

**ASSESSMENT OF ROAD CONTRACTORS' E-PROCUREMENT ADOPTION LEVEL,
DRIVERS AND BARRIERS IN KENYA RURAL ROADS AUTHORITY, KENYA**

BY

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DECLARATION

This Research Project is my original work and has never been submitted to any University or institution for any other award. Where work of others has been used, citations and due acknowledgment has been made.

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This Research Project has been submitted for examination with my approval as the University Supervisor.

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To my family, your love and patience sustained me throughout the writing of this work.

DEDICATION

This work is dedicated to my family who always gave me time during my study hours.

ABSTRACT

Whereas e-procurement is globally acclaimed, evidence indicates a slow adoption rate from 18-30 percent at inception. Launching of Integrated Financial Management System on 9th February 2016 by Kenya aimed at facilitating e-governance including e-procurement. As a result most government agencies adopted e-procurement for all goods, works and services. Studies on e-procurement have a general focus on levels, drivers and barriers of adoption of e-procurement by business entities but do not define such levels, drivers and barriers relating to third parties like contractors or suppliers that do business with any government agency particularly in Kenya. These reports do not establish levels of adoption, drivers of adoption are not clear and barriers of adoption of e-procurement by road contractors in KeRRA Busia are not evident. The purpose of the study was to assess the adoption of e-procurement by road contractors in KeRRA Busia Region. The specific objectives were to: determine levels of adoption of e-procurement practices, to establish drivers of e-procurement adoption and to establish the barriers of e-procurement adoption by road contractors in KeRRA Busia Region. The study was guided by resource based theory and legitimacy theory and employed a descriptive survey design. The target population comprised of 1667 contractors. A sample size of 323 contractors was drawn using Yamane formula. Stratified random sampling technique was used to draw respondents from the target population. Primary data was collected using structured questionnaires. A pilot of 33 respondents was studied. Instrument reliability was determined through test retest approach while expert judgment and content validity index was used to determine the instrument validity. The instruments Cronbach's alpha reliability coefficient was $\alpha=0.830$ while content validity index was $CVI=0.910$, which were acceptable. The completed questionnaires were checked thoroughly by editing, coding, entering, and analyzed quantitatively using descriptive statistics such as frequencies, percentages, means and standard deviations to present information on the study objectives. The findings indicate that: the adoption level for e-procurement was 18.4% (Mean= 4.195, SD=0.249); 79.4% (Mean=1.653, SD=0.226) of contractors believe that the existing barriers have significantly affected their adoption of e-procurement; and finally, 61.2% (Mean=2.908, SD=0.175) contractors believe that the identified drivers can significantly improve their adoption of e-procurement. The study concludes that only a small portion of contractors have adopted the e-procurement due to a number of barriers in their organizations but with drivers that can be invoked to raise this low adoption level. The study concludes that only a small portion of contractors have adopted the e-procurement due to a number of barriers in their organizations but with a number of drivers that can be invoked to raise this low adoption level. The study recommends that workshops should be held to expose contractors on the strategic importance of e-procurement in the performance of road construction projects which would determine the levels of project success. The study further recommends that since technological and budgetary costs have been identified as some of the barriers in implementation of e-procurement, contractors should develop capital reserves that would help in catering for new developments and innovation in the company like acquisition of e-procurement software. Finally, e-procurement solution providers need to address the above common barriers and find solutions how companies could avoid them. The findings provide practical and useful information for road contractors, Infrastructure Ministry, KeRRA and Government of Kenya for policy formulation, management and regulations.

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LIST OF ABBREVIATIONS AND ACRONYMS

B2B:	Business to Business
CIPS:	Chartered Institute of Purchasing & Supplies
CVI:	Content validity index
EDI:	Electronic Data Interchange
ERP:	Enterprise Resource Planning
GER:	Gross Enrolment Rate
ICT:	Information Communication Technology
IFMIS:	Integrated Financial Management System
KeNHA:	Kenya National Highway Authority
KeRRA:	Kenya Rural Roads Authority
KURA:	Kenya Urban Roads Authority
PWC:	Price Water Coopers
RFI:	Request for Information

DEFINITION OF KEY TERMS USED IN THE STUDY

Contractors: The term applies to all third party participants other than staff in road works by providing services, equipment and goods or consumables.

E-Procurement: The term e-procurement results from the electronic support of procurement activities between purchaser and a supplier through information and communication technologies

E-Procurement system: Is the electronic procurement systems in essence reflect the procurement process through the provision of two distinct, but connected, infrastructures – internal processing (via, for example, corporate intranet) and external communication with the supply base (via, for example, Internet-based platforms).

E-Procurement process: Is atypical e-procurement workflow involves which includes the following steps: Requisitioning; Order Submission; Order Tracking; Receipt Processing; Payment Processing; and ERP update

E-Procurement application: This defines e-procurement applications as follows:

(a) **E-sourcing:** Finding potential new suppliers using the Internet in general or a B2B marketplace for information gathering;

(b) **E-tendering:** Process of sending request for information (RFI), request for price (RFP), etc to Suppliers and receiving the responses using Internet technology and occurs takes place in the supplier contact step of the procurement process;

(c) **E-informing:** Handling information about the supplier regarding quality certification, financial status or other unique capabilities;

(d) **E-reverse auctions:** Buying goods and services that have the lowest price or combination of lowest price and other conditions via Internet technology.

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CHAPTER ONE

INTRODUCTION

This section presents the background to the study and builds a case for the research problem. It begins by reviewing the concepts of e-procurement vis-à-vis road construction in Kenya. This section also entails the background to the study, statement of the problem, objectives, scope of the study, justification and significance of the study and the organization of the research.

1.1. Background of the Study

Procurement is the term most commonly employed to refer to the purchasing of goods and services for the day-to-day operation of a business (CIPS, 2013). The process undertaken before the emergence of e-procurement was manual, involving a lot of paper work and prone to corrupt tendencies and time consuming. These inefficiencies led to adoption of e-procurement, where electronic communications are used to support all forms of transactions that facilitate the procurement process. E-Procurement refers to the use of Internet-based (integrated) information and communication technologies to carry out individual or all stages of the procurement process including search, sourcing, negotiation, ordering, receipt, and post-purchase review (Croom & Brandon-Jones, 2004). There are two types of e-procurement systems; extranets and electronic markets. Extranets connect the buyer and its suppliers with a closed network while electronic markets create open networks for buyer and supplier interactions. The differences between these two types of e-procurement channels lie in system implementation costs, marketplace benefits and the extent of supplier competitive advantage that develops due to information sharing (Khanapuri, 2011).

Turk (2011) quoted Glover report (2008) that by 2010 all public sector organizations should adopt e-procurement but the finding was that this was not met. Noor, Wario and Iravo (2013) on factors affecting implementation of e-procurement practices in public services in Kenya presented lessons learnt when implementing e-procurement in public sector while this study endeavors to investigate the adoption. The Noor, Wario and Ivaro (2013) report had variables that included impact on cost, impact on governance, broader information technological infrastructure but left out levels, drivers and barriers in adoption of e-procurement. Another

report by Karani, Waiganjo, Chepngetich (2015) on factors affecting performance of e-procurement system in the energy sector in Kenya had objectives that include establishing the influence of user training and uptake on performance, examine the influence of top management on performance, establish the buyer/supplier integration and determine the influence of the stakeholder interest on performance of e-procurement but failed to report on levels, drivers and barriers in adoption of e-procurement.

According to a study done in Switzerland by Eyholzleer and Hunziker (2000), e-procurement often get to a slow start. The study found out that only 18% of the Swiss companies were using e-procurement in terms of electronic product catalogs, auctions or requests for quotations. They also revealed that many companies were planning to implement e-procurement systems at that time. This was supported by Wyld (2004) who said that by then almost half of all American companies were using e-procurement systems. Although the adoption of e-procurement has rapidly increased in recent years, companies still face different challenges associated with the advent and use of e-procurement (Wyld, 2004). The analysis by (Wyld, 2004) shows that in the US only 30% of the companies surveyed use e-procurement systems for requests for quotations, online auctions 25% and for e-Markets 33 per cent. From (Wyld 2004) there is low adoption of e-procurement in US and Switzerland. However, if compared with Kenya more so KeRRABusia despite a short period of adoption; there is laxity in visiting websites and responding to email correspondences. All the researches available by Noor *et al.* (2013) and Karani *et al.* (2015) give no information on the level of e-procurement adoption by road contractors in KeRRABusia leading to lack of knowledge.

According to Smart (2010) drivers for e-procurement that include: optimize strategic sourcing policy, support spend savings targets, establish common processes, standard platform for managing procurement spend, knowledge sharing between business units, moving procurement managers from transactional to strategic activities. Kalakota and Robinson (2000) identified cost saving, improved efficiency, measurement and single data entry as drivers of e-procurement. According to Birks (2001), the level and efficiency of communication to users' drives the success of e-procurement. Records on IFMIS driving procuring entities in the public sector as a directive from the government to adopt e-procurement are available; however, all these do not

give evidence of drivers to adoption of e-procurement practices by road contractors in KeRRA Busia given that they are independent suppliers of services to the government agency.

Several researchers have investigated barriers to e-procurement, Smart (2010), looked at barriers relating to adjusting to e-procurement platform while PWC (2002) concentrated on infrastructural and legal frameworks for institutionalizing e-procurement in Kenya. Shaw (2004) pointed out that technical and attitudinal issues or barriers are important. Others like Wyld (2004), Byline (2008), Aberdeen (2009) and Giunipero & Sawchuk (2009) agreed that top management commitment, cost implications and enabling environment are critical barriers to e-procurement. These past studies did not relate to government procurement activities and more so the third party suppliers' barriers to e-procurement as a result of government directive in dealing with her agencies. Therefore, the information on what barriers might hinder third party contractors from adopting e-procurement practices in relation to a government agency is lacking.

1.2 Statement of the Problem

E-procurement systems are meant to reduce transaction costs by automating processes replacing human labor with information technology and even bring about transparency. The launch of Integrated Financial Management System (IFMIS) was to help facilitate e-governance including e-procurement. During the fact finding mission, contractors and other suppliers of Kenya Rural Roads Authority (KeRRA) Busia do not respond to communications made online. Research has been done on; factors affecting performance of e-procurement systems in KenGen, and also factors affecting implementation of e-procurement practices in Ministry of Finance and Strategy for the implementation and adoption of e-procurement which do not give any information on assessment of adoption of e-procurement by road contractors in Busia. The level of e-procurement adoption is not known, apart from IFMIS driving procuring entities to adopt e-procurement, there is no evidence of research on drivers to adoption. Basing on the available records there is no research existing to reveal barriers to adoption of e-procurement practices by road contractors in KeRRABusia and this led to the researcher to first determine the level of adoption then establish the drivers of adoption and finally examine the barriers to adoption of e-procurement by road contractors in KeRRABusia. This helped the researcher aim at assessing road contractors' adoption of E-Procurement in KeRRABusia Region.

1.3. Objectives of the Study

To assess road contractors' adoption of E-Procurement practices in Kenya Rural Roads Authority (KeRRA). This research study was anchored on the following specific objectives:

- i. To determine the level of road contractors' adoption of e-procurement practices in KeRRA.
- ii. To establish the drivers of road contractors' to adoption of e-procurement practices in KeRRA.
- iii. To examine the barriers of road contractors' to adoption of e-procurement practices in KeRRA.

1.4 Research Questions

The following research questions guided the study:

- i. To what extent has e-procurement practices been adopted by road contractors in KeRRA.
- ii. What are the drivers to adoption of e-procurement practices by road contractors in KeRRA.
- iii. What are the barriers to adoption of e-procurement practices by road contractors in KeRRA.

1.5 Scope of the Study

The study concentrated on assessing the adoption of e-procurement practices by road contractors in KeRRA Busia Region. It will be restricted to KeRRA Busia Region due to its vantage position in developing the country's economy. It was confined only to the road construction contractors who are based at the Busia County and particularly for the KeRRA projects. The time scope of the study span from 2015 to 2016.

1.6 Justification of the Study

Following the results gotten during fact finding, KeRRA Busia Region contractors have a higher tendency of not using e-procurement as compared to those from other regions, in adoption of e-procurement in KeRRA Busia. This investigative study will assist in planning and deciding

appropriate e-procurement strategies by KeRRA Busia when dealing with road contractors. This will lead to a competitive road construction industry. The findings of this study will be significant to Busia contractors, the Government of Kenya, KeRRA, other policy makers and the stakeholders to strongly address the issues slowing down the adoption of e-procurement in KeRRA Busia. It is expected that when recommendations are implemented there will be an improvement in adoption of e-procurement by road contractors in KeRRA Busia.

1.7 Theoretical Framework

Croom (2005, 55) defines e-business as “the use of systems and open communication channels for information exchange, commercial transactions and knowledge sharing between organizations”. E-procurement is a specific area of e-business that covers both internal processes as well as B2B processes (Versendaal & Brinkkemper, 2003). E-procurement allows companies to leverage Internet technology in the purchasing process. According to Davila, Gupta and Palmer (2003) any technology designed to facilitate the acquisition of goods over the Internet can be defined as e-procurement. Croom and Johnston (2003) recognize that procurement is a vital activity in all organizations whether public, private or governmental. Procurement managers globally are using e-procurement solutions to lower the high costs by automating supply chains (Attaran & Attaran, 2002; Trkman & McCormack, 2010). The critical difference of e-procurement compared to traditional procurement is that it allows individual employees to order goods and services directly from their own PCs through the web (Croom & Johnston, 2003).

De Boer et al. (2002) divide e-procurement into six forms: e-MRO, web-based ERP, e-sourcing, e-tendering, e-reverse auctioning, e-informing. The researcher considers a cross section of all listed forms but with more attention to e-MRO solutions, which refers to the process of creating and approving purchasing requisitions, placing purchase orders and receiving goods and services by using a software system based on the Internet technology (de Boer et al., 2002). Such solutions can be an existing function within systems such as IFMIS, or totally independent solutions integrated into ERP applications (Smart 2010). The solution enables employees to purchase goods from preferred supplier catalogs, while capturing the spend data in the process. When the purchase has been made the solution automatically routes the employees’ selection of a good through the necessary approval processes and protocols (Davila *et al.*, 2003). The

solution being connected to other information systems, such as ERP & order fulfillment system allows companies to leverage critical data present on these systems. Due to the varying characteristics of purchasing indirect materials, buyers often have to spend a lot of time dealing with individual transactions as a huge operational workload. E-procurement systems have the power to transform the purchasing process because it has an effect on all of the steps identified thus effectiveness and efficiency (Presutti, 2002; Puschmann & Alt, 2005). Implementing an e-procurement solution is not as simple as many businesses think (Croom & Brandon-Jones, 2005; Angels & Nath, 2007; Smart, 2010). According to Yu and Lin (2008), companies implementing e-procurement need to clearly understand the purpose of launching such a system.

According to Aberdeen (2009), Wyld (2004), Giunipero and Sawchuk (2009), infrastructural cost barriers to e-Procurement adoption are resource based thus the need to reconsider effective investment and re-allocation of resources for the success of e-procurement. The resource based theory thus holds that organization resources that are valuable, rare, and hard to substitute are the basis for competitive advantage (Melville, Kraemer & Gurbaxani, 2004). Using Resource Based Theory, Byline (2008) named Lack of appropriate offerings; and Lack of technical knowledge as the major barriers to adoption of e-procurement. Aberdeen (2009), however, identified infrastructural cost barriers to e-Procurement adoption and success. Wyld (2004) includes: Inadequate Technological Infrastructure; Lack of Skilled Personnel; Lack of Integration with Business Partners; and Implementation Costs. Giunipero and Sawchuk (2009) on the other hand also established that significant challenges to successful e-procurement implementation includes Supplier Capacity, User adoption, Budget and policy support and Information Communication Technology (ICT) support. All these factors are resource based and every organization thus needs to reconsider effective investment and re-allocation of resources for the success of e-procurement. This theory guided the study in considering how much resource to be invested in order to attain ascertain level of adoption; what are the resource drivers/barriers to the adoption of e-procurement practices; and what resources will aid in establishing the adoption of e-procurement in KeRRA Busia.

CHAPTER TWO

LITERATURE REVIEW

This section is a review of the existing empirical literature related to the assessment of road contractors' adoption of e-procurement in Kenya. It brings out an appreciation of what has been done on the variables under study and also the gaps that were identified in the existing body of literature that made the focus of this study.

2.1 Theoretical Literature Review

This study was anchored on two theories viz: Resource Based Theory and Legitimacy Theory.

2.1.1 Resource Based Theory

The resource based view holds that organization resources that are valuable, rare, and hard to substitute are the basis for competitive advantage (Melville, Kraemer & Gurbaxani, 2004). A firm's resources have been defined as all assets, capabilities, organizational processes, firm attributes, information and knowledge owned by an enterprise that enable the firm to conceive and implement strategies with the goal to improve its efficiency and effectiveness (Barney, 1991). Prahalad & Hamel (1994) popularized the approach using the concept of core competences. While competencies express what a firm is able to do well (Prahalad & Hamel, 1990), core competencies encompass what the firm is able to do better than others (Lawson & Lorenz, 1999). In the resource based view, the allocation of resources to non-core activities leads to opportunity costs. This is particularly important in e-Procurement in the public sector. The e-procurement is not core competence for the organization but an agenda of the government. Comparing Kenya with what levels other Countries like US and Switzerland have according to the researcher there is also a timeline that is required for some level to be attained since this cannot be achieved within a fortnight. There is compelling evidence suggesting that acquisition of E-Procurement infrastructure requires a heavy initial capital investment (Brammer & Walker, 2011). Availability of other alternatives of procurement other than e-procurement and also no strict penalties have been handed to non-compliant contractors hence driven this kind of practice to have a slow start. If such resource like availing hard copies of tender documents and communication of award process was not encouraged then e-procurement might have been embraced.

In view of the complex competing public expenditure needs relative to the scarce resources, chances are that resources allocation will affect adoption of E-Procurement. Using Resource Based Theory, Byline (2008) named Lack of appropriate offerings; and Lack of technical knowledge as the major barriers to adoption of e-procurement. Aberdeen (2009), however, identified infrastructural cost barriers to e-Procurement adoption and success. Wyld (2004) includes: Inadequate Technological Infrastructure; Lack of Skilled Personnel; Lack of Integration with Business Partners; and Implementation Costs. Giunipero and Sawchuk (2009) on the other hand also established that significant challenges to successful e-procurement implementation includes Supplier Capacity, User adoption, Budget and policy support and Information Communication Technology (ICT) support. All these factors are resource based and every organization thus needs to reconsider effective investment and re-allocation of resources for the success of e-procurement. This theory guided the study in considering how much resource to be invested in order to attain ascertain level of adoption, or what are the resource drivers in adoption or what resources are barriers to the adoption of e-procurement practices and aid in establishing the adoption of e-procurement by road contractors' in KeRRA Busia.

2.1.2 Legitimacy Theory

Legitimacy implies the existence of a social contract between an organization and its constituents/ stakeholders (Scott, 2004). Though scholars define it with varying degree of specificity, one of the broadly adopted definitions of legitimacy is that it is a general perception or assumption that the actions of an entity are appropriate within some socially constructed system of norms, values, beliefs, and definitions (Scott, 2004). Given its unique ability to connect organizational actions to stakeholder expectations, there is a widespread support for the notion that legitimate behavior can lead to superior rewards and benefits. Legitimacy of organizations has historically been approached from two opposing theoretical perspectives – institutional and strategic. From the institutional perspective, legitimization is envisioned as a process of institutionalization, whereby external norms and beliefs are adopted without much thought. On this case, the government of Kenya has put regulations requiring all public procurement entities to adopt an e-procurement system envisaged in the Integrated Financial Management Software (IFMIS software). This is the theoretical framework wing of Legitimacy Theory upon which this study is anchored. On the other hand, the strategic theoretical perspective envisions legitimacy as instrumental, proactive, and more importantly, a deliberate

pursuit that can ultimately enhance external beliefs, thereby creating newer and enhanced levels of legitimacy.

Given its ability to explain organizational initiatives that do not follow the norms of profit-maximization, the legitimacy-based view provides a sound theoretical basis for explaining legislative, social and environmentally-oriented initiatives. Studies relying on the institutional theory suggest that pressures from a firm's institutional fields will drive it to seek legitimacy in the eyes of its stakeholders. In the words of Oliver (2005), a firm's response to external institutional pressure "emphasizes the importance of obtaining legitimacy for purposes of demonstrating its social worthiness". At the same time, given that institutionalization highlights "organizational skepticism" when legitimate-seeking behaviors' conflict with other firm objectives such as profit maximization, institutional theory also signals that firms might pursue only basic environmental initiatives that could sufficiently satisfy stakeholder needs.

Following these ideologies within the institutional view of legitimacy, Oliver (2005) identified regulatory compliance, competitive advantage, and social concerns as key proponents of corporate environmental initiatives. More importantly, organization theorists contend that the visibility of an organization can invite increased institutional pressure to pursue environmentally sound practices. Organizational visibility suggests that an organization is publicly recognized, and hence more closely scrutinized by external stakeholders – customers, media, environmentalists, as well as government agencies when it comes to regulatory and environmental issues. Accordingly, visible organizations will have to consciously respond to stakeholder demand to maintain their reputation and legitimacy (Scott, 2004). Public procurement entities, such as counties, KeRRA, KURA KeNHA, must conform to this legitimacy theoretical framework in adopting e-procurement in Kenya. Considering the legal framework requiring all state organs to adopt IFMIS/e-procurement, this theory guided the study in considering what legal framework to be laid down and followed in order to attain ascertain level of adoption, or what are the legal drivers in adoption or what legal grounds are barriers to the adoption of e-procurement practices and aid in establishing the adoption of e-procurement by road contractors' in KeRRA Busia.

2.2 Empirical Literature Review

2.2.1 Adoption Levels of E-Procurement Practices by Road Contractors in KeRRA Busia

Wyld (2004) argues that in the US only 30 per cent of the companies use e-procurement. The other 70% do not. A study by Eyholzer and Hunziker (2009), only 18% of the Swiss companies analyzed used electronic product catalogs, auctions or requests for quotations in procurement in the year 2009. According to this study, however, many companies were planning to implement e-procurement systems at that time. According to Birks (2001), the success of e-procurement depends on the level and efficiency of communication to the users. Greunen, Herselman, and Niekerk (2010) also carried out a study on the adoption of regulation-based e-procurement in the Eastern Cape provincial administration. The study found that measurable benefits of supply chain management have not yet been realized due to general limited understanding of how supply chain management concept works within government environment.

According to Mose (2013), there are some organizations in Kenya that have successfully embraced the use of e-procurement technology. For instance Nation Media group through their digital platform commonly known as N-Soko enables their clients to purchase products online (Gitahi, 2011). Awino (2011) conducted an investigation of selected strategy variables on firm's performance. The study focused on supply chain management in large private manufacturing firms in Kenya. The study by Eyholzer and Hunziker (2009) had their focus on the government procuring entities as their respondents while this study lays focus on the contractors as the respondents. A look at the contractors themselves as respondents would have been much more realistic and first hand in such investigation; therefore, the researcher intends to use contractors as respondents in order to get firsthand information. Noor *et al.*, (2013) did factors affecting implementation and only gave lessons which did not show the levels of adoption. Then Karani *et al.* (2015) did factors affecting performance of e-procurement hence no levels of adoption were reported. The other studies Mose (2013), Gitahi, (2011), and Awino (2011) had their focus on the private sector firms as the procuring entities which are not really bound by the legitimacy framework required by the government and they are not trading with the government procuring entities yet this study is focused on the government entity. So far, two researchers have given quantitative levels for other areas while the other four did not and in this case the researcher aims

at establishing these levels specifically for KeRRA Busia. Given low adoption of e-procurement in US and Switzerland which compares with Kenya despite a short period of adoption, generally there is laxity in visiting websites and responding to email correspondences. Since the level of e-procurement adoption in KeRRA Busia is not known, the researcher thus comes in to investigate it.

2.2.2 Drivers to Adoption of E-Procurement Practices road contractors in KeRRA Busia

Kalakota and Robinson (2000), in their study on the drivers of e-procurement practices identified cost saving, improved efficiency, measurement and single data entry as the drivers of e-procurement; consequently, these are the three catalysts driving growth in the e-procurement area. According to Birks (2001), the success of e-procurement depends on the level and efficiency of communication to the users. The organization adopting an e-procurement system must be able to communicate this information to the users. Distorted communication of information may lead to failure of the system. Kenya information communication infrastructure has been well developed but still e-procurement lags behind in the road construction industry.

Vaidya, Sajeev and Callender (2006) conducted a study on the critical factors that influence e-procurement adoption success in the public sector. The study concluded that if e-Procurement initiatives in the public sector are to assist the development of e-Procurement across the information economy, there should be wider discussion and agreement on what constitutes the relevant critical success factors and how the achievement of success can be assessed. Batenburg (2007) carried a study on e-procurement adoption by European firms. It was established that there are indeed country differences with respect to e-procurement adoption, and that firms from countries with a low uncertainty avoidance such as Germany and the UK are the early adopters of e-procurement, while countries that are less reluctant to change such as Spain and France have lower adoption rates.

Kalakota and Robinson (2000), Birks (2001), Vaidya, Sajeev and Callender (2006) and Batenburg (2007) studies on e-procurement adoption compare well with this study in targeting the public procuring entities. However, the global scope employed by Batenburg (2007) was too large and might have reduced the effectiveness of the research. Kalakota and Robinson (2000), Birks (2001), and Vaidya, Sajeev and Callender (2006) had reasonably manageable scopes just

as this study and the results may be comparable. Additionally, records on IFMIS driving procuring entities in the public sector as a directive from the government to adopt e-procurement are available; however, there is no evidence of research on drivers to adoption of e-procurement practices by road contractors in KeRRABusia therefore the researcher intended to establish drivers to adoption of e-procurement practices by road contractors in KeRRABusia.

2.2.3 Barriers to Adoption of E-Procurement Practices by road contractors in KeRRA Busia

According to Wyld (2004), despite the overwhelming evidence which shows the advantages of e-procurement systems, most firms face proprietary systems challenges such as electronic data interchange (EDI) which continue to persist and have to be included in a company's overall e-procurement infrastructure. The information infrastructure in Kenya is slowly picking up and may be giving road construction contractors a challenge too. According to Vanjoki (2010), in his study on the problems related to the adoption of e-procurement for indirect purchases, five problem factors related to e-procurement adoption were identified. They are: standardization issues and lack of flexibility; scarcity of resources; low transaction volumes; integration issues (immaturity of suppliers and immaturity of software vendors) and suppliers' own portals.

Giunipero and Sawchuk (2000), in their study on the barriers to adoption of e-procurement, asserted that though much progress has been made, significant barriers to successful e-procurement adoption remain in the context of Supplier Capacity, User adoption, Budget and policy support and Information Communication Technology (ICT) support. Similar factors may or may not be applicable in the road construction industry in Kenya. Khanapuri, Nayak, Sharma and Soni (2011) assert that there are a number of requirements relating to the adoption of e-procurement system. They include technology, objectives, information, staffing and skills. These requirements make the adoption process to face a number of barriers such as compatibility, integration, adoption and regular use by employees and lack of capacity by small suppliers. The situation in Kenya and especially road construction may be different or not.

Both studies by Wyld (2004) and Giunipero and Sawchuk (2000), compare well with this study in invoking the use of questionnaires and document guides. The data in both cases were analyzed using inferential statistics. However, their sample sizes were less than 100 which could have had

access to limited respondents. This study will employ similar data collection instruments but with a larger sample size of 323. This is likely to give a wide base of respondents thus would reduce error chances in making conclusions. Vanjoki (2010) in a different approach used focus group discussion only which was also limiting and content analysis in stationary supplies. However, the researcher will use questionnaires then analyze using descriptive statistics as well as content analysis to establish the barriers to adoption of E-Procurement Practices by road contractors in KeRRABusia. Basing on the available records from the sited researchers and writers, there is no research existing to reveal barriers to adoption of e-procurement practices by road contractors in KeRRABusia and that is why the researcher had to examine the barriers to adoption of e-procurement by road contractors in KeRRABusia.

Byline (2008), Shaw (2004) and PWC (2002) analyzed the barriers to adoption of e-procurement. However, PWC (2002) concentrated on infrastructural and legal frameworks for institutionalizing e-procurement in Kenya's public sector. Lack of legal framework, lack of technical expertise, lack of e-Procurement knowledge besides security concerns and lack of faith in trading partners were found to be significant factors holding back e-procurement. Shaw (2004) focused on the IT B2B relationship in adopting e-procurement. The findings barricading e-procurement were that the systems used were not addressing non-production related procurement; difficulty of integrating procurement systems with the existing IT infrastructure; unwillingness to incur training and other costs; indifference to the problem on the part of the IT department; negative attitudes to procurement among senior managers; and the view that automating procurement would prove more difficult than automating many other business processes. Byline (2008) focused on the private construction industry in which operational management culture; supply-base culture; senior management culture; lack of appropriate offerings; and lack of technical knowledge proved to be the barriers to e-procurement adoption. Byline (2008) and Shaw (2004) thus focused on the private sector while PWC (2002) focused on the public sector. This study needed guidance of all the findings from Byline (2008), Shaw (2004) and PWC (2002) since its focus is on both the private sector and the public sector.

2.3 Summary and Research Gaps

The literature review reveals that past research has focused on factors that influence the success of e-procurement adoption among manufacturing firms especially in developing countries besides public procuring entities. The studies reveal that most developing countries lag behind in terms of technology and infrastructural resources that would support e-procurement. Contractors and other suppliers are very reluctant to adopt e-procurement and when requested to get bid documents, respond to the quotations, get more information from the e-procurement domains, they get reluctant to compete as compared to when there is an alternative of picking hard copies from the office. They also hardly visit their e-mails for any e-procurement communication and if any most are wrong addresses which are in existence. In addition to that, any outcome of a process like tender award is communicated through their email addresses making it difficult to adopt e-procurement. It will be prudent to address the factors that influence e-procurement among public entities in developing countries such as KeRRA Busia in Kenya. So far, methodological differences in past research are evidenced which would bring various findings; implementing e-procurement is also a very expensive undertaking and requires heavy investments by organizations. E-procurement related equipment in the road construction industry is expensive to automate thus making it difficult for adoption of e-procurement.

CHAPTER THREE

RESEARCH METHODOLOGY

This section describes the methodology that was used in the study. It entails the research design, area of study, target population, sample frame, procedures and instruments for data collection, the reliability and validity of data collection instruments as well as the data analysis.

3.1 Research Design

The study was conducted using the descriptive survey research design which according to Kothari (2004) is a scientific method that involves collecting data in order to answer questions on current status of subjects of the study. It is important because it acts as a precursor to quantitative research design and the general overview gives some valuable pointers as to what variables are worth testing quantitatively (Kothari, 2004). It involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection. The choice of this design was appropriate for this study since it was restricted to fact finding and is relatively easy to carry out within limited time but also looks at section of the study population whose results can be generalized to the entire population (Kothari, 2008). Mose (2015) successfully employed a descriptive survey in his study of the critical success factors and challenges in e-procurement adoption among large scale manufacturing firms in Nairobi.

3.2 Study Area

The research was carried out in Busia Region as per the attached map for KeRRA (2016) boundaries of road networks. Busia is a county in the former Western Province of Kenya. It borders Kakamega County to the east, Bungoma County to the north, Lake Victoria and Siaya County to the south and Busia District as well as Uganda to the west. Busia is placed at the following coordinates: 00°27'11"N 34°07'30"E / 0.45306°N 34.12500°E / 0.45306; 34.12500. The regions elevation is 3,900 ft (1,200 m). Its total population is 51,981 as per the Kenya National Population Census (2009). Busia has a total area of 1,628.4 km². Busia Region consists of seven constituencies: Funyula, Matayos, Budalangi, Nambale, Teso North, Teso South and

Butula Constituencies. This region was chosen due to its challenges on the e-procurement after fact finding mission done by the researcher. As compared to other areas in the country, Busia contractors were found to have a higher tendency of not embracing e-procurement than others.

3.3 Target Population

The target population comprising of 1667 road construction contractors from Busia Region will be used. The target population covers a cross section of contractors from all the constituencies in Busia Region. These are drawn from Funyula, Matayos, Budalangi, Nambale, Teso North, Teso South and Butula Constituencies as indicated in Table 3.1.

Table 3.1 – Target Population

Constituency	Population
Funyula	277
Matayos	293
Budalangi	231
Nambale	260
Teso South	221
Teso North	192
Butula	193
Total	1667

Source: KeRRABusia (2015) Prequalification Data

3.4 Sample Size

The study employed stratified random sampling. Proportionate sampling was used to determine the sample size from within each stratum. Yamane, (1967) formula was employed in determining the sample size.

According to Yamane (1967):
$$n = \frac{N}{[1 + (N(e^2))]} \dots\dots\dots 3.1$$

Where n = is the sample size
 N = is the population

e = is the error limit (0.05 on the basis of 95% confidence level)

Therefore,

$$n = 1667 / [1 + 1667 (0.05)^2]$$

$$n = 1667/5.1675 = 322.6$$

$$n = 323$$

From the above calculation, a sample size of 323 respondents was appropriate and within an error limit of 5%.

Table 3.2 – Sample Frame

Constituency	Population	Sample Size $n = \frac{X}{1667} \times 323$
Funyula	277	54
Matayos	293	57
Budalangi	231	45
Nambale	260	50
Teso South	221	43
Teso North	192	37
Butula	193	37
Total	1667	323

Source: KeRRA Busia (2015) Prequalification Data

3.5 Data Collection Methods

There are two types of data collection methods which include monitoring or observation and also communication or interrogation. The second type was applied since there was need to get a feedback from the subject and in this case contractor. The study used structured questionnaires and documentary review as data collection instruments among the 323 respondents. The study opted for this method of data collection because the questionnaires are relatively quick with responses being gathered in a standardized way and are more objective compared to other tools of data collection.

3.5.1 Data Type and Sources

Primary data was collected using the questionnaires from the study respondents who are the road contractors. Secondary data from KeRRA reports was used, in addition, to complement the primary data sources. Additional secondary data was obtained from Public Procurement Oversight Authority (PPOA) reports

3.5.2 Data Collection Procedures

The researcher conducted a pilot survey in which 33 out of 323 respondents were used as recommended by Hill (1998) or Isaac and Micheal (1995); these suggested a number to be between 10- 30 per cent of the sample size. Data collection was carried out through self-administered survey questionnaires. Respondents were selected from each of the groups for participation in the survey. Telephone contacts and physical address of respondents were obtained. The questionnaire deliveries were carried out, reminders made and personal collection done by the researcher and two research assistants were conducted. The respondents were asked to fill the questionnaires in between a period of same day to two weeks before being collected.

3.5.3 Data Collection Instruments

Structured questionnaires were used (Appendix II). Structured questionnaires were administered to the respondents because of their advantage of being able to obtain wide responses. A 5-points Likert-scale rating of questionnaire were employed in this study to collect the views of respondents. This enabled the researcher to ask respondents on how strongly they agree or disagree with a statement or series of statements. The other advantage of the Likert-style rating questionnaire is that it enables numerical value to be assigned to cases for easy quantitative analysis (Amin, 2005).

3.5.4 Reliability Tests

This is the level of internal consistency over time (Mugenda and Mugenda, 2003). A reliable instrument constantly produces expected results when used more than once to collect data from two samples drawn from same population (Kothari, 2004). Reliability was determined by the correlation of the scores from the independent raters. The overall alpha for all the items under

investigation had a Cronbach's alpha of 0.830 which was above the benchmark Cronbach's alpha of 0.7(Amin, 2005).

3.5.6 Validity Tests

Validity is the degree to which results obtained from the analysis of the data actually represents the phenomena under study (Kothari, 2004). The validity of the questionnaires was tested using expert judgment and computed content validity index (CVI) method. To enhance validity of the study instruments, peer reviews were employed and also the researcher consulted the supervisors to help make the value contents of the study instruments and make modifications where necessary. The computed CVI of the instrument was 0.910 which was above the minimum CVI ($CVI \geq 0.7$) recommended in the survey studies (Amin, 2005).

3.6 Data Analysis

The data collected using questionnaires were analyzed in order to ensure logical completeness and consistency of responses. The completed questionnaires were checked thoroughly by editing, coding, entering in SPSS software version 24 to aid the analysis, then presented in comprehensive tables which showed the responses of each category of variables quantitatively using descriptive statistics such as frequencies, percentages, means and standard deviations to present information pertaining the study objectives. Computation of frequencies in tables, charts and bar graphs were used in data presentation.

CHAPTER FOUR
RESULTS AND DISCUSSIONS

Chapter four presents the results and discussion of the study. The background information is first presented followed by results for each objective. As objective results are presented, they are interpreted and fully discussed.

4.1 Response Rate of the Study

Table 4.1: Response Rate of the Study

The response rate of the study is indicated in Table 4.1 below.

Results	Frequency	Percentage (%)
Respondents	312	97
Non Respondents	11	03
Total	323	100

Source: Survey Data (2016)

The questionnaires were distributed to 323 randomly selected respondents and 312 were completed and returned, giving a response rate of 97%. This compares with Ade (2013) in which 30 selected respondents were contacted and the response was 29 which translates to 96.59% response rate. The collection procedures entailed personal administration, follow up after distribution of questionnaires through mobile phone calls for confirmation date when they would be ready for collection and personal collection whenever possible. The response rate was found to be sufficiently adequate for analysis and discussions of the study findings when compared to other results in the construction industry by Aftab (2010) which was 71% and Abdullah (2011) which was 82% and Haseeb (2011). The unreturned questionnaires (3%) could

be attributed to delay on the part of the respondent completing and hence being unable to return by collection date.

4.2 Background of Respondents

The demographic characteristics of the respondents were analyzed in terms of gender, highest educational level, age and level of experience as shown below.

4.2.1 Gender Profile of Respondents

The respondents indicated their gender profile in terms of either male or female in order to determine the nature of gender relations in the construction industry. Table 4.2 illustrates gender profile of the sample.

Table 4.2: Gender of Respondents

Gender	Frequency	Percentage (%)
Male	262	84
Female	50	16
Total	312	100

Source: Survey Data (2016)

The study found that 262 (83.97 %) respondents were males and 50 (16%) were females. The results indicate the construction industry is dominated by the male gender who account for the overwhelming majority of the respondents. The study results compare well and are consistent with the study of Zaherawati (2010) in which all the respondents were of the male gender i.e. 100% confirming that the construction industry is male dominated.

4.2.2 Age of respondents

The respondents stated their age brackets as requested in the questionnaire and the results were as shown in table 4.3 below.

Table 4.3: Age of respondents

Ages	Frequency	Percentage (%)
21-30 yrs	0	0
31-40 yrs	57	18
41-50 yrs	162	52
51 & Above yrs	93	30
Total	312	100

Source: Survey Data (2016)

Majority of the respondents 57 (52%) fall within 40 to 49 years of age. This was followed by 93 (30%) in the age group of 51 and above years. There were 57 (18%) respondents in the age of 31 to 40 years. A cumulative 80% of the respondents were within 31 – 50 years. Ameh (2011) study made nearly similar observations whereby 91% of the respondents were within 30 - 49 years of age.

4.2.3 Highest Education Level

The respondents were requested to state the highest level of achievement for academic qualifications. Table 4.4 illustrates the levels of qualification for the entire sample.

Table 4.4: Highest Education Level

Education level	Frequency	Percentage (%)
Diploma	163	52
Undergraduate	119	38
Post-Graduate	30	10
Total	312	100

Source: Survey Data (2016)

The respondents were largely diploma holders as well as undergraduate degree holders. More than half 163 (52%) of the respondents had diploma qualification, 119 (38%) respondents had

undergraduate degree and 30 (10%) respondents had a post graduate degree qualification. This is inconsistent to a study by Ameh (2011) who observed that 67 % of the respondents had a first degree or its equivalent. A study by Ade (2013), however, observed that all the respondents in the construction industry had obtained a minimum of diploma qualification and above i.e. 100%. This shows that the respondents were qualified, capable and reliable to explore the underpinning issues related to the study

4.2.4 Experience Levels

The respondents stated their work experience levels as requested in the questionnaire and the results were as shown in table 4.5.

Table 4.5: Experience Levels

Ages	Frequency	Percentage (%)
1-3 yrs	47	15
3-5 yrs	66	21
6-9 yrs	147	47
10 & Above yrs	99	32
Total	312	100

Source: Survey Data (2016)

Table 4.5 summarizes the distribution of respondents by experience. The majority (47%) of the respondents had between 6-9 years' experience compared to 21% who had between 3-5 years' experience and 15% of the respondents were having 1-3 years' experience while those with more than 10 years' experience being 31%. This preliminary indication suggests that the many contractors' staffs have 6-9 years' experience, followed by those with 3-5 years' experience but there were few staff with 1-3 years' experience as well as those with over 10 years in the study area. This showed that all the respondents were experienced enough to make informed choices regarding e-procurement adoption in the road construction industry. However, majority of the respondents being between 6-9 years experience, the low level of e-procurement adoption could

be attributed to slow thinking or sticking to old manual procurement practices as opposed to adopting new e-procurement practices. Besides, it is evident that most of the respondents had adequate experience with the operations, procedures and policies of the KeRRA contractors and public procurement and thus the issues of e-procurement that had been introduced in public procurement at various government agencies were not new to them. This facilitated flow of information regarding the study between them and the researcher.

4.3 Descriptive Statistics for E-Procurement Adoption

4.3.1 Level of E-Procurement Adoption

The data presented here are those collected from the field survey on the Assessment of Road Contractors' adoption of E-Procurement in KeRRA Busia County, Kenya. The data were collected in response to 323 copies of questionnaire distributed to the staff of the contractors out of which 312 copies were fully completed and returned. Respondents were asked to indicate their respective opinion regarding the level of adoption of e-procurement practices in the road construction industry. Descriptive analysis was then done on the responses attributed to the level of adoption of e-procurement practices in the road construction industry in Kenya. The results were then summarized in Table 4.6

Table 4.6 Descriptive statistics for level of E-procurement adoption

No	Statement	F (%) 1	F (%) 2	F (%) 3	F (%) 4	F (%) 5	Total (%)	Mean 62.4	SD
1	We source our potential suppliers and buyers using the Internet in general or a Business to Business(B2B)	30 (9.6)	30 (9.6)	0 (0)	40 (12.8)	212 (68)	312 (100)	4.175	0.475

	marketplace for information gathering								
2	We usually send request for information (RFI), request for price (RFP), etc to suppliers and receive the responses using Internet technology following the procurement process	30 (68)	0 (0)	0 (0)	70 (9.6)	212 (22.4)	312 (100)	4.946	0.395
3	We usually handle information about the supplier/buyer regarding quality certification, financial status or other unique capabilities using internet We source our potential contracts from the market place using the Internet	30 (9.6)	192 (61.5)	0 (0)	90 (28.8)	0 (0)	312 (100)	2.146	0.026
4	We buy goods and services that have the lowest price or combination of lowest price and other conditions via Internet technology	20 (3.2)	0 (0)	10 (6.4)	90 (28.8)	192 (61.5)	312 (100)	4.884	0.057
5	We source our potential contracts from the market place using the Internet	10 (3.2)	20 (6.4)	20 (6.4)	70 (22.4)	192 (61.5)	312 (100)	4.123	0.439
6	We usually participate in KeRRA pre-qualification of suppliers through the Internet	10 (3.2)	20 (6.4)	20 (6.4)	70 (22.4)	192 (61.5)	312 (100)	4.123	0.439
7	We usually respond to KeRRA tender advertisements	10 (3.2)	10 (3.2)	0 (0)	80 (25.6)	212 (68)	312 (100)	4.649	0.017

	through the internet								
	Mean Score	20 (6.40)	37 (11.99)	4 (1.37)	74 (23.77)	176 (56.43)	312 (100)	4.195	0.249

Source: Survey Data (2016)

The respondents were asked to indicate the extent to which they agreed with various factors that contribute to the successful adoption of e-procurement among the road construction contractors in Busia, Kenya using a five point Likert scale of 1= Strongly Agree; 2 = Agree; 3= Undecided; 4= Disagree and 5= Strongly Disagree. For analysis purposes, the five point Likert Scale was reduced to three point scale of 1= Agree (for Strongly Agree and Agree); 2= Undecided and 3 = Disagree (for Disagree and Strongly Disagree). Table 4.6 indicates that only 19.2% of the 312 respondents source their potential suppliers using the Internet in general or using Business to Business marketplace for information gathering. The mean response was 4.175 (SD=0.475) indicating that 80.8% of the respondents disagreed that they sourced their potential suppliers and buyers using the Internet in general or a Business to Business(B2B) marketplace for information. From the 312 respondents, 9.6% of the respondents usually send request for information (RFI), request for price (RFP), etc to suppliers and receive the responses using Internet technology following the procurement process. The mean response was 4.96 (SD=0.395) indicating that the majority (91.4%) disagreed that they usually send request for information (RFI), request for price (RFP), etc to suppliers and receive the responses using Internet technology following the procurement process. 71.1% of the respondents usually handle information about the supplier/buyer regarding quality certification, financial status or other unique capabilities using

Internet. The mean response was 2.146 with a standard deviation of 0.026 indicating that not all respondents agreed with this fact some disagreed with it. 86% of the respondents do buy goods and services that have the lowest price or combination of lowest price and other conditions via Internet technology. The mean response was 4.884 with a standard deviation of 0.057 indicating that not all respondents strongly agreed with this fact majority (95.6%) disagreed with it. Only 9.6% of the respondents do source their potential contracts from the market place using the Internet. The mean response was 4.123 with a standard deviation of 0.439 indicating that not all respondents agreed with this fact majority (91.4%) agreed. Only 6.4% of the respondents usually participate in KeRRA pre-qualification of suppliers through the Internet. The mean response was 4.443 with a standard deviation of 0.334 indicating that not all respondents disagreed with this fact, some (93.6%) disagreed. Only 6.4% of the respondents usually respond to KeRRA tender advertisements through the Internet. The mean response was 4.649 with a standard deviation of 0.017 indicating that not all respondents agreed with this fact, majority (93.6%) agreed with this fact.

From the results, it can be deduced that the respondents in this study had sufficient knowledge of what e-procurement systems are. However the adoption of e-procurement operations by their various contractor organizations was at 18.4% (Mean=4.195, SD=0.249) which was relatively low majority (81.6%) of which have not considered adopting e-procurement practices. This could be attributed to low automation levels among the KeRRA contractors. Usually, the level of automation among key procurement activities will determine the level of adoption of e-procurement system. The findings further indicate all the key e-procurement activities including advertising tenders online, suppliers submission of proposals and tenders online, short-listing of suppliers online, allowing company staff to make requisition online and call for proposals

through company internet were sparsely being adopted by contractors. In a similar study conducted by Moore (2003) found lower e-procurement adoption levels of 37% but with comparable reasons for low e-procurement adoption.

According to Moore (2003) the reasons for the low level of adoption for e-procurement included contractors not appreciating the fact that e-procurement systems would enable the organization to carry out individual or all stages of the procurement process such as searching for suppliers, sourcing, negotiation, ordering and posting of purchase review using Internet-based (integrated) information and communication technologies in an efficient and cost effective. Moore (2003) however added that such low level of e-procurement adoption is as a result of the various challenges/barriers to e-procurement like usage of decades-old equipment and parts whose documentation could be paper-based thus lacking the digital format necessary for e-Procurement systems as was noted by Moore (2003). The findings further simulate Croom and Brandon-Jones (2004) findings of 48% e-procurement adoption level though this was rather higher than this study.

4.3.2 Drivers of E-Procurement Adoption

The data presented here are those collected from the field survey on the Assessment of Road Contractors' adoption of E-Procurement in KeRRA Busia County, Kenya. The data were collected in response to 323 copies of questionnaire distributed to the staff of the contractors out of which 312 copies were fully completed and returned. Respondents were asked to indicate their respective opinion regarding the level of adoption of e-procurement practices in the road construction industry. Descriptive analysis was then done on the responses attributed to the drivers to e-procurement adoption in the road construction industry in Kenya. The results were then summarized in Table 4.7.

Table 4.7 Descriptive Statistics for Drivers to E-Procurement Adoption

No	Statement	F (%) 1	F (%) 2	F (%) 3	F (%) 4	F (%) 5	Total (%)	Mean 62.4	SD
1	There is e-procurement operations instruction from KeRRA	200 (64.1)	52 (16.7)	0 (0)	40 (12.8)	20 (6.4)	312	1.337	0.218
2	Our Manager does not care about e-procurement	70 (22.4)	140 (44.8)	0 (0)	60 (19.23)	42 (13.46)	312 (100)	2.628	0.236
3	We find it easy changing from manual procedures to e-procurement	20 (6.4)	110 (35.26)	20 (6.4)	120 (38.46)	42 (13.46)	312 (100)	137	0.236
4	We desire be in compliance with government rules and regulations on e-procurement	150 (48)	150 (48)	12 (3.8)	0 (0)	0 (0)	312 (100)	1.532	0.038
5	We feel e-procurement will help us in efficient risk management	150 (48)	150 (48)	12 (3.8)	0 (0)	0 (0)	312 (100)	1.532	0.038
6	Our employees are ready to make e-procurement succeed	150 (48)	150 (48)	12 (3.8)	0 (0)	0 (0)	312 (100)	4.526	0.158
7	Our employee training on e-procurement usage has been done	40 (12.8)	40 (12.8)	0 (0)	80 (25.6)	152 (48.7)	312 (100)	4.137	0.236
8	Our employees' willingness to use e-procurement system	0 (0)	150 (48)	0 (0)	22 (7.05)	140 (44.87)	312 (100)	4.214	0.238

9	We have an E-procurement system in place	80 (25.6)	20 (6.4)	0 (0)	60 (19.23)	152 (48.7)	312 (100)	4.121	0.234
10	We will improve our performance by using e-procurement reports	152 (48.7)	94 (30.28)	0 (0)	40 (12.8)	26 (6.4)	312 (100)	2.138	0.024
11	KeRRA has tried to give us reliable and up to date e-procurement the website	140 (44.87)	142 (45.5)	30 (9.6)	0 (0)	0 (0)	312 (100)	1.628	0.301
12	KeRRA has effectively involved suppliers in e-procurement adoption	130 (41.67)	130 (41.67)	32 (10.25)	0 (0)	20 (6.4)	312 (100)	2.137	0.202
13	Our organizational processes are well designed for new processes like e-procurement	72 (23.08)	50 (16.02)	0 (0)	90 (28.85)	100 (32.05)	312 (100)	4.211	0.184
14	We feel it is professional in guidelines observing e-procurement	150 (48.07)	152 (48.7)	0 (0)	60 (3.2)	0 (0)	312 (100)	1.123	0.247
15	It gives us a chance to do Regular e-procurement performance measurement	0 (0)	130 (41.67)	0 (0)	162 (51.9)	20 (6.4)	312 (100)	4.225	0.039
	Mean Score	90 (28.91)	101 (32.25)	8 (2.51)	59 (17.81)	58 (18.32)	312 (100)	2.908	0.175

Source: Survey Data (2016)

There are a number of factors that can determine the successful adoption of e-procurement systems by contractors. These are the most important factors that a firm needs to pay attention to in their efforts of implementing electronic procurement systems and practices aimed at

improving their competitiveness. The respondents were thus asked to indicate the extent to which they agreed with various factors that contribute to the success of e-procurement among the road construction contractors in Busia, Kenya using a 5-point Likert scale of 1= Strongly Agree; 2 = Agree; 3= Undecided; 4= Disagree and 5= Strongly Disagree. For analysis purposes, the five point Likert Scale was reduced to three point scale of 1= Agree (for Strongly Agree and Agree); 2= Undecided and 3 = Disagree (for Disagree and Strongly Disagree).

The findings as depicted in table 4.7 indicates that of the 312 respondents, 80.8% of the respondents agreed that there are e-procurement operations instructions from KeRRA. However, the mean response of 1.337 and a standard deviation of 0.218 so realized indicates that not all the respondents agreed with this fact, some disagreed with it. 67.2% of the 312 respondents agreed that contract managers do not care about e-procurement with a mean response of 2.628. However, a standard deviation of 0.236 indicates that not all the respondents agreed with this fact, some disagreed with it. Only 41.7% found it easy changing from manual procedures to e-procurement with a mean response of 4.137. Considering this fact, a standard deviation of 0.236 indicated that not all the respondents agreed with this fact, majority (58.3%) disagreed with it. 96% desire to be in compliance with government rules and regulations on e-procurement with a mean response of 1.532. A standard deviation of 0.038 indicates that not all the respondents agreed with this fact, some disagreed with it. 96% felt that e-procurement would help them in efficient risk management with a mean response of 1.532. A standard deviation of 0.038 indicates that not all the respondents agreed with this fact, some disagreed with it. None of the respondents agreed that employees are ready to make e-procurement succeed. 25.6% of the respondents agreed that their employee training on e-procurement usage has been done with a mean response of 4.137 and a standard deviation of 0.236 indicates that not all the respondents

agreed with this fact, majority (74.4%) disagreed with it. 48% of the respondents agreed that their employees' are willing to use e-procurement system with a mean response of 4.214 and a standard deviation of 0.238 indicates that not all the respondents agreed with this fact, majority (52%) disagreed with it. 32% had an E-procurement system in place with a mean response of 4.121 and a standard deviation of 0.234 indicates that not all the respondents agreed with this fact, majority (68%) disagreed with it. However, 79% believe that they can improve their performance by using e-procurement reports with a mean response of 2.138 and a standard deviation of 0.024 indicates that not all the respondents agreed with this fact, some disagreed with it. 90.4% believe that KeRRA has tried to give contractors reliable and up to date e-procurement information on the website with a mean response of 1.628 and a standard deviation of 0.301 indicates that not all the respondents agreed with this fact, some disagreed with it. Also, 83.3% believe that KeRRA has effectively involved suppliers in e-procurement adoption with a mean response of 2.137 and a standard deviation of 0.206 indicates that not all the respondents agreed with this fact, some disagreed with it. Table 4.7 further shows that 39.1% of the 312 respondents agreed that their organizational processes are well designed for new processes like e-procurement with a mean response of 4.211 and a standard deviation of 0.184 indicates that not all the respondents agreed with this fact, majority (60.9%) disagreed with it. 96.8% felt that it is professional in observing of e-procurement guidelines with a mean response of 1.132 and a standard deviation of 0.247 indicates that not all the respondents agreed with this fact, some disagreed with it. Lastly, 41.7% agreed that e-procurement gives the contractors and buyers a chance to do regular e-procurement performance measurement with a mean response of 4.225 and a standard deviation of 0.039 indicates that not all the respondents agreed with this fact, majority (58.3) disagreed with it. Overall, 61.2% (Mean=2.908, SD=0.175) contractors believe

that the identified drivers can significantly improve their adoption of e-procurement.

The following factors were found to have significant contribution to the adoption of e-procurement in Kenya for KeRRA contractors: commitment by senior managers, availability of e-procurement operations, involving suppliers in e-procurement adoption, changing manual procedures in favor of e-procurement, designing new process for automation, acquiring e-procurement system competitively, competitive bidding, employee willingness to use e-procurement system, staff readiness to make e-procurement succeed, regular e-procurement performance measurement, observation of procurement guidelines, compliance with rules and regulations, system buyers trust, up to date procurement information and efficient risk management. This indicates that these factors to a great extent are critical drivers for the success of e-procurement adoption among KeRRA contractors in Busia, Kenya. In addition, employee training on e-procurement usage, availability of reliable information on website and training of suppliers on e-procurement would also be another set of drivers to the success of e-procurement adoption among KeRRA contractors in Busia, Kenya. The results also show that the managers for various organizations do not care about e-procurement adoption. This could be because most of the respondents were operational staff that could easily negate the e-procurement initiatives that have been put in place by the management. The findings are in line with the observations made by Kalakota and Robinson (2000), Birks (2001), Vaidya, Sajeev and Callender (2006) and Atenburg (2007). Whereas Birks et al., (2001) pointed out that in order for any organization to ensure achievement of the e-Procurement objectives, the adoption process should precede, as far as possible, in alignment with all the business activities, Kalakota and Robinson (2000), however, identified cost saving, improved efficiency, measurement and single data entry as the drivers of e-procurement. These drivers would complement the findings of this study.

4.3.3 Barriers of E-Procurement Adoption

The data presented here are those collected from the field survey on the Assessment of Road Contractors' adoption of E-Procurement in KeRRA Busia County, Kenya. The data were collected in response to 323 copies of questionnaire distributed to the staff of the contractors out of which 312 copies were fully completed and returned. Respondents were asked to indicate their respective opinion regarding the level of adoption of e-procurement practices in the road construction industry. Descriptive analysis was then done on the responses attributed to the barriers of e-procurement adoption in the road construction industry in Kenya. The results were then summarized in Table 4.8.

Table 4.8 Descriptive Statistics for Barriers to E-Procurement Adoption

No	Statement	F (%) 1	F (%) 2	F (%) 3	F (%) 4	F (%) 5	Total (%)	Mean 62.4	SD
1	There is high cost procurement technology	270 (86.54)	12 (3.85)	0 (0)	0 (0)	30 (9.6)	312 (100)	1.132	0.053
2	There are inadequate Business Processes to support e-Procurement	280 (89.7)	12 (3.85)	0 (0)	10 (3.2)	10 (3.2)	312 (100)	1.628	0.308
3	There is inadequate e-procurement Solutions in the market	10 (3.2)	12 (3.85)	0 (0)	280 (89.7)	10 (3.2)	312 (100)	4.137	0.127
4	There is inadequate Technological Infrastructure to our partners	292 (93.59)	10 (3.2)	0 (0)	10 (3.2)	10 (3.2)	312 (100)	1.214	0.358
5	There is lack of e-Procurement knowledge	260 (83.3)	11 (3.5)	0 (0)	41 (13.1)	0 (0)	312 (100)	1.132	0.286
6	There is lack of integration between front and back-end systems	282 (90.38)	20 (6.4)	10 (3.2)	0 (0)	0 (0)	312 (100)	1.628	0.138

7	There is lack of Integration with our Business Partners	280 (89.7)	10 (3.2)	0 (0)	22 (7.05)	0 (0)	312 (100)	2.137	0.234
8	There is lack of Motivation for end-users like contractors to adopt the new systems	280 (6.4)	20 (89.7)	0 (0)	12 (3.85)	0 (0)	312 (100)	1.214	0.327
9	There are no real benefits identified	270 (86.54)	21 (6.73)	0 (0)	21 (6.73)	0 (0)	312 (100)	1.132	0.301
10	Our operational management culture is not in favor of e-procurement	192 (61.54)	20 (6.4)	0 (0)	70 (22.44)	30 (9.6)	312 (100)	1.628	0.252
11	We feel there is high insecurity of our transactions being open to our competitors	221 (78.83)	21 (6.73)	0 (0)	50 (16.03)	20 (6.4)	312 (100)	2.37	0.121
12	Our senior management culture does not support e-procurement	190 (60.89)	32 (10.26)	0 (0)	60 (19.2)	30 (9.6)	312 (100)	1.214	0.236
13	Our supply-base does not use e-procurement so we feel it will be an unnecessary investment	200 (64.1)	30 (9.6)	0 (0)	61 (19.55)	21 (6.73)	312 (100)	1.132	0.056
14	It is difficult integrating procurement systems with the existing IT infrastructure	210 (67.31)	30 (9.6)	0 (0)	52 (16.67)	20 (6.4)	312 (100)	1.628	0.236
15	There are negative attitudes to procurement among senior managers, who often regard it as an overhead Centre than as a strategic function	190 (60.9)	22 (7.05)	0 (0)	60 (19.2)	40 (12.8)	312 (100)	2.137	0.230
16	The perception that automating	200 (64.1)	30 (9.6)	2 (.64)	30 (9.6)	50 (16.03)	312 (100)	1.214	0.351

	procurement would prove more difficult than automating many other business processes								
	Mean Score	227 (73.15)	20 (6.26)	01 (0.21)	49 (15.60)	17 (5.42)	312 (100)	1.653	0.226

Source: Survey Data (2016)

The barriers to automation among the key activities in the procurement unit will hinder the adoption of e-procurement system. The respondents were thus asked to indicate the extent to which they agreed with various barriers that hinder the adoption of e-procurement among the road construction contractors in Busia, Kenya using a five point Likert scale of 1= Strongly Agree; 2 = Agree; 3= Undecided; 4= Disagree and 5= Strongly Disagree. For analysis purposes, the five point Likert Scale was reduced to three point scale of 1= Agree (for Strongly Agree and Agree); 2= Undecided and 3 = Disagree (for Disagree and Strongly Disagree).

Table 4.8 indicates that of the 312 respondents, 90.4% of the respondents agreed that there is high cost of e-procurement technology with a mean response of 1.132 and a standard deviation of 0.053 indicate that not all the respondents agreed with this fact, some disagreed with it. 93.6% agreed that there were inadequate Business Processes to support e-Procurement with a mean response of 1.628 and a standard deviation of 0.308 indicating that not all the respondents agreed with this fact, some disagreed with it. However, only 7.1% felt that there were inadequate e-procurement solutions in the market with a mean response of 4.137 and a standard deviation of 0.127 indicates that not all the respondents agreed with this fact, some disagreed with it. 96.8% agreed there is inadequate Technological Infrastructure to our partners with a mean response of 1.214 and a standard deviation of 0.358 indicates that not all the respondents agreed with this

fact, some disagreed with it. 86.8% agreed there is lack of e-Procurement knowledge with a mean response of 1.132 and a standard deviation of 0.286 indicates that not all the respondents agreed with this fact, some disagreed with it. 96.8% concurred that there was lack of integration between front and back-end systems with a mean response of 1.628 and a standard deviation of 0.138 indicates that not all the respondents agreed with this fact, some disagreed with it. Further, 92.9% agreed that there was lack of integration with their Business Partners with a mean response of 2.137 and a standard deviation of 0.234 indicates that not all the respondents agreed with this fact, some disagreed with it. 96.1% support the fact that there was lack of motivation for end-users like contractors to adopt the new systems like e-procurement with a mean response of 1.214 and a standard deviation of 0.327 indicates that not all the respondents agreed with this fact, some disagreed with it. 93.3% do believe that there were no real business benefits identified on using e-procurement with a mean response of 1.132 and a standard deviation of 0.301 indicates that not all the respondents agreed with this fact, some disagreed with it. 67.9% thought that their operational management culture is not in favour of e-procurement with a mean response of 1.628 and a standard deviation of 0.252 indicates that not all the respondents agreed with this fact, some disagreed with it. 85.6% felt that there is high insecurity of their transactions being open to our competitors with a mean response of 2.137 and a standard deviation of 0.121 indicates that not all the respondents agreed with this fact, some disagreed with it. 71.2% agreed that their senior management culture does not support e-procurement with a mean response of 1.214 and a standard deviation of 0.236 indicates that not all the respondents agreed with this fact, some disagreed with it. The findings further indicate that 73.7% of the 312 respondents purpose that their supply-base does not use e-procurement and felt it would be an unnecessary investment. The mean response was 1.132 with a standard deviation of 0.056 indicates that not

all the respondents agreed with this fact, some disagreed with it. The results further indicate that 76.9% do agree that it is very difficult to integrate procurement systems with their existing IT infrastructure. The mean response was 1.628 with a standard deviation of 0.236 indicates that not all the respondents agreed with this fact, some disagreed with it. Meanwhile, 67.9% agreed that there are negative attitudes to procurement among senior managers, who often regard it as an overhead Centre than as a strategic function. The mean response was 2.137 with a standard deviation of 0.230 indicates that not all the respondents agreed with this fact, some disagreed with it. Lastly, 73.7% the respondents agreed that automating procurement would prove more difficult than automating many other business processes with a mean response of 1.214 a standard deviation of 0.351 indicating that not all the respondents agreed with this fact, some disagreed with it. Overall, 79.4% (Mean=1.653, SD=0.226) of contractors believe that the existing barriers have significantly affected their adoption of e-procurement.

In view of the above results, the following factors were found to be significant barriers to the adoption of e-procurement in Kenya for KeRRA contractors: usage of old IT equipment that need overhaul, high costs required to make the equipment compatible, lack of regular use by employees, resistance to change by users, lack of e-procurement implementation capacity by small suppliers, higher adoption costs and lack of finances. The findings are in agreement with Moore (2003) who asserts that most road construction contractors are still using decades-old equipment and parts whose documentation is paper-based and lacks the digital format necessary for e-Procurement system. The finding on employee resistance to adoption of e-procurement was in line with the observation made by Bedell (2002) that e-Procurement systems are a self-service tool thus, end users sometimes resist using them. However, the findings by Byline (2008), Shaw (2004) and PWC (2002) widen this scope of the e-procurement barriers to include: lack of legal

framework, lack of technical expertise, lack of e-procurement knowledge besides security concerns and lack of faith in trading partners to be significant factors holding back e-procurement.

The results further indicate that contractors face the challenge of lack of Internet access by small suppliers and lack of board approval in adopting e-procurement, thus, another barrier to e-procurement adoption. This supports the position by Moore (2003). It is also clear that there is lack of managerial support in the adoption of e-procurement systems among the road construction contractors in Busia, Kenya. This therefore implies that road construction contractors in Busia, Kenya need to evolve towards a more strategic view of e-procurement adoption in order to integrate different systems and applications efficiently throughout the organization. Giunipero and Sawchuk (2000) also gave a wider view of the significant barriers to successful e-procurement adoption in the context of supplier capacity, user adoption, budget and policy support and information communication technology (ICT) support.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this chapter is to summarize the research project. It includes a statement of the summary of the research project results, conclusions and recommendations for further research in future studies.

5.1 Summary of Findings

The first objective sought to establish the adoption level of e-procurement by KeRRA contractors in Busia, Kenya. In view of the results, it can be deduced that the respondents in this study had sufficient knowledge of what e-procurement systems are. However the adoption of e-procurement operations by their various contractor organizations was relatively low, majority of which have not considered adopting e-procurement practices. The key e-procurement activities including advertising tenders online, supplier's submission of proposals and tenders online, short-listing of suppliers online, allowing company staff to make requisition online and call for proposals through the Internet were sparsely adopted by contractors.

The second objective sought to establish the drivers to adoption of e-procurement by KeRRA contractors in Busia, Kenya. The study established that majority of the contractors believe that the identified drivers can significantly improve their adoption of e-procurement. From the results, the following factors were found to have significant contribution to the adoption of e-procurement in Kenya for KeRRA contractors: commitment by senior managers, availability of e-procurement operations, involving suppliers in e-procurement adoption, changing manual procedures in favor of e-procurement, designing new process for automation, acquiring e-procurement system competitively, competitive bidding, employee willingness to use e-

procurement system, staff readiness to make e-procurement succeed, regular e-procurement performance measurement, observation of procurement guidelines, compliance with rules and regulations, system buyers trust, up to date procurement information and efficient risk management, employee training on e-procurement usage and availability of reliable information on website and training of suppliers on e-procurement

The third objective sought to establish the barriers to adoption of e-procurement by KeRRA contractors in Busia, Kenya. The study established that majority of the contractors believe that the existing barriers have significantly affected their adoption of e-procurement. The following factors were found to be significant barriers to the adoption of e-procurement in Kenya for KeRRA contractors: usage of old IT equipment that need overhaul, high costs required to make the equipment compatible, lack of regular use by employees, resistance to change by users, lack of e-procurement implementation capacity by small suppliers, higher adoption costs and lack of finances, inadequate Business Processes to support e-Procurement; inadequate Technological Infrastructure to our partners; lack of e-Procurement knowledge; lack of integration between front and back-end systems; lack of Integration with Business Partners; lack of Motivation for end-users like contractors to adopt the new systems; operational management culture not in favour of e-procurement; the feeling of high insecurity of transactions being open to our competitors; senior management culture of not supporting e-procurement; the feeling that e-procurement is an unnecessary investment since active supplier-bases are not using e-procurement, difficulty in integrating procurement systems with the existing IT infrastructure; negative attitudes to procurement among senior managers, who often regard it as an overhead Centre than as a strategic function and lastly, the perception that automating procurement would prove more difficult than automating many other business processes. The results further indicate

that contractors face the challenge of lack of Internet access by small suppliers and lack of board approval in adopting e-procurement, thus, another barrier to e-procurement adoption. It is also clear that there is lack of managerial support in the adoption of e-procurement systems among the road construction contractors in Busia, Kenya.

5.2 Conclusions

Objective One:

In regard to the role that procurement plays in the construction industry in Kenya's economic growth, the study sought to determine the level of road contractors' adoption of e-procurement practices in KeRRA Busia Region. The study therefore concludes that the adoption of e-procurement operations by KeRRA contractors is still relatively very low with majority having not considered adopting e-procurement practices.

Objective Two:

The study sought to determine the barriers to road contractors' adoption of e-procurement practices in KeRR ABusia Region. The study concluded that there are a number of barriers to the adoption of e-procurement in Kenya for KERRA contractors hence the low adoption level. However, the drivers to the adoption of e-procurement in Kenya for KERRA contractors that exist if addressed would alter the e-procurement adoption situation in KeRRA Busia County, Kenya.

Objective Three:

The study sought to determine the drivers to road contractors' adoption of e-procurement practices in KeRRA Busia Region. The study concluded that there are a number of drivers to the adoption of e-procurement in Kenya for KeRRA contractors.

5.3 Recommendations of the study

The study recommends that workshops should be held to expose contractors on the strategic importance of e-procurement in the performance of road construction projects which would determine the levels of project success. This is in view of the fact that improving e-procurement of project resources (goods, works & services) through the top management buy-in would eventually improve the success of various road construction projects.

The study further recommends that since technological and budgetary costs have been identified as some of the barriers in implementation of e-procurement, contractors should develop capital reserves that would help in catering for new developments and innovation in the company like acquisition of e-procurement software. This will enable the individual companies to keep in pace with the development in technology.

Finally, e-procurement solution providers need to address the common barriers and find solutions how companies could avoid them. The followings are the ways by which attractiveness of e-procurement may be raised: (1) E-procurement solution providers should address how to make the integration process simpler and less time-consuming; (2) E-procurement solution providers should develop tools that make the integration of the system easier and faster, while allowing the solution to work seamlessly with other systems of a company; and finally, (3) E-procurement solution providers should also concentrate on how to integrate all of the company's suppliers into the solution.

5.4 Suggestions for Further Studies

The researcher suggests the following future research directions regarding the Assessment of Road Contractors' adoption of E-Procurement in KeRRA Busia County, Kenya:

The study suggests future research to expand the scope to include other developing countries

which could be having different e-procurement dimensions for road construction projects. This would help reveal the actual multi-dimensional and cross-cultural effects on e-procurement adoption levels in developing countries.

The researcher further suggests that future studies should probably consider using a longitudinal study as opposed to a cross-sectional survey.

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APPENDICES

Appendix i

QUESTIONNAIRE

Questionnaire Serial No:..... *Date*.....

Introduction

I am in the process of collecting research data for a study entitled “*Assessment of Road Contractors’ Adoption of E-Procurement in KeRRA Busia County, Kenya.*” The study is in partial fulfillment for award of a degree of MBA Procurement & Supply Chain Management. Kindly assist in providing relevant information to facilitate this study. You are requested to respond to each question thoughtfully and truthfully. All responses will be treated with utmost confidentiality and for the purpose of this study. Thank You

INSTRUCTIONS

Please give answers in the spaces provided and tick in the box that matches your response to the questions where applicable.

Part 1: Demographics

- 1. Are you Male or Female?
 - a. Male []
 - b. Female []
- 2. What is your age? (Tick appropriately)
 - a. 21- 30 []
 - b. 31- 40 []
 - c. 41- 50 []
 - d. 51 and above []
- 3. Educational qualification:
 - a. Undergraduate []
 - b. Post graduate []
 - c. Others specify [.....]
- 4. How long have you been working with the institution?

- a. 1 - 2 years []
- b. 2 – 3 years []
- c. 3 – 4 years []
- d. 5 years and above []

Part II: Level of E-Procurement Practices

What is your response on the following statements with regard to adoption level of e-procurement practices in Busia. Use the scale of:

[1=Strongly Agree, 2= Agree, 3= Undecided, 4= Disagree and 5= Strongly Disagree]

No	Statement	1	2	3	4	5
1.	We source our potential suppliers and buyers using the Internet in general or a Business to Business(B2B) marketplace for information	1	2	3	4	5
2.	We usually send request for information (RFI), request for price (RFP), etc to suppliers and receive the responses using Internet technology following the procurement process	1	2	3	4	5
3.	We usually handle information about the supplier/buyer regarding quality certification, financial status or other unique capabilities using	1	2	3	4	5
4.	We buy goods and services that have the lowest price or combination of lowest price and other conditions via Internet technology	1	2	3	4	5
5.	We source our potential contracts from the market place using the Internet	1	2	3	4	5
6.	We usually participate in KeRRA pre-qualification of suppliers through the Internet	1	2	3	4	5
7.	We usually respond to KeRRA tender advertisements through the Internet	1	2	3	4	5

Part III: Drivers to E-Procurement Practices

What is your position considering the following statements with regard to Drivers to E-Procurement Practices in Busia. Use the scale of:

[1= Strongly Agree, 2=Agree, 3= Undecided, 4=Disagree and 5=Strongly Disagree]

The following attributes are the main drivers to our resolve to adopt e-procurement as required by KeRRA:						
No	Statement	1	2	3	4	5
1	There is e-procurement operations instruction from KeRRA	1	2	3	4	5
2	Our Manager does not care about e-procurement	1	2	3	4	5
3	We find it easy changing from manual procedures to e-procurement	1	2	3	4	5
4	We desire to be in compliance with government rules and regulations on e-procurement	1	2	3	4	5
5	We feel e-procurement will help us in efficient risk management	1	2	3	4	5
6	Our employees are ready to make e-procurement succeed	1	2	3	4	5
7	Our employee training on e-procurement usage has been done	1	2	3	4	5
8	Our employees willingness to use e-procurement system	1	2	3	4	5
9	We have an E-procurement system in place	1	2	3	4	5
10	We will improve our performance by using e-procurement reports	1	2	3	4	5
11	KeRRA has tried to give us reliable and up to date e-procurement information on the website	1	2	3	4	5
12	KeRRA has effectively involved suppliers in e-procurement adoption	1	2	3	4	5
13	Our organizational processes are well designed for new processes like e-procurement	1	2	3	4	5
14	We feel it is professional in observing of e-procurement guidelines	1	2	3	4	5
15	It gives us a chance to do regular e-procurement performance measurement	1	2	3	4	5

Part IV: Barriers to E-Procurement Practices

What is your view in line with the following statements regarding Barriers to E-Procurement Practices in Busia. Use the scale of:

[1=Strongly Agree, 2= Agree, 3= Undecided, 4= Disagree and 5= Strongly Disagree]

The following attributes are the main reasons as to why we find it difficult to adopt e-procurement as required by KeRRA						
No	Statement	1	2	3	4	5
1.	There is high cost of e-procurement technology	1	2	3	4	5
2.	There are inadequate Business Processes to support e-Procurement	1	2	3	4	5
3.	There is inadequate e-procurement Solutions in the market	1	2	3	4	5
4.	There is inadequate Technological Infrastructure to our partners	1	2	3	4	5
5.	There is lack of e-Procurement knowledge	1	2	3	4	5
6.	There is lack of integration between front and back-end systems	1	2	3	4	5
7.	There is lack of Integration with our Business Partners	1	2	3	4	5
8.	There is lack of Motivation for end-users like contractors to adopt the	1	2	3	4	5
9.	There are no real business benefits identified	1	2	3	4	5
10.	Our operational management culture is not in favour of e-procurement	1	2	3	4	5
11.	We feel there is high insecurity of our transactions being open to our competitors	1	2	3	4	5
12.	Our senior management culture does not support e-procurement	1	2	3	4	5
13.	Our supply-base does not use e-procurement so we feel it will be an unnecessary investment	1	2	3	4	5
14.	It is difficult integrating procurement systems with the existing IT infrastructure	1	2	3	4	5
15.	There are negative attitudes to procurement among senior managers, who often regard it as an overhead Centre than as a strategic function	1	2	3	4	5
16.	The perception that automating procurement would prove more difficult than automating many other business processes	1	2	3	4	5

Thank You

Appendix ii

Data set used for analyzing the findings