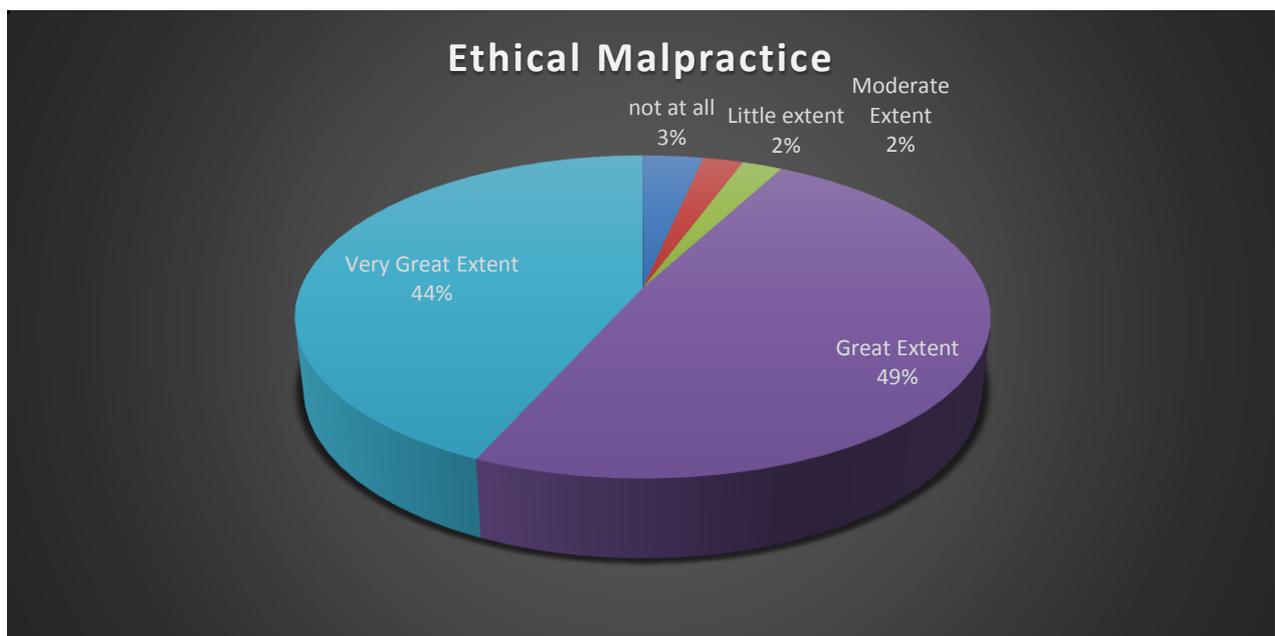


Figure 4.4 Ethical Malpractice Effect on Adoption of E-Procurement

Results indicated that majority of the respondents 68.9 % agreed on the statement that prevention of collusion plays a great role in quality improvement. 90 % of the respondents also agreed on the statement that curbing conflict of interest played a great role in quality improvement. Results also showed that 56.6 % of the respondents agreed on the statement that fraud prevention plays a great role in quality improvement.

42.2 % of the respondents agreed to the statement that prevention of collusion a great role in cost reduction. 55.5 % of the respondents agreed on statement that prevention of conflict of interest plays a great role in cost reduction. 65.6 % of the respondents agreed on statement that prevention of conflict of interest plays a great role in cost reduction.

65.5% showed that majority of the respondents agreed on the statement prevention of collusion play a great role in cost reduction. Prevention of conflict of interest plays a great role in lead time reduction had a majority of 61.1% of the

respondents agreeing. Finally 61.1% of the respondents agreed to the statement that fraud prevention played a great role in lead time reduction.

Table 4.8: Effect of Ethical Malpractice on Adoption of E-Procurement Practices

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
Prevention of collusion plays a great role in quality improvement	2.2%	2.2%	26.7%	42.2%	26.7%	3.8	0.91
Curbing conflict of interest plays a great role in quality improvement	3.3%	3.3%	3.3%	9%	51.1%	4.3	0.94
Fraud prevention plays a great role in quality improvement	5.6%	22.2%	15.6%	23.3%	33.3%	3.5	1.31
Prevention of collusion a great role in cost reduction	0.0%	25.6%	32.2%	23.3%	18.9%	3.3	1.06
Curbing conflict of interest plays a great role in cost reduction	1.1%	1.1%	32.2%	30.0%	35.6%	3.9	0.91
Fraud prevention plays a great role in cost reduction	1.1%	0.0%	32.2%	31.1%	35.6%	4.0	0.89
Prevention of collusion plays a great role in lead time reduction	2.2%	1.1%	34.4%	31.1%	31.1%	3.8	0.95
Curbing conflict of interest plays a great role in lead time reduction	0.0%	0.0%	38.9%	17.0%	43.3%	4.0	0.91
Fraud prevention plays a great role in lead time reduction	1.1%	2.2%	35.6%	36.7%	24.4%	3.8	0.87
Average						3.8	0.97

4.5.4 Non compliance

There was also need to establish how noncompliance influences adoption of e-procurement among public institutions in Kenya. The respondents were asked to indicate to what extent did noncompliance influence adoption of e-

procurement practices in the department. Results indicated that majority of the respondents 3% agreed that it was to a very great extent, 4% said that it was to a great extent, 46% said it was moderate, while little extent had 17% and not all was at 30 %.

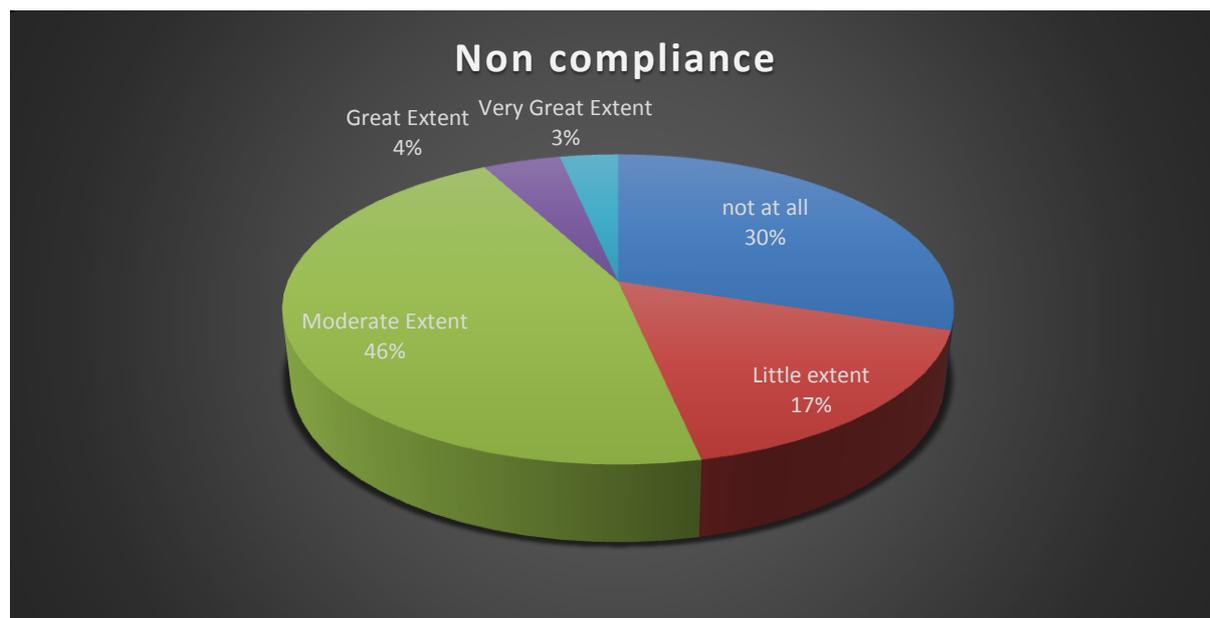


Figure 4.5 Non Compliance Effect on Adoption of E-Procurement

Results indicated that majority of the respondents 100% agreed on the statement that curbing maverick spending played a great role in quality improvement. 70% of the respondents also agreed on the statement that procurement integrity controls played a great role in quality improvement.

Results also showed that 42.2% of the respondents agreed on the statement that high operational impropriety play a great role in quality improvement. 100% of the respondents agreed to the statement that curbing maverick spending

played a great role in cost reduction. 96.7 % of the respondents agreed on statement that procurement integrity controls played a great role cost reduction. 92.3% showed that majority of the respondents agreed on the statement high operational impropriety plays a great role in cost reduction.

These findings imply that noncompliance was an impediment to the various organizations. The findings agree with Kirungu (2002) that noncompliance is a key impediment when any institution wants to adopt e-procurement.

Table 4.9: Effect of Noncompliance on Adoption of E-Procurement Practices

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Deviation
Curbing maverick spend plays a great role in quality improvement	0.0%	0.0%	0.0%	9%	51.1%	4.5	0.5
Procurement integrity controls play a great role in quality improvement	0.0%	0.0%	30.0%	30.0%	40.0%	4.1	0.8
Prevention of operational impropriety plays a great role in quality improvement	21.1%	22.2%	14.4%	21.1%	21.1%	3.0	1.5
Curbing maverick spend plays a great role in cost reduction	0.0%	0.0%	0.0%	4%	45.6%	4.5	0.5
Procurement integrity controls play a great role in cost reduction	0.0%	3.3%	0.0%	7%	50.0%	4.4	0.7
Prevention of operational impropriety plays a great role in cost reduction	4.4%	0.0%	3.3%	6%	46.7%	4.3	0.9
Curbing maverick spend plays a great role in lead time reduction	0.0%	3.3%	6.7%	7%	43.3%	4.3	0.7
Procurement integrity controls play a great role in lead time reduction	7.8%	0.0%	4.4%	6%	42.2%	4.1	1.1
Prevention of operational impropriety plays a great role in lead time reduction	6.7%	4.4%	1.1%	1%	46.7%	4.2	1.1
Average						4.2	0.9

4.6 Correlation Analysis

Correlation analysis was used to determine both the significance and degree of association of the variables and also predict the level of variation in the dependent variable caused by the independent

variables. The correlation technique is used to analyze the degree of relationship between two variables. The results of the correlation analysis are summarized in Table 4.11

Table 4.10: Summary of Correlations

		Av Technological infrastructure	Av Technical skills	Av Malpractice	Av Non compliance	Adoption of e-procurement practices
Av Technological infrastructure	Pearson Correlation	1	0.969	-0.273	-0.336	0.416
	Sig. (2-tailed)		0	0.009	0.001	0.00
Av Technical skills	Pearson Correlation	0.969	1	-0.285	-0.38	0.393
	Sig. (2-tailed)	0.00		0.007	0	0.00
Av Malpractice	Pearson Correlation	-0.273	-0.285	1	0.344	-0.401
	Sig. (2-tailed)	0.009	0.007		0.001	0
Non compliance	Pearson Correlation	-0.336	-0.38	0.344	1	-0.386
	Sig. (2-tailed)	0.001	0	0.001		0
Adoption of e-procurement practices	Pearson Correlation	0.416	0.393	-0.401	-0.386	1
	Sig. (2-tailed)	0	0	0	0	

The correlation summary shown in Table 4.11 indicates that the associations between each of the independent variables and the dependent variable were all significant at the 95% confidence level.

The correlation analysis to determine the relationship between technological infrastructure and adoption of e-procurement practices, Pearson Correlation Coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship ($r=0.416$) between technical infrastructure and adoption of procurement practices. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The results indicate that there is a positive relationship ($r=0.393$) between technical skills and adoption of procurement practices. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The correlation analysis to determine the relationship between ethical malpractice and adoption of e-procurement practices, Pearson Correlation Coefficient computed and tested at 5% significance level. The results indicate that there is a negative relationship ($r= -0.401$) malpractices and adoption of procurement practices. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

The correlation analysis to determine the relationship between noncompliance and adoption of e-procurement practices, Pearson Correlation Coefficient computed and tested at 5% significance level. The results indicate that there is a negative relationship ($r= -0.386$) between noncompliance and adoption of procurement practices. In addition, the researcher found the relationship to be statistically significant at 5% level ($p=0.000, <0.05$).

4.7 Regression Analysis

In this study multivariate regression analysis was used to determine the significance of the relationship between the dependent variable and all the independent variables pooled together. Regression analysis was conducted to find the proportion in the dependent variable (adoption of procurement practices) which can be predicted from the independent variables (technological infrastructure, technical skills, ethical malpractices and noncompliance).

Table 4.12 presents the regression coefficient of independent variables against dependent variable. The results of regression analysis revealed there is a significant positive relationship between dependent variable (adoption of procurement practices) and two independent variables (technological infrastructure and technical skills). However ethical malpractices and noncompliance

had a significant negative relationship with adoption of e-procurement practices.

The independent variables reported R value of 0.555 indicating that there is perfect relationship between dependent variable and independent variables. R square value of 0.309 means that 30.9 % of the corresponding variation in adoption of e-procurement practices can be explained or predicted by (technological infrastructure, technical skills, ethical malpractices and noncompliance) which indicated that the model fitted the study data.

Adjusted R square in table 4.12 is called the coefficient of determination which indicates how adoption of e-procurement practices varied with variation in effects of factors which includes; Technological infrastructure, technical skills, ethical malpractices and noncompliance. The results of regression analysis revealed that there was a significant positive relationship between dependent variable and independent variable at ($\beta = 0.309$), $p=0.000 < 0.05$).

Table 4.11: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.555a	0.309	0.276	0.27373

a) Predictors: (Constant), noncompliance , technological infrastructure , ethical malpractice, technical skills

b) Dependent Variable: Adoption of e-procurement practices

The research used a multiple regression model

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where Y= Adoption of E-Procurement Practices

β_0 = Constant

X_1 = Technological infrastructure

X_2 = Technical Skills

X_3 = Ethical Malpractice

X_4 = Non Compliance

ϵ = Error Term at 95% confidence level.

The regression equation will be;

$$Y = 3.498 + 0.587X_1 + 0.289X_2 - 0.078X_3 - 0.086X_4$$

The regression equation above has established that taking all factors into account (Technological infrastructure, technical skills, ethical malpractices and noncompliance) constant at zero, adoption of e-procurement practices will be an index of 3.498.

The findings presented also shows that taking all other independent variables at zero, a unit increase in technological infrastructure will lead to a 0.587 increase in adoption of e-procurement practices.

The P-value was 0.005 which is equal to 0.05 and thus the relationship was significant.

The study also found that a unit increase in technical skills will lead to a 0.289 increase in adoption of e-procurement practices. The P-value was 0.002 and thus the relationship was significant. In addition, the study found that a unit increase in ethical malpractices will lead to a 0.078 decrease in the adoption of e-procurement practices. The P-value was 0.001 and thus the relationship was significant.

Table 4.12: Coefficient of Determination

Coefficient	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.498	0.589		5.941	0
Technological infrastructure	0.587	0.307	0.7	1.912	0.05
Technical skills	0.289	0.241	-0.446	-1.196	0.02
Ethical malpractice	-0.078	0.03	-0.257	-2.634	0.01
Non compliance	-0.086	0.038	-0.232	-2.272	0.02

a) Dependent Variable: Adoption of e-procurement practices

Table 4.14: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.842	4	0.711	9.484	.000b
	Residual	6.369	85	0.075		
	Total	9.211	89			

a) Dependent Variable: adoption of e-procurement practices

b) Predictors: (Constant), noncompliance, technological infrastructure, ethical malpractice, technical skills

The significance value is 0.000 which is less than 0.05 thus the model is statistically significant in predicting how noncompliance, technological infrastructure, malpractice, technical skills influence adoption of e-procurement. The F critical at 5% level of significance was 2.68. Since F calculated which can be noted from the ANOVA table above is 9.484 which is greater than the F critical (value = 2.68), this shows that the overall model was significant. The study therefore establishes that; noncompliance, technological infrastructure, ethical malpractice, technical skills were all important e-procurement factors influencing its adoption. These results agree with Lavelle and Bardon (2009) and Lysons (2003) results which indicated a positive and significant influence of e-procurement factors on its adoption.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a detailed summary of the major findings of the actual study; it then draws conclusions and discusses implications emanating from these findings. Finally, it makes some recommendations and suggestions on areas of further study. The main aim of the study was to establish the factors affecting the adoption of e-procurement practices in public sector in Kenya. It specifically sought to determine the effect of; technological infrastructure, technical skills, ethical malpractice and noncompliance on adoption of e-procurement in the procurement department of refugee affairs.

5.2 Summary of Findings

The study sought to examine the factors affecting the adoption of e-procurement practices in public sector in Kenya. The study targeted staff of the refugee affairs, at the top, middle level and support staff in the organization. A total of 102 employees participated. The summary of the study findings presented herein followed the research objectives formulated in chapter one of the study.

5.2.1 Technological Infrastructure

The study sought to assess factors affecting the adoption of e-procurement practices in public sector in Kenya as the first objective of the study. A majority of respondents were found to highly agree that the refugee affairs department had put in place technological infrastructure, with regard to its procurement activities. Correlation and regression results however revealed that this was the most important variable that could perhaps be explained by the observation from the findings that technological infrastructure was an important factor in influencing e-procurement adoption.

5.2.2 Technical Skills

The study sought to assess factors affecting the adoption of e-procurement practices in public sector in Kenya as the second objective of the study. A majority of respondents were found to highly agree that the refugee affairs department had acquired technical skills with regard to its procurement activities. Correlation and regression results however revealed that this was the second most important variable that could perhaps be explained by the observation from the findings that technical skills was an important factor in influencing e-procurement adoption.

5.2.3 Ethical Malpractice

The study sought to assess factors affecting the adoption of e-procurement practices in public sector in Kenya as the third objective of the study. A majority of respondents were found to agree that the refugee affairs department had refrained from ethical malpractice with regard to its procurement activities. The refugee affairs department was also careful so as not to engage in collusion, conflicts of interest or fraud so as to protect the integrity of the department. Correlation and regression results however revealed that this was the third most important variable that could perhaps be explained by the observation from the findings that ethical malpractice was an important factor in influencing e-procurement adoption.

5.2.4 Noncompliance

The study sought to assess factors affecting the adoption of e-procurement practices in public sector in Kenya as the fourth objective of the study. A majority of respondents were found to agree that the refugee affairs department had embraced compliance with regard to its procurement rules and regulations. It was also evident that the compliance strictness in use by the refugee affairs department enabled them to create entry barrier to suppliers who may not cooperate. Through this, suppliers are singled out for the betterment of adoption of e-procurement practices. Correlation and regression results however revealed that this was the least important variable that could perhaps be explained by the observation from the findings that noncompliance was an important factor in influencing e-procurement adoption.

5.2.5 E-Procurement Adoption

The study sought to determine the factors affecting the adoption of e-procurement practices in public sector in Kenya with reference to the refugee affairs department. The regression results revealed that e-procurement practices identified in the study, that is, technological infrastructure, technical skills, ethical malpractice and noncompliance combined could explain approximately 30.9% of the variations in the adoption of e-procurement of the refugee affairs department. The other 69.1% may be attributed to other strategies not explained by the model or the variables.

The impact of e-procurement adoption was reviewed with regard to quality of goods purchased which recorded positive growth, timely purchases due to reduced lead time and stock out reduction further recorded positive growth, cost reductions due to minimal or no reworks also recorded positive growth. From inferential statistics, a positive correlation is seen between two determinant variable and adoption of e-procurement practices. The strongest correlation was established between technical infrastructure and adoption of e-procurement practices. All the independent variables were found to have a statistically significant association with the dependent variable at ninety five percent level of confidence.

5.3 Conclusion of the study

Based on the study findings, the study concludes that adoption of e-procurement practices in public institutions can be improved by putting in place technological infrastructure, having the prerequisite technical skills, avoiding ethical malpractice and noncompliance.

First, in regard to technological infrastructure, the regression coefficients of the study show that it has a significant influence of 0.587 on adoption of e-procurement practices in public institutions. This implies that increasing levels of technological infrastructure by a unit would increase the levels of adoption of e-procurement practices in public institutions by 0.587. This shows that technological infrastructure has a positive influence on adoption of e-procurement practices in public institutions.

Second in regard to technical skills, the regression coefficients of the study show that it has a significant influence of 0.289 on adoption of e-procurement practices in public institutions. This implies that increasing levels of technical skills by a unit would increase the levels of adoption of e-procurement practices in public institutions by 0.289. This shows that technical skills have a positive influence on adoption of e-procurement practices in public institutions.

With regard to the third objective, the regression coefficients of the study show that it has a significant influence of -0.078 on adoption of e-procurement practices in public institutions. This implies that increasing levels of ethical malpractice by a unit would decrease the levels of adoption of e-procurement practices in public institutions by 0.078. This shows that ethical malpractice has a negative influence on adoption of e-procurement practices in public institutions.

Lastly, in regard to the fourth objective, noncompliance, regression coefficients of the study shows that it has a significant influence of -0.086 on adoption of e-procurement practices in public institutions. This implies that increasing levels of noncompliance by a unit would decrease the levels of adoption of e-procurement practices in public institutions by 0.086. This shows that noncompliance has a negative influence on adoption of e-procurement practices in public institutions.

Drawing on this research, lack of technological infrastructure, prerequisite technical skills, a lot of ethical malpractice and noncompliance in public institutions is leading to poor e-procurement adoption. Though the public institutions are striving hard to improve e-procurement adoption there are still issues of poor quality products, long lead time and high cost of projects/products. It was articulated that the current phenomenon of poor e-procurement adoption in the public sector can be reversed if the government and other stakeholders ensure that technological infrastructure, prerequisite technical skills, reduction of ethical malpractice and noncompliance are embraced in

the procurement function. Thus, it is evident that all the independent variables identified in this study were all important e-procurement practices that influenced the e-procurement adoption at the department of refugee affairs.

5.4 Recommendations of the study

To ensure that public institutions have better e-procurement adoption they should focus more on improving their technological infrastructure so as to improve their capacity in e-procurement, this will ensure that there is consistency of quality in goods supplied. In the same regard, they should outsource consultants to enable them to come up with technological infrastructure that articulate with their organization objectives.

With regard to the second objective, it would be salutary for public institutions to invest more in technical skills to reduce the cost of procurement through unnecessary re works and ensure they get it right the first time. This should be done consistently with the staff training, improvement of their processes and capacity.

In relation to ethical malpractice, the organizations should form strict policies of adherence with their employees so as to have a more improved working relationship characterized by a shared mindset and good information flow. If public institutions refrain from collusion, conflict of interest and fraud among its suppliers then there will be cost reduction and timing of delivery will improve.

Concerning noncompliance, there is need for public institutions to always set aside a substantial part of their resources for activities that consume a huge amount of total costs, which is in operational impropriety. This is because decisions made in the first stages of procurement integrity controls have major effects on the resulting product or service costs. In the same regard, they should outsource consultants to enable them to come up with policies to reduce maverick spending and strategies that articulate with their organization objectives.

The study recommends that procurement staff should ensure that they strictly follow procurement procedures to ensure that goods supplied are of the right quality, in the right quantity, at the right time, to the right place from the right source. This will aim at satisfaction of customers in terms of cost, quality, and timeliness of the delivered product or service, minimizing administrative operating costs, conducting business with integrity, fairness and openness. Procurement staff should uphold integrity and ensure that there are no malpractices and there is informed decision-making, which requires public institutions to base decisions on accurate information and ensure that requirements

are being met. This can be attained by proper strategic planning. More checks and controls should be introduced to check on the integrity of the tendering systems and ensure that it is as open as possible.

5.5 Recommendations for further studies

The study is a milestone for further research in the field of e-procurement adoption in Africa and particularly in Kenya. The findings demonstrated the important e-procurement adoption practices to public institutions to include; technological infrastructure, technical skills, ethical malpractice and noncompliance. The current study should therefore be expanded further in future in order to include other e-procurement adoption practices factors that may as well have a positive significance to e-procurement adoption. Existing literature indicates that as a future avenue of research, there is need to undertake similar research in other government institutions and public sector organizations in Kenya and other countries in order to establish whether the explored practices herein can be generalized to affect e-procurement adoption in public institutions.

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