

**E-TENDERING ADOPTION AND PROCUREMENT
PERFORMANCE OF OIL MARKETING FIRMS IN KENYA**

WAKA JULIUS ESHITOLI

D61/64522/2011

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF
MASTER OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS,
UNIVERSITY OF NAIROBI**

2016

DECLARATION

I declare that this research project is my original work and has not been submitted to any other university for award of a degree.

Signed.....Date.....

Waka Julius Eshitoli

D61/64522/2011

This research project was submitted for assessment with my authority as the university supervisor

Signed.....

Date.....

Onserio Nyamwange

Department of Management science

Lecturer School of Business,

University of Nairobi

ACKNOWLEDGEMENT

I wish to thank God Almighty above all for granting me the opportunity and good health were necessary to complete this research project successfully.

I would first like to thank my supervisor Mr. Onserio Nyamwange of Department of Management science at University of Nairobi for steering me in the right path. The door to his office was always open whenever I needed assistance or had queries about my research. I would also like to acknowledge Dr. Peterson Magutu and Mr. Michael Chirchir school of business – Department of Management science at University of Nairobi for their contribution and very valuable comments on this research. I would also like to thank the respondents who participated in this research. Without their enthusiastic contribution, this research could not have been successfully conducted.

Finally, a special thanks to my family. I must express my very profound appreciation to my parents, my family and friends for providing me with constant support all through my years of study and through the process of researching and writing this research project. Words cannot express how grateful I am to all of you.

DEDICATION

I sincerely dedicate this research to my late dad, Hezron Waka. A strong and gentle soul who taught me how to believe in myself, hard work, his moral and financial support all along my journey to find education.

To my wife Rebecca for her moral support and prayers; and our two children Lynn and Leon, perhaps too young to understand why dad came home late and was away over the weekends as I studied my Masters degree course. Thank you for your patience. My love for you all can never be quantified. God bless you.

ABSTRACT

The objective of this study was to explore factors which influence adoption of electronic tendering on performance of procurement among oil marketing firms in Kenya and the relationship between e-tendering and procurement performance among oil marketing in Kenya. The lowest price in open market under given circumstances is the main aim of competitive tendering and better results are hence attained with more competition among tenderers. A need for cross disciplinary education can be incorporated to help in increase an uptake of innovative technologies and technological systems of construction processes such as electronic tendering and is strongly recommended that become learning organizations. Due to increased electronic integration of construction processes there has been need to acquire a new set of skills and device ways to deliver these skills. Studies need to be done to establish reasons why e-tendering has not been incorporated many companies in third world countries. The research question was: What are the factors which influence e-tendering among Oil marketing firms in Kenya? The objective of this study was to explore factors which influence adoption of electronic tendering and performance of procurement among Oil Marketing firms in Kenya.

Explanatory study was used in carrying out the research study. The study population was 20 (twenty) leading firms in Kenya. A questionnaire was used in the collection of primary data. The data collected was then analyzed using quantitative analysis. The data were assigned numerical values. The mean was calculated from the scores obtained from a Likert scale. Simple means; standard deviation, regression and correlation analysis. A multivariate regression analysis was established if there existed association between e-tendering adoption and procurement performance. The findings show that most oil marketing firms in Kenya still apply the traditional tendering method to a large degree. The second objective of the study was to establish the challenges facing the adoption of e tendering among oil marketing firms in Kenya. Using Principal component analysis six main challenges facing e-tendering, potential benefits of e-tendering cannot be realized by oil marketing firms.

TABLE OF CONTENTS

DECLARATION.....	ii
ACKNOWLEDGEMENT.....	iii
DEDICATION.....	iv
ABSTRACT.....	v
LIST OF TABLES.....	viii
LIST OF ACRONYMS.....	ix
CHAPTER ONE: INTRODUCTION.....	1
1.1 Background of the Study	1
1.1.1 Tendering Approaches	1
1.1.2 Oil Marketing Companies in Kenya.....	2
1.2 Research Problem	4
1.3 Research Objective	6
1.4 Value of the Study	6
CHAPTER TWO: LITERATURE REVIEW.....	7
2.1 Introduction	7
2.2 Theoretical Foundations of Study	7
2.2.1 Adoption of Electronic Tendering	8
2.2.2 Challenges of Electronic Tendering.....	9
2.2.3 Electronic Tendering Legal framework Exchange.....	11
2.2.4 Technological environment for Electronic Tendering	12
2.3 Procurement Performance	12
2.4 Empirical Studies.....	13
2.5 Summary of Literature Review	14
2.6 Conceptual Frameworks	14
CHAPTER THREE:.....	16
RESEARCH METHODS.....	16
3.1 Introduction	16
3.2 Research Design	16
3.3 Population of the Study	16
3.4 Study Sample	17
3.5 Data Collection	17

3.6 Data Analysis.....	17
CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS.....	18
4.1 General information.....	18
4.2 Participation in E-tendering.....	19
4.3 Challenges Facing Adoption of E-Tendering.....	20
4.3 Procurement Performance	22
4.4 Relationship between E-Tendering and Procurement performance Summary	23
CHAPTER FIVE.....	25
SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	25
5.1 Introduction	25
5.2 Summary of the Findings	25
5.4 Recommendations	26
5.5 Limitations of the Study	26
5.6 Suggestions for Further Research.....	26
REFERENCES.....	27
APPENDICES.....	29
Appendix I: Questionnaire	29
Appendix II: List of Leading Oil Marketing Firms.....	33

LIST OF TABLES

Table 4.1: Challenges Facing Adoption of E-tendering.....	20
Table 4.2: Challenges facing adoption of e tendering systems.....	21
Table 4.3: Challenges affecting adoption of e-tendering	22
Table 4.4: Model Summary.....	23
Table 4.5: Analysis of Variance	23
Table 4.6: Coefficients	24

LIST OF ACRONYMS

ERC	:	Energy Regulatory Commission
E-TENDER	:	Electronic Tender
OTC	:	Oil Tendering System
E-PROCUREMENT	:	Electronic Procurement
ERP	:	Enterprise Resource Planning
IT	:	Information technology
IS	:	Information systems
IFMIS	:	Integrated Financial Management Information System

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

The lowest price in open market under given circumstances is the main aim of competitive tendering and better results are hence attained with more competition among tenderers. In spite of this there is usually a compromise between price being lower and the product's quality as stated by Chang-Sup, (2002). The most precarious and vital phase in a construction project as stated by Vee and Skitmore,(2003) is the tendering stage. These documents are made up of tender invitation, tender structure, architectural drawings, and quantity bills. They are unique in terms of intensity, being importable, and production process being cumbersome. Errors occur in terms data failing to be complete, insufficiency of the documents leakage of confidential information.

1.1.1 Tendering Approaches

The three main methods of submitting tenders and it usually rest to the company's management to decide the best method that suits them for a particular project. In open tenders they place advertisements in newspapers or through their website inviting potential contractors to tender on the project. This brings about competitive prices and very competitive tendering. Whereas in selective tenders particular contractors chosen by attributes like integrity etc. are usually invited to tender. Finally those that seem capable are finally approached. It is similar to open tenders only that it does not get advertised. Finally the negotiated tender process involves an agent approaching a contractor chosen on merit to hand in a tender for work. The method used to arrive at pricing is usually up to the contractor whereby can also be based on bills of quantities.

It is best in terms of saving of time, choosing a good specialist to design and control the costs based on the design chosen. (<http://tenderpoint.co.za/blog/3-methods-of-tendering> dated 7/8/16). E-tendering entails information exchange in electronic arrangement that permits the parties involved to get use the same internet based system , this allow them to save on , money and time and helps in error elimination and reduction on times spent analysing bid . (www.businessdictionary.com/definition/e-tendering.html dated 7/8/16). Publishing of documents electronically, acquiring, receiving and handing in tender related data using the internet is what electronic tendering entails and is usually deemed as being more effective than the traditional processes. (www.tendertailor.com/Home/WhyETendering dated7/8/16)

With the of electronic form of documentation (e-documentation) , which seeks to over the challenges faced experienced , electronic tendering process replace the old manual tendering in the buying of service and product in an electronic means , which involve electronic notification , involvement , vetting and supplier selection (IDeA, 2003; Nitithamyong, and Skibniewski, 2007). Some of benefits of electronic tendering include cutting down costs from producing the tender, securing a method of receiving tenders, and progressive working method, reducing the tender period as stated by Forbes-Pitt, (2006); Utvich, (2005) cost reduction from tender documentation production, reducing time for tender. Electronic tenders are also easy to compile, inexpensive.

1.1.2 Oil Marketing Companies in Kenya

Categorized into upstream which entails exploration and productions and the highest industrial risk, mid-stream that entails drilling and completing the wells and downstream which entails the separating and purifying the desired product after which it is marketed and

handled by these given companies. The upstream category which involves exploration is usually risky in investing and also expensive.

Oil marketing firms are licensed by the Energy Regulatory Commission (ERC) in Kenya. Oil marketing firms based in Kenya and licensed to import and export petroleum products as well as sell them wholesale. Products imported traded by Oil marketing firms in Kenya include Petroleum fuels, additives, lubricants and supporting equipment. However, things have changed dramatically in the Energy Section in Kenya over the last two years. Tullow Oil has made oil discoveries in Turkana county. This will shape the landscape of sourcing petroleum products in future. Guidance is provided by the e Ministry of Energy on the importation of fuel under the countries under centralized purchase and distribution system. It is a requirement for Oil marketing companies , who wish to participate Open Tender System (OTS) that have been marketing petroleum products for the last two years in the local market. Oil and gas procured through the OTS process involves a very high capital investment. The OTS tender process is long and cumbersome. Similarly almost 98% of Kenyan based oil marketing companies conduct their tender processes manually (Energy Regulatory Commission). The number of Internet users in Kenya has grown tremendously. The growing rate of ICT usage particularly the internet and mobile phones can support the application of e-tendering business interaction and communication among Oil marketing firms and their suppliers of goods and services.

1.2 Research Problem

Procurement function links its benefits to electronic tendering; these benefits include costs reduction, improved accountability in procurement function, efficient process improvement, paperwork reduction, reduced credit control costs etc. (CIPS, 2006). Electronic tendering leads to improved costs of labor, improved legal procedure submission, improved time management, improved accountability and integrity (OGC, 2009). From the various conclusions made from various studies showed that various participants agreed that the electronic tendering process is cheap and quicker (B&CWatch, 2001). A need for cross disciplinary education can be incorporated to help in increase an uptake of innovative technologies and technological systems of construction processes such as electronic tendering and is strongly recommended that become learning organizations. Due to increased electronic integration of construction processes there has been need to acquire a new set of skills and device ways to deliver these skills as stated by Foresight (2000)

Cross – disciplinary education is needed because of the increased uptake of new innovations technologies systems and processes which has in turn made the construction industry be deemed as learning organization hence this has in turn made prospective participants learn to acquire a new range of skills through this cross-disciplinary education (Foresight 2000). Costs involved in setting up the infrastructure and skills that come along with electronic procurement has inhibited the implementation of it such that its adoption has been really slow and surprisingly still at its early stages. (Oke et al, 2006).

ICT is considered one of the success motives for the vision 2030 which was initialized to change the country into an industrialized nation by 2030.

This has in turn made the nation bring about an ICT board to help fast up rise in the country a good indication for electronic procurement. In spite of the high costs that come about with these new technologies there have been companies able to adopt the electronic procurement thanks to their financial capabilities hence being able to have competitive advantage.

By embracing technology that comes along with high speed and high optic cable in the country which enhances internet competence and as a result boosts electronic procurement.

The adoption of e-procurement Previous studies complimenting application of e-tendering, most Oil marketing firms in Kenya handle tender process manually from the launch, receipt of tender documents, bid analysis and feed back to bidders.

This method of administering the tender process is time consuming and laborious. Studies need to be done to establish reasons why e-tendering has not been incorporated many companies in third world countries.

The Oil marketing firms in Kenya spend billions of shillings to procure goods and services yet e-tendering in have not been incorporated in most of these firms' tender process within the procurement functions. From the past studies above, e-tendering can save both time and money, improve communication between Oil marketing firms and the suppliers: the level of accuracy and transparency during the analysis & award of tenders. The research question is: What are the factors which influence e-tendering among Oil marketing firms in Kenya?

1.3 Research Objective

The objectives of the study were;

- i. To establish the extent of e-tendering adoption among oil marketing firms in Kenya
- ii. To establish the challenges facing the adoption of e-tendering among oil marketing firms in Kenya and
- iii. To determine the relationship between e-tendering and procurement performance among oil marketing firms.

1.4 Value of the Study

The findings of the study will be of great importance to the various stakeholders - Both public and private sectors procurement functions alongside their suppliers and service providers. The ministry of Energy can save the Oil marketing firm's time by adopting e-tendering. Software solution providers and ERP create suitable programmes tailored to meet end user requirements in the e-tendering process. Oil marketing firms can have software with features that meet their business requirements. This is a business opportunity for IT firms and employment opportunity for software programmers. Academic researchers in the field and Supply chain professionals will use the data for learning and on-job implementation purposes. Business Competitors in the same industry players will consume the knowledge for benchmarking purposes and in order to have a competitive edge. Online tender platforms address the ethics issues and eradicate potential complaints by the bidders or other stakeholders involved in the tender exercise. The e-tender systems provides daily management reports, including on-line communication with bidders, comprehensive tracking of activities and online security.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section review the existing literature on the subject of the study in particular it review the theoretical literature review, conceptual framework and summary of literature review.

2.2 Theoretical Foundations of Study

Companies are nowadays forced to adjust and examine the simultaneous changes mainly electronic media in today's economy which are said to be more efficient as compared to the traditional processes. Nowadays information is shared and circulated digitally which is cheaper and effective way of communicating. These modern processes are prospective in creating wealth and changing the conduction of business in unique ways as stated by Amit and Scott (2001).

Companies should however allow technology sink into their organizational set up instead of applying it into their set up as applying it could lead to the downfall of the company whereas allowing it sink in will result to changes. For instance if employees absorb technology into their work by adopting technological processes in their work may result to increased motivation, organized employees, increased work efficiency. Due to project communications becoming complex there has been a need to adopt similar innovations on ICT. However is has been noted that companies lack knowledge and awareness on ICT and web based processes which may enhance improvement in procurement, delivery and life cycle of projects if implemented. (NSW Government 1998; Kajewski and Weippert 2000).

Construction professionals coming together during a construction process to address their needs is what a collaborative environment entails a collaborative environment which not only creates a chance for communication between each other storing of information but also

creates a chance for IT incorporation through exchange of information and reprocess using a mutual situation. This situation uses IT to link project team members for construction through wide area nets regulating public procedures. Main goal being strengthening collaboration and sharing of data. (Vlosky *et al.*, 2000; Wong, 2007)

2.2.1 Adoption of Electronic Tendering

From an economic perspective, electronic tendering through saving of cost savings during an operations etc. improves efficiency. Other benefits coming with electronic tendering include improved accountability, improved information exchange, reduction of administrative costs (an insubstantial benefit). Throughout the whole process of electronic tendering the responsibilities of the team of project members are kept hence their efficiency is improved. Team members giving their say and queries for information which need be done on an electronic platform is what electronic tendering aims with collaboration (Parida & Parida, 2005).

According to Davila *et al.*, (2002), the key basis for investment has been saving of costs across all podiums for technology. In spite of some costs resulting from electronic tendering others will build up as result of setting up a strategic management perspective according to Phillips and Piotrowicz, (2006). Research highlighted economic opinions to entail reduction of workload, saving of costs through IT systems. Electronic tendering from this view improves efficiency through agreed cost savings and procurement costs reduction.

In spite of this other imperceptible benefits such as transparency, accountability, ease of use reduced managerial costs are achieved.

According to Du *et al.*, (2004), the traditional hard copy tendering sytem was not deemed to be confidential as compared to the electronic tendering system which would secure all access

to a web enabled tender system. This hence improved efficiency, security and improved reliability. What happens in electronic tendering is that all traditional functions and responsibilities of a project are sustained and efficiency is thus increased. According to Davila et al, (2002), the main reason for investment across all technology podiums has been to save costs. Some of these benefits according to Phillips (2006), may be as a result of electronic tendering others might be as a result of a management strategy outlook. These implementations must hence be able to adapt to the changes in these construction situations providing solutions where needed. The existing of a network affects initial investment where by it will be minimal if there is existence of a communication network and vice versa or if it needs unique features to support it (Phillips &Piotrowicz, 2006).

2.2.2 Challenges of Electronic Tendering

Electronic tendering faces a lot of challenges hindering its implementation especially in developing nations. Moreover the thought of ICT enhancing the profitability and productivity made ICT be deemed as an optimistic way with its numerous benefits which none is unachieved especially the developing countries. There have been numerous suggestions for the reasons of these challenges. These include framework of security, ownership of the property which is normally electronic trust issues etc. (Rezgui (2004; These challenges have counteracted the administrative and managerial benefits coming with electronic tendering. Creating awareness will be vital in endorsing acceptance and use of electronic tendering as a substitute to these traditional paper-based processes. (Black *et al*, 2005).

Some main factors influencing the use of technologies in the construction sector are human and the company itself. This view gives the base of Lou and Ashalwi's study which recognizes the essential role played by HR training and developing professionally. This work

rhymes with Rezgui et.al who agrees to Lou's work. It has also been perceived that being unaware of the upcoming technologies and the benefits that come along with these benefits by the senior management in the construction sector which in turn hinders competitive advantage and improvement which in turn inhibits the implementation of new technologies because most decisions on investment are made by the senior management. (Rezgui *et al*, 2004). Therefore there is need for experienced ICT staff with ICT skills like programming, network development to support and increase the use of ICT at both work and project sites.

Because of the vast use of the internet in acquiring information and transforming the world use all over the world (an estimated 75 million globally) there has been an offensive and illegal use of the internet. This has been made worse with the terms of cyber laws being unclear. Being observed from two views the first being dealing with the laws coming about with controlling telecommunications and the second one handling these cybercrimes. This has in turn brought about a lot of risks which include hacking, pirating, viruses, illegal trading, money laundering etc. This can in turn have an impact on accountability and transparency. A study conducted by Martin (2003) showed that collaboration during projects has a number of advantages and disadvantages. Advantages including speed in accessing information and reduced costs whereas the disadvantages include cost in both maintenance and time to print the drawings of the scale also inadequacy in IT.

In addition there is need for the companies to be steady in inhibiting illegal actions disrupting the process when adopting electronic tendering technologies. The main challenge is to hence give evidence to non-users about the benefits coming about with electronic tendering and not what they think. However, there has been a notable progress made in this research area. There has been a study by Pasupathinathan & Pieprzyk (2008) who created a procedure for

the purpose of improving fairness and security in this process. All these studies have resulted to the initialize a transparent electronic tendering system to be advocated. In spite of this there will be need for further studies to give the efficiency of implementing these technologies.

2.2.3 Electronic Tendering Legal framework Exchange

The hindering of electronic data in collaborative process as a result of challenges like mistrust, irresponsibility, and coinciding techniques of communication has inhibited ICT use in the construction process of various companies (Du et al, 2004; 2001). The law presiding over electronic dealings not existing or undeveloped has resulted to several legal challenges in spite of electronic tendering systems being deemed and accepted as efficient in terms of cost and time. (Black *et al*, 2004). This has mainly affected developing countries where by they like for instance trying to transform traditional methods to electronic environment while still try to maintain legal validity. (Betts, et al., 2006). This will in turn affect the legal admission of these documents hence it calls for revising of these laws instilled to identify the concerns coming about with ICT. This will help in promoting security and trust. (Edappagath, 2004)

However there have been speculations of the following solutions in providing the necessary security for these transactions. They are national legislations, global legislations like treaties, contractual solutions and self-regulation. The one that has gained a lot of reputation has been self-regulation to control electronic transactions. This implies that companies working together electronically need to adhere to certain rules when dealing with each other. It can take different forms and it works with other means of facilitating electronic tendering deal (UN/CEFACT, 2001).

2.2.4 Technological environment for Electronic Tendering

Three categories have used to categorize electronic tendering systems namely hardware which entails the use of basic hardware facilities like computer systems, that manages the clients' computers on the networks and managing information transfer as stated by Seah (2004) the other two include software and internet facilities. Advancing in competitive advantage through enhancing the work processes and enhancing information effectively are the main focus of competitive advantage. However it is inhibited by people much more than the technology itself through hurdles like inadequate skilled workers, transparency inhibition etc. We can also have people still holding on to the traditional process because of having a bad mindset on ICT adoption and ignoring the benefits that come along with ICT.

Transparency has also been issue highly affecting ICT adoption as discussed earlier, poor communication has also hindered ICT adoption. Also we have poor information exchange gotten from development of standards that results to poor information exchange an issue widely affecting all industries. That can be traced to company problems.

2.3 Procurement Performance

In a broad-spectrum, procurement performance pertains obedience with necessities of both internal and external audits rather than in the context of the general efficiency of procurement. Performance monitoring is limited, since objectives, targets and metrics are generally not established in most cases. This leads to a lack of focus on improving the performance of procurement activities (Qualls and Shaw, 2010). Measuring the performance of the Procurement function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage (Batenburg & Versendaal 2006).

Efficiency in procurement and its effectiveness bring about the varied the functions of the functions of procurement. Efficiency portrays the company doing things in the right way whereas effectiveness portrays the company doing the right thing. This implies that a company can be efficient and lack to be effective and vice versa there is a challenge in failing to have the two or equalizing the two.

2.4 Empirical Studies

Various studies have been carried out on importance of adopting ICT. The first that was carried out established a lot of time being saved when a contractor sent a tender in electronic form. This was accredited to the tender not having to scan, print or verify. It was carried out in the Northern Ireland Environment Department. Hence it was downloaded in three minutes to the surveyor's computer. In a study carried out to examine the impact electronic tendering has on procurement of goods and services in the public sector of the PWC in Ireland (2001), it was established that they had earned a lot of savings because the use of ICT services.

The report stated that \$177 million per annum could be generated leading to a 2% increased savings. A study similar to this one carried out in the UK carried out by Tindsley and Stephenson. It was concluded that use of electronic tendering saves up time and costs to a noted extent. It was also noted that what hindered the advancement of electronic tendering was associated with doubt and hesitation to adapt to change.

A study conducted by Eadie et al (2010) to associate electronic procurement spread and the barriers hindering its spread in construction companies. It showed that the level of security of the process that is tampering with the documents, and ensuring the information of the documents is kept confidential is the main challenge within UK construction companies whereas saving of costs and convenience in storing this information are the two main

benefits coming with electronic procurement. These conclusions drawn are to be in line with a study conducted in Northern Ireland that concluded that security was the most important in electronic procurement.

A study conducted by Orina (2013) in Kenya on factors influencing electronic procurement readiness and it was revealed that refusing change, lacking enthusiasm lack of skills etc. Technology, finance, leadership legal framework are some of the factors that would affect electronic procurement readiness. It fails to however fails to establish the impact of electronic procurement on general performance which led to this study conducting a study on the impact of electronic procurement among Kenyan Oil Marketing Companies and why electronic procurement lacks recognition among Kenyan Oil Marketing Companies.

2.5 Summary of Literature Review

The electronic tendering process is deemed as essential in improving the traditional tender process which was paper based in that the benefits coming from adopting this process is are numerous such as transparency, security is increased, time and costs get to be managed among others and less tiresome. In spite of these numerous benefits coming about with adopting these systems there are also challenges affecting general performance and hence have to be compared with the benefits so as to establish whether it will bring about improved performance among Kenyan oil marketing Companies.

2.6 Conceptual Frameworks

For the purpose of the independent and dependent variables shall be factors influencing adoption of e-tendering and procurement performance.

The independent variable consists of factors such as organizational, administrative, human resource competencies, information communication technology and legal framework. Depend variables relate to efficiency of procurement performance on aspects such as cost reduction, reduced lead time, customer satisfaction, right quality of good, no corruption among others.

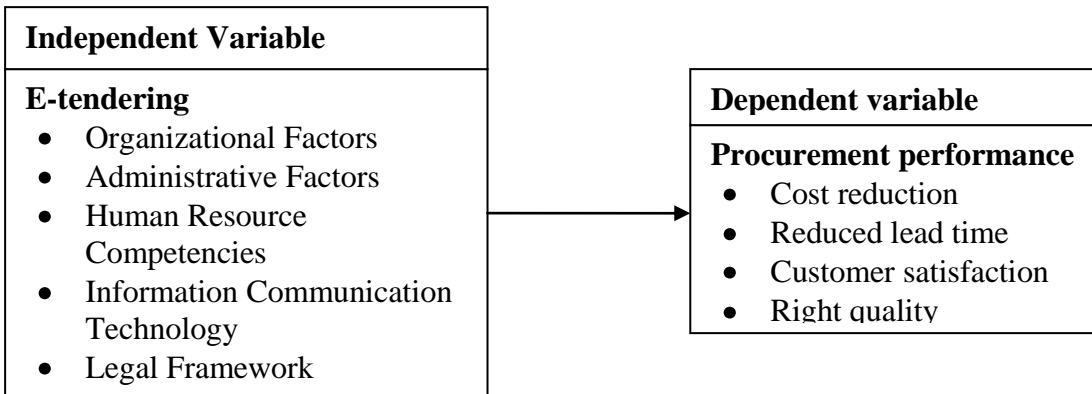


Figure 2.1: Conceptual Framework
Source , Author (2016)

CHAPTER THREE: RESEARCH METHODS

3.1 Introduction

Research methodology employed in the study that covered the designs employed in the research, population being targeted, the design of the sample, methods of collecting information, analyzing of the information, conceptual model and significance test. This chapter looks at the research methodology that was employed in the study. In particular the section covers the design used in the study, study population, the sampling design, data collection instrument and methods of data analysis.

3.2 Research Design

Explanatory study was used in carrying out the research study. Explanatory studies are studies that establish causal relationships between variables (Mark Saunders, 2007). The methods also to be used in this study will include interviews via questionnaire. Participants were selected from the oil marketing companies in Kenya. The researcher also requested that if company representatives at Senior & middle management and supervisory were not available to fill the questionnaire.

3.3 Population of the Study

The study population is research of Oil marketing firms was the 20 leading firms in Kenya out of 297 Oil and gas importers and resellers licensed by Energy regulation commission.

3.4 Study Sample

Level Of Management	Population	Sample
Top level Management (Director Level)	10	10
Middle level Management (Supply chain)	20	20
Lower management (Procurement officers)	20	20

Source : Author

3.5 Data Collection

Questionnaire was used in the collection of primary data. Questionnaires of two sections - descriptive statistics and factor analysis on were used to obtain data using pick and drop scheme. The questionnaires were administered to the Top management (such as Chief executive officer and Managing director level), Functional line managers (such as Purchasing managers) and Lower management (supervisory level) as they were deemed to be individuals with relevant knowledge and experience who are in best position in their organizations to provide the required data.

3.6 Data Analysis

For demographics once the complete questionnaires were collected, the data was coded accordingly thereafter frequency and percentage were applied to establish the frequency. For e-tendering adoption, E-tendering adoption and relationship with overall Procurement function. The data collected was then analyzed using quantitative analysis. The data were assigned numerical values. The mean was calculated from the scores obtained from a Likert scale. Simple means; standard deviation, regression and correlation analysis. A multivariate regression analysis was established if there existed association between e-tendering adoption and procurement performance.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 General information

Data on e-tendering adoption and procurement performance in Oil marketing firms in Kenya was analyzed. Demographic data was scrutinized using descriptive statistics and summarized in various frequency tables. With the use of SPSS statistical software, e-tendering adoption and procurement performance in Twenty (20) leading Oil marketing firms in Kenya was analyzed using; mean scores and standard deviations. The factors were rated in order of importance and therefore had the greatest impact on the e-tendering adoption and overall procurement performance. Fifty (50) questionnaires were administered to the selected oil marketing firms. Thirty five (35) of these questionnaires were returned representing a response rate of 70 percent.

The demographic characteristics of the respondents included age, level of education, duration of employment within the oil marketing firm and whether in e-tendering is practiced by the firm's procurement function. The findings depicted that the age group with the least respondents was 18-24 with 17% of the respondents, followed by age bracket of 25-35 years representing 23%, second largest age group of the respondents were aged above 46years representing 29% of the respondents, whereas majority of the respondents were in the age bracket 36-45years representing 31% of the respondents. This suggested the likelihood of both experienced staff with knowledge of procurement practice and middle aged personnel working in the procurement departments.

Conversely, 37% of the respondents hold a bachelor's degree while only 6% of the respondents hold a professional degree for Procurement practice. The research findings further depicted that 46% of respondents were educated below degree level.

The finding in consequence highlights the need to train and develop more procurement job skills in order to realize efficiency and higher productivity.

The conclusion above supports that of Hardy and Williams (2011) who found that high degree of re-engineering of the process is positively associated with the practices and processes implementation perspective of an e-Procurement initiative in their study of barriers to e-government projects in Sub-Saharan Africa.

On the respondent gender, the study requested the respondents to indicate their gender and indicate that a great percentage of the respondents were male and a small percentage was female, depicting that most procurement positions are dominated by male.

From the findings of the study on the period of time they had worked with the respective oil marketing firm, it was realized that the respondents had worked for over five (5) years signifying high level experience and awareness on aspects relating to procurement function.

4.2 Participation in E-tendering

Successful acceptance and execution of a good e-tendering policy depends on the extent to which the respective e-tendering strategies are implemented by key stakeholders in the supply chain. The study sought to determine the number of oil marketing firms that has embraced in e-tendering practices. The research depicted that 95% of oil marketing firms in Kenya had not adopted e-tendering and applied the traditional tendering method. Tenders documents were manually completed and submitted as hard copies. Tenders analyses were done using spreadsheets. With the widespread of ICT usage in Kenya, the oil marketing firms need to create and implementation strategies on how to bring e-tendering application on board. These findings agree with Spriano (2013) who carried out a survey on the successes and failures of eGovernment projects in Developing Countries: a case study of Zambia.

According to him, the implementations of e-government projects and particularly e-procurement in Sub-Saharan Africa largely fail due to poor implementation strategies, poor communication and lack of adequate awareness among the key stakeholders.

4.3 Challenges Facing Adoption of E-Tendering

The study sought to determine the various challenges effecting of e-tendering adoption and procurement performance among oil marketing firms .Respondents were asked to give responses on a Likert Scale of 1-5 where; 1 = very small extent; 2= small extent; 3= moderate extent; 4= large extent; and 5= very large extent. Analysis was done and results are as shown below:

Table 4.1: Challenges Facing Adoption of E-tendering

Challenge	Mean	Standard deviation
Top management fails to offer help.	3.28	1.32
Customer failing to appreciate	2.10	1.19
Failing to incorporate an effective internal system	3.14	1.40
Inappropriate security and authentication	2.70	1.48
Inadequate Procurement Performance Measurement Systems	3.17	1.21
The electronic tendering Implementation Strategy is reduced	3.13	1.26
Inadequate communication to stakeholders	2.36	1.30
Resistance to change by staff	2.66	1.35
Poor organizational culture	2.86	1.37
High cost of technological infrastructure to support e- tendering	3.51	1.42
Lack of supplier interest/support	2.68	1.34
Lack of concrete electronic tendering benefits to ensure its implementation in investments.	3.23	1.53

Source: Author (2016)

The high cost of technological infrastructure to support e-tendering had the biggest challenge with a mean of 3.5149 while Customer failing to appreciate is the smallest challenge with a mean value of 2.1042. A factor analysis was applied in the initial step: a correlation matrix as produced to recognize any important relation between the items. The number of factors matches up the number of responses from the interviewers to the question on challenges affecting adoption of e-tendering. Principle component matrix is tabulated below.

Table 4.2: Challenges facing adoption of e tendering systems

Variable	Extraction
Lack of top management support	0.874
Low appreciation by end user	0.738
Poor internal system Integration	0.865
Lack of appropriate security and authentication	0.769
Lack of Procurement Performance Measurement Systems	0.629
Poor e-tendering Implementation Strategy	0.815
Poor communication Mechanisms to stakeholders	0.822
Resistance to change by staff	0.829
Poor organizational culture	0.643
High cost of technological infrastructure to support e- tendering	0.778
Lack of supplier interest/support	0.773
Lack of concrete electronic tendering benefits to ensure its implementation in investments	0.898

Source: Author (2016)

According to table 4.2, communalities were maximum for: Lack of concrete electronic tendering benefits to ensure its implementation in investments (0.898); Lack of top management support (0.874); Poor internal system Integration (0.865); Resistance to change by staff (0.829); Poor communication Mechanisms to stakeholders (0.822) and Poor e-tendering Implementation Strategy (0.815).

4.3 Procurement Performance

The study sought to determine the how e-tendering adoption effects procurement performance among oil marketing firms. Several indicators were used to determine the procurement performance indicators; fewer of errors in tender process administration , reductions in inventory levels, assured continuity of supply, reduced work content in the procurement cycle, transaction cost reduction, value for money for goods supplied, better contracts and good partnership relations. Respondents intended to respond to the questions given of 1-5 where; 1 = very small extent; 2= small extent; 3= moderate extent; 4= large extent; and 5= very large extent. Analysis was done and results are as shown in Table 4.9. Mean, and standard deviation was applied in the analysis on the following table:

Table 4.3: Challenges affecting adoption of e-tendering

Variable	Mean	Standard deviation
Fewer of errors in tender process administration	2.66	1.34
Reductions in inventory levels	2.95	1.25
Assured continuity of supply	2.23	1.26
Reduced work content in the procurement cycle	3.14	1.22
Transaction Cost reduction(Photocopying & printing)	2.46	1.44
Delivery of best-value contracted goods and service	2.40	1.34
Better contracts with suppliers/vendors	3.11	1.34
Stronger Vendor-Buyer partnerships	3.12	1.41

Source: Author (2016)

The finding depict that overall procurement performance would be improve at all firms a mean of over 2.70 if e-tendering is incorporated.

4.4 Relationship between E-Tendering and Procurement performance

Table 4.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.791(a)	.626	.615	.19440

The study revealed that the value of R squared was 0.615 and this shows that there was variation of 61.5% on performance of procurement among oil marketing firms in Kenya due to changes in organizational factors, administrative factors, human resource competencies, information communication technology and legal framework at 95% confidence interval. This shows that 65.5% changes in performance of procurement among oil marketing firms in Kenya could be account for by organizational factors, administrative factors, human resource competencies, information communication technology and legal framework. The study established that there was strong relationship between e-tendering adoption and procurement performnace as shwon by corelation value of 0.791.

Table 4.5: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.019	5	0.404	3.131	.048 ^b
	Residual	3.741	29	0.129		
	Total	5.760	34			

Result in Table 4.11 indicates that Total variance of 55.058 as the difference between variance which can be explained by the Model (independent variables) and error (cannot be explained by the model independent variable). The study established that there existed a significant goodness of fit of the model $Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$ indicted by the higher value of F-statistics ($F_{Cal}=3.131 > F_{Cri} = 2.545$ at confidence level 95 % and sig is $0.000 < 0.05$).

This therefore implies that there is a goodness of fit of the model fitted for this study: $Y = 0.298 + 0.237 X_1 + 0.231 X_2 + 0.239 X_3 + 0.281 X_4 + 0.532 X_5$. This is indication that organizational factors, administrative factors, human resource competencies, information communication technology and legal framework significantly affect performance of procurement among Oil Marketing firms in Kenya.

Table 4.6: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	.298	0.102		2.922	.006
Organizational Factors	.237	0.086	.198	2.756	.012
Administrative Factors	.231	0.081	.245	2.852	.001
Human Resource Competencies	.239	0.065	.008	3.677	.023
Information Communication Technology	.281	0.084	.031	3.345	.016
Legal Framework	.532	0.117	.014	4.547	.005

From the data in the above table the established regression equation was

$$Y = 0.298 + 0.237 X_1 + 0.231 X_2 + 0.239 X_3 + 0.281 X_4 + 0.532 X_5$$

Holding organizational factors, administrative factors, human resource competencies, information communication technology and legal framework to a constant zero, procurement performance be at 0.298, a unit increase in organization factors would lead to increase in the procurement performance by a factors of 0.237, unit increase in administrative factors would lead to increase in procurement performance by factors of 0.231, a unit increase in human resource competencies would lead to increase in procurement performance by a factor of 0.239, a unit increase in Information Communication Technology would lead to increase in procurement performance by a factors of 0.281 and further unit increase in legal framework would lead to increase in procurement performance by a factors of 0.532.

The results above show that e-tendering adoption would have a significant impact on the procurement performance of oil marketing firms in Kenya during the period under study. Benefits for management would include, transparency, accountability, reduced managerial costs, motivation of personnel and reduction of possible legal tussles would be realized upon application of e-tendering.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The data analysis, findings and discussions presented in the previous chapter were guided by the issues identified in the problem statement. A literature review recognized the knowledge gap, the research design, and the subsequent analysis. A summary and concluding remark on the discussion, recommendations, limitations, and suggestions for further research are laid out in the summary below.

5.2 Summary of the Findings

The study sought to establish the relationship between e-tendering adoption and procurement performance of among oil marketing firms in Kenya. The main objective being examining the impact of e-tendering implementation among oil marketing firms in Kenya. The findings showed that most oil marketing firms in Kenya still applied the traditional tendering method to a large degree. The second objective of the study was to establish the challenges facing the adoption of e tendering among oil marketing firms in Kenya. Using Principal component analysis six main challenges facing e-tendering, potential benefits of e-tendering cannot be realized by oil marketing firms.

The third aim being examining the link of e-tendering and procurement enactment among oil marketing firms in Kenya. The procurement management practices have had a significant impact on the procurement performance of oil marketing firms in Kenya. The fact that each of the e-tendering practices had been not adapted to a large degree is retrogressive towards the development of procurement performance in Oil marketing firms in Kenya.

5.4 Recommendations

The fact that 95% of the oil marketing firms have not adopted e-tendering raised eyebrows particularly going by the current economic realities. The study identified the hurdles to an exultant adoption and execution of e-tender adoption. Challenges illustrated in the study need to be addressed in order to make the objective of the e-tendering adoption among oil marketing firms in Kenya feasible and achievable.

5.5 Limitations of the Study

The study's main objective was establishing the relationship between e-tendering adoption and procurement performance carried out by oil marketing firms in Kenya. A learning of this importance should include possibly a census a survey of all the oil marketing firms in Kenya. Conversely, there was time and material resources restraint hence makes this reason the study concentrated on just 20 (Twenty) leading oil marketing firms in Kenya. Besides, the study time was small for a study of this type. In spite of the limitations, the validity of the findings resulting from this study cannot be compromised.

5.6 Suggestions for Further Research

During the study, various challenges facing e-tendering adoption and procurement performance were identified. There is need for further research on the impact of implementing electronic tendering in improving procurement performance.

REFERENCES

- Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic management journal*, 22(6-7), 493-520.
- Alshawi, M. (2007), *Rethinking IT in Construction and Engineering: Organisational Readiness*, Taylor and Francis, UK.
- Alshawi, M. and Ingirige, B. (2003), “Web-enabled project management: an emerging paradigm in construction”, *Automation in Construction*, Vol. 12, 341 – 364.
- B&C Watch (2001). Online Tenders Generate Govt Savings. B&C Watch: Slattery's Watch for the Building and Construction Industry.
- Beise, C.M. (2004), “ IT project management and virtual teams”, *Proceedings of the 2004 SIGMIS conference on Computer personnel research: Careers, culture, and ethics in a networked environment*, Special Interest Group on Computer Personnel Research Annual Conference, ACM Press, New York, 129 – 133.
- Chang-Sup J. (2002). Effective Tendering in International Thermal Coal Markets. 4th APECCoal Trade and Investment Liberalization and Facilitation (TILF) Workshop (<http://apecegcfe.fossil.energy.gov/> dated 6/8/16), Kuala Lumpur, Malaysia, APEC Energy Working Group.
- ChoenWeng Lou E, Alshawi M (2009) Critical success factors for e-tendering implementation in construction collaborative environments: People and process issues, *Journal of Information Technology in Construction (ITcon)*, Vol. 14, pg. 98-109, (<http://www.itcon.org/2009/10> dated 6/8/16)
- Forbes-Pitt, K. (2006), “A document for document’s sake: A possible account for document system failures and a proposed way forward”, *Records Management Journal*, Vol. 16(1), 13 – 20.
- Foresight (2000). *Constructing the Future: Making the Future Work For You*. UK, Foresight, Built Environment and Transport Panel, Construction Associate Programme.

- Keil, M. (1995), “Escalation of commitment in information systems development: a comparison of three theories”, *Academy of Management Best Papers Proceedings 1995*, Vancouver, August 6-9, 348 – 352.
- Lou, E.C.W. (2006), *National E-Tender Imperative (NeTI) - NeTI User Feedback Report - Phase 2 & 3*, Public Works Department, Malaysia & Construction Industry Development Board (CIDB) Malaysia. (Unpublished)
- Mahaney, R. and Lederer, A. (2003), “Information systems project management: an agency theory interpretation”, *Journal of Systems and Software*, Vol. 68(1), 1 – 9.
- Martin, J. (2003) “e-Procurement and Extranets in the UK Construction Industry”, *Current Developments in Construction Economics, FIG Working Week 2003*, Paris, France.
- Mould, T. L. and Starr C.E. (2000) Dangerous liaisons. *Outlook*, 2. 56 – 61.
- Nitithamyong, P. and Skibniewski, M.J. (2007), Key success/failure factors and their impacts on system performance of web-based project management systems in construction, *ITcon*, Vol. 12, 39 – 5 http://www.itcon.org/data/works/att/2007_3.content.06655.pdf dated 6/8/16),
- Sulankivi, K. (2004), “Benefits of centralised digital information management in multi-partner projects”, *ITcon*, Vol.9, 35 – 63.
(http://www.itcon.org/data/works/att/2004_3.content.08950.pdf dated 6/8/16),
- Vee, C and Skitmore, C. M. (2003) “Professional ethics in the construction industry”, *Engineering, Construction and Architectural Management*, Vol. 10 (2), 117 – 127.
- Vlosky, R.P., Fontenot, R. and Blalock, L. (2000), “Collaborative environments: impacts on business practices and relationships”, *Journal of Business and Industrial Marketing*, 15(6), 438 – 457
- Worthington, R.C. (2002) “The devil is in the details .E-tendering poses potential legal risks”, *Summit, Canada” s Magazine on Public Sector Purchasing*,

APPENDICES

Appendix I: Questionnaire

Two major parts constitute the questionnaire; Part A on demographic information and Part B examining the influence of adoption of e tendering and procurement performance in oil marketing companies in Kenya. The information you give is solely academic. Your responses will be confidential. Respond to the questions following the rules provided in every section.

Section 1: BACKGROUND INFORMATION

SECTION A: BIO DATA

Part 1: General Information

i. Gender: Male Female

ii. Age (years) 18-24 25-35 36-45 Above 45

iii. Term of Service (in the firm) (years) 0-3 4-7 8-10 Above 10

iv. What is your job title.....

v. Level of education that you have reached?

High school technical school Bachelor's degree

Master's degree PhD Professional degree other (please

Specify).....

vi. Name of your organization

vii. Does your organization participate in e-tendering Yes No

SECTION B: FACTORS INFLUENCING THE UPTAKE OF E-TENDERING BY OIL MARKETING COMPANIES

Part 1: E-tendering

Adoptions Kindly indicate the extent to which your organization has adopted each of the following methods of e-tendering.

Use the scale of: 1 – 5 where: 1 = No Extent; 2 = Small extent; 3 = Moderate Extent; 4 = Large Extent; 5 = Very Large Extent

No.	E- TENDERING PRACTICES	(1)	(2)	(3)	(4)	(5)
1	Do you agree that the traditional tendering way practiced by most Oil marketing firms in Kenya are very expensive to administrator?					
2	Please indicate your current state of awareness of the opportunities for e-Tendering for your Oil marketing firm.					
3	Whether your oil marketing company is concerned over a web based strategy for tendering communications?					
5	Does Oil marketing firm have software for e-tendering?					
6	Does your organization source for goods and services electronically?					
7	Is there e-Informing- (gathering and distributing purchasing information) both from and to internal and external parties using Internet technology) within your firm?					

Part 2: Challenges facing the adoption of E-tendering.

To what extent has the organization faced each of the following challenges in the adoption of E- tendering. Please indicate on a Scale of 1 – 5 where: 1 = No Extent; 2 = Small extent; 3 = Moderate Extent; 4 = Large Extent; 5 = Very Large Extent

No.	CHALLENGES FACING THE IMPLEMENTATION OF E-TENDERING	(1)	(2)	(3)	(4)	(5)
1.	Lack of top management support					
2.	Low appreciation by end user					
3.	Poor internal system Integration					
4.	Lack of appropriate security and authentication					
5.	Lack of Procurement Performance Measurement Systems					
6.	Poor e-tendering Implementation Strategy					
7.	Poor communication Mechanisms to stakeholders					
8.	Resistance to change by staff					
9.	Poor organizational culture					
10.	Inadequate technological infrastructure to support e- tendering					
11.	Lack of supplier interest/support					
12.	Potential benefits of e-tendering are not likely to be sufficient to justify investments					
13.	Lack of top management support					

Any other challenge that may not have been captured above:

.....

Part 3: Relationship between E-tendering and Procurement Performance.

To what extent has the firm performed as a result of adopting e- tendering Please indicate for each procurement performance measure on a scale of 1-5 where: 1 = No Extent; 2 = Small extent; 3 = Moderate Extent; 4 = Large Extent; 5 = Very Large Extent

No.	PROCUREMENT PERFORMANCE	(1)	(2)	(3)	(4)	(5)
1.	Fewer of errors in tender process administration					
2.	Reductions in inventory levels					
3.	Assured continuity of supply					
4.	Reduced work content in the procurement cycle					
5.	Transaction Cost reduction(Photocopying & printing is eliminated)					
6.	Delivery of best-value contracted goods and service					
7.	Better contracts with suppliers/vendors					
8.	Stronger Vendor-Buyer partnerships					
9.	Fewer of errors in tender process administration					
10	Reductions in inventory levels					

Thank you very much for your valuable

Appendix II: List of Leading Oil Marketing Firms

Below is a list of leading Oil marketing firms in Kenya registered by Energy regulatory Commission (ERC) in Kenya:

1. Addax petroleum
2. Bakri Energy Limited
3. East African Gasoil Ltd
4. Engen Limited
5. Fast Energy Ltd
6. Galana Oil
7. Gulf Energy
8. Hashi Energy
9. Hass petroleum
10. KenolKobil
11. MOGAS Kenya Limited
12. National Oil Corporation of Kenya
13. Oilcom ()Limited
14. Oil Libya Kenya Limited
15. Olympic Petroleum Limited
16. Oyrx Petroleum Limited
17. Petrocity
18. Premium petroleum company
19. Shell Kenya Limited - Managed by Vivo Energy
20. Total Kenya Limited

Source - Energy regulatory Commission