EFFECT OF E-PROCUREMENT ON SERVICE DELIVERY AMONG COUNTY GOVERNMENTS IN WESTERN KENYA

BY

AKOTH MATILDAH AJWANG

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MASENO UNIVERSITY

DECLARATION

I declare that this research project has not been presented anywhere for any award and that all sources of information have been acknowledged by means of references.

Akoth Matildah Ajwang **Sign……** **Date……....**
MSC/BE/00192/2014

SUPERVISOR:
This research project has been submitted with my approval as the university supervisor.

Dr Charles O. Ondoro **Sign……** **Date…….**
Department of Business Administration,
Maseno University

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DEDICATION

I dedicate this research project to my husband Mr. Evans Odhiambo Okoyo and my children who provided moral support that gave me every reason to work hard and ensured that this study became a success.

ABSTRACT

Globally, e-procurement has gained popularity especially with the advent of technology. In United States of America for instance, rapid development of e-procurement was reported in early 2000 just before the recession. By the end of the year 2000, it was reported that all state functions were maintaining web presence in at least some stage of their procurement processes with some participating in online bidding. In Kenya, organizations are adopting e-procurement. County governments are not an exception yet they continue to face challenges. Studies in the past have attributed the challenges to delay of disbursement of funding from the national government. Studies have not focused on what e-ordering, e-contracting, e-information sharing and e-sourcing may be contributing to service delivery levels despite the fact that theory argues that e-procurement is expected to lead to better service delivery. The purpose of this study therefore was to establish effect of e-procurement on service delivery among county governments in Western Kenya. Specifically, the study sought to determine the effect of e-contracting, e-ordering, e-information sharing and e-sourcing on service delivery among county governments in western Kenya. The study was guided by Resource Based View theory and Innovation Diffusion theory with the former explaining the view of e-procurement as a technology resource and the latter explaining adoption of the very resource. Correlation research design was adopted. The population comprised all the 200 procurement officers and non procurement officer procurement committee members. Purposive, cluster and random sampling was used to pick a sample of 133 respondents. Data were collected from secondary and primary sources. Reliability of questionnaires was tested on pilot data from 10 respondents which yielded alpha coefficients greater than .701 implying internal consistency. Content validity test was done using expert reviewers. Data analysis was done using Pearson's correlation and multiple regression analyses. The study findings were that; E-ordering was a positive significant predictor of service delivery ($\beta = .353$ ($p = .000$) implying that it enhances service delivery; E-contracting was a positive significant predictor of service delivery ($\beta = .215$ ($p = .018$) implying that it improves service delivery, E-information sharing was a positive significant driver of service delivery ($\beta = .449$ ($p = .000$) meaning that it enhances service delivery and E-sourcing was a positive significant predictor of service delivery ($\beta = .414$ ($p = .000$) implying that it enhances service delivery. The study concludes that embracing E-ordering, E-contracting, E-information sharing and E-sourcing leads to better service delivery among the county governments. The study recommends that county governments should intensify use of E-ordering, E-contracting, E-information sharing and E-sourcing. The results may be used by policy makers involved in the county governments. Researchers may also pursue further research from this study.

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LIST OF ABBREVIATIONS AND ACRONYMS

B2B	Business to Business
CEO	Chief Executive Officer
COB	Commissioner of Budget
CRA	Commission on Revenue Authority
CSF	Critical Success Factor
EC	Electronic Commerce
EPT	E-procurement Technology
ERP	Enterprise Resource Planning
GDP	Gross Domestic Product
ICT	Information Communication Technology
IFMIS	Integrated Financial Management Information System
IT	Information Technology
KBNS	Kenya Bureau of National Statistics
NSTL	National Science and Technology Library
OECD	Organization for Economic Co-operation and Development
P2P	Purchase-to-Pay
PFM	Public Finance Management
PP	Procurement Performance
PPR	Procurement Practices
RBV	Resource Based View
SME	Small and Medium-sized Enterprises
SPSS	Statistical Package for Social Sciences
SWOT	Strength, Weakness, Opportunity and Strength
TOE	Technology-Organization-Environment
UN	United Nations
UK	United Kingdom
USA	United States of America
US	United States

OPERATIONAL DEFINITION OF TERMS IN THE STUDY

Effectiveness	-	The degree to which objectives are achieved and the extent to which targeted problems are solved within the County Government.
Efficiency	-	The ratio of translation of county resources into welfare outcomes for example in the form of cost and time savings in process of resource use.
E-contracting	-	Preparing and signing agreements for engagements between parties online.
E-information Sharing	-	This is the process and activity of a county exchanging purchasing information electronically between them, suppliers and end users, using the internet technologies such as e-mail.
E-ordering	-	The process and activity of a county notifying a supplier electronically of intention to buy goods, services or works.
E -sourcing	-	The process of seeking and obtaining suppliers and supplies through electronic means.
Service Delivery	-	The ability of the county governments to prevail in the form of efficiency and effectiveness with which they deliver services.

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CHAPTER ONE
INTRODUCTION

This chapter presents the background to the study, statement of the problem, research objectives, research hypotheses, scope of the study, justification of the study and the conceptual framework. It also highlights the context of the study which is county governments in Western Kenya.

1.1 Background of the Study

Today, organizations find themselves facing rapid series of market shifts, new technological innovations, and changes in government policies (Eisenhardt & Brown, 2009). The mirror image of such phenomena is an increasingly turbulent environment that firms have to deal with (Haeckel & Nolan, 2008; Bradley & Nolan, 2008). As a consequence, successful organizations are those that have learnt how to be innovative and creative without renouncing to the level of discipline that is instrumental in effectively executing plans. In doing so, they have to modify their organizational designs, taking advantage of Information and Communication Technologies (ICTs). ICT is a critical enabler of the redefinition of the organization. It permits the distribution of power, function, and control to wherever they are most effective; given the mission and objectives of the organization and the culture it enjoys (Morton, 2010).

Due to increasing trend toward purchasing inputs and other raw materials from outside the organization, implementing electronic procurement (e-procurement) has become a significant tactic in most companies' e-business strategies (Deloitte Consulting, 2001). Today baseline procurement capabilities are rapidly becoming a cost of doing business. More and more companies are conscious of the needs to introduce Internet-based technologies in their order process, due to the benefits of saving transaction cost, increasing competitive sourcing opportunities, and enhancing inter-organizational coordination. According to the e-Business W@tch (2006) survey, more than half of the interviewed enterprises said that they had intention to place orders online.

E-procurement refers to business-to-business or business-to-consumer or business-to-government purchase and sale of supplies, work and services through the internet as well as other information and networking systems, such as electronic data interchange and planning (Muhia & Afande, 2015). It is also known as electronic procurement or supplier

exchange. According to Croom and Brandon-Jones (2004) e-procurement is the use of internet-based integrated information and communication technologies (ICTs) to carry out individual or all stages of the procurement process including search, sourcing, negotiation, ordering, receipt, and post-purchase review. While there are various forms of e-procurement that concentrate on one or many stages of the procurement process such as e-Tendering, e-Marketplace, e-Auction/Reverse Auction , and e-Catalogue/Purchasing, e-Procurement can be viewed more broadly as an end-to-end solution that integrates and streamlines many procurement processes throughout the organization (Muhia & Afande, 2015).

Roma and McCue (2012) defined e- procurement as the use of information technology to develop a procurement process that is responsive to changes in the environment. The concept of e-procurement is adopted by literally all industries and all kinds of organizations. Specifically, in the public sector, e-procurement is driven by social, cultural and political factors (Garran, 2005). Implementation of e-procurement in public procurement requires resources and specialized skills. In addition, the process requires a well-coordinated change management systems and training program (Garran, 2005). It is also important to put into place practices, processes and systems for the implementation of e-procurement (Vaidya, Sajeev & Callender, 2006). Other factors that are critical in implementation of e-procurement include: good governance and capacity developments (United Nations, 2011).

Raju (2009) further says that, the broad spectrum of e-Procurement is much more than just a plain vanilla system for making purchases online. It is a comprehensive platform - using the Internet to make it easier, faster and cost effective for businesses to source their requirements on a timely basis, and in a way that is aligned with organizational goals and objectives. In the current scenario, characterized by focus on key strategic initiatives, lesser time-to-market and increased global competition, e-Procurement aids organizations in streamlining their entire purchasing process, so that they can focus on core business activities and increase profitability.

There is increasing use of internet technology to buy goods and services from a number of known or unknown suppliers, to perform e-informing which is gathering and distributing purchasing information both from and to internal and external parties and to

expand e-market sites on web-based ERP to open up value chains. Buyers can access preferred suppliers' products and services, add to shopping carts, create requisition, and seek approval, receipt purchase orders and process invoices with integration to suppliers' supply chains and buyers' financial systems (Jessop, 2006).

Through e-procurement web sites allow qualified and registered users to look for buyers or sellers of goods and services and perform transactions. Depending on the approach, buyers or sellers may specify costs or invite bids. Transactions can be initiated and completed. Ongoing purchases may qualify customers for volume discounts or special offers. E-procurement software may make it possible to automate some buying and selling. Companies participating expect to be able to control parts inventories more effectively, reduce purchasing agent overhead, and improve manufacturing cycles. E-procurement is expected to be integrated into the wider Purchase-to-pay (P2P) value chain with the trend toward computerized supply chain management. (Martin, 2006).

E-procurement and the use of computers in procurement is gaining grounds and becoming more popular in today's business. According to Gerald and Joan (2009), modern business state that for any business firm to succeed they must embrace and incorporate Information Technology into day-to-day running of the enterprise. This reason coupled with many other positive effects has prompted many companies both locally and all over the world including Uniform Distributors Limited to adapt and implement IT in its procurement process and overall running of the business.

Panetto and Boudjilida (2013) contend that in the last decade the importance of public procurement has grown not only in Kenya but across Sub-Saharan Africa as evidenced by the fact that the share of public procurement in the GDP of Sub-Saharan African countries ranges between 8-15%. According to Shalle and Irayo (2013) till early 2000, Kenya like many of her counterparts in the developing world experienced high inefficiency in spending of taxpayers' money, particularly in the area of public procurement. The number of enterprises which had the privilege of doing business with the state was highly limited and there was no true competition among them. The procedure of public procurement was completely non-transparent and unregulated and there was no institutional framework whatsoever (Susan& Hardy, 2005)

E-Procurement is considered one of the major reforms in public procurement. Corsi (2006) defined e-procurement as the use of electronic methods over the internet to conduct procurement functions: identification of requirement, tendering process, payment and contract management. The rationale behind adoption of e-procurement is to enhance efficiency and effectiveness and transparency and accountability in public procurement.

Globally, e-procurement has gained popularity especially with the advent of technology. In United States of America for instance, rapid development of e-procurement was reported in early 2000 just before the recession. By the end of the same year, it was reported that all state functions were maintaining web presence in at least some stage of their procurement processes with some participating in online bidding (Reddick, 2004). In Malaysia, the government at some point issued a statement calling for all suppliers to use the e-procurement system (Yossuf, Islam & Yusuf, 2011). Kaliannan, Awang, and Raman (2009) pointed out that Malaysian public sector are going through a rapid change especially as far as adoption of technology is concerned. Adoption of e-government and particularly e-procurement is inevitable for the government. A review conducted by Commonwealth of Australia indicates that the National governments of Italy, New Zeeland, Scotland, New South Wales and Western Australia in 2005 revealed that these countries were already using e-procurement system for public procurement activities. In Africa, the concept of e-procurement is just gaining popularity especially in the public sector. To deal with the problems of lack of accountability and transparency in procurement activities in the public sector, most African countries have resorted to legal reforms and adoption of procurement. Tanzania for instance put into place e-procurement systems to allow e-sharing, e-advertisement, e-submission, e-evaluation, e-contacting, e-payment, e-communication and e-checking and monitoring to ensure all public procurement activities are conducted online (Sijaona, 2010).

In Kenya, the government actively got involved in adoption of e-procurement when the Jubilee government came into power. Since then there has been a lot of pressure and reforms to ensure all public procurement functions are conducted online. The Kenyan government made it mandatory for procurement of all public goods, works and services to be procured through online platforms (USAID, 2008). For County governments in particular, there is a directive for all procurement and finance operations to be conducted online. For instance, the government introduced integrated financial management

information system (IFMIS) that is mandatory for all the 47 counties. IFMIS was introduced to improve governance by providing real time financial information and effective programs. It also enhances transparency and accountability and acts as a deterrent to corruption and fraud (USAID, 2008).

Sabahi (2013) explains that the Kenyan Budget Controller on 13th August 2013 had given county governments two weeks to revise their budgets after a report from the Commission on Revenue Allocation (CRA) revealed that 25 of Kenya's 47 counties faced financial challenges. The controller of budget could not start releasing money to a county that had shown a very big deficit, because it was not clear how the deficit would be closed. Similarly, Ustawi (2013) also explains that in May 2013, the COB was steadfast in demanding that the county governments immediately implement lawful internal checks and balances in accordance with the Public Finance Management (PFM) Act of 2012, over County Funds. It was also reported that the county funds experienced delayed disbursement.

Kiriria (2013) argues that there is need for PFM system at the county level to ensure successful management of the public sector and the economy. World Bank (2012) recommends that guidelines and templates need to be developed to guide the formulation of county budgets. Similarly Pierre and Peters (2011) argue that the government should have capability of collecting information on preferences of electorate, in the absence of which it would be difficult to allocate resources efficiently, but the capacity is always lacking to undertake these activities. Further, Barasa and Eising (2012) indicate that costs hamper public participation in county resource management. They add that county governments particularly in Western Kenya require increased vigilance on county resources given the population associated with them. Kiriria (2013) agrees. Given these challenges particularly in western Kenya, there is need to establish the contribution of public procurement process to this and particularly what role e-procurement may play.

Many studies have been carried out in the field of procurement and e-procurement in particular. Petter and Anne (2002), Wojciech and Zahir, (2010), Gupta and Palmer (2003), Barua, Konana, Whinston and Yin (2001), Basheka, Oluka and Mugurusi (2012), Rotich and Okello (2015), Matunga, Nyanamba and Okibo (2013) and; Yen and Ng (2013) have reported on this subject however, none of the studies above addressed e-

ordering specifically. Neither did they address e-ordering and its relationship with service delivery. Consequently, knowledge is lacking on effect of e-ordering on service delivery. Particularly, it is not known what effect e-ordering has on service delivery of county governments in Western Kenya.

Studies have been conducted on the subject of e- procurement. Such studies include those of Batenburg (2007), Aberdeen Group (2001), She and Thuraisingham (2007), Martinez (2008), Nah and Santiago (2006), Chin-Fu, *et al*. (2008), Oduor (2010) Motiwalla, Khan and Xu (2005) and; Vaidya, Sajeev and Callender (2006). None of the studies above concentrated on effect of e-contracting on service delivery. As a consequence, there is lack of knowledge on this relationship particularly among county governments in western Kenya.

Other studies have also been conducted. Studies by Njuguna (2011), Muhia and Afande (2015), Morteza, Daniel and Jose (2011), Wei-Hsi Hung (2014), Muinde and Shale (2014) Panayiotou, Gayialis, and Tatsiopoulos (2011) and; Croom and Brandon - Jones (2009) focused elsewhere and ignored e-information sharing against service delivery by a government entity. Knowledge on the effect of e-information sharing on service delivery among county governments is therefore lacking.

Quesada, Gonzalez and Mueller (2010), Nepelski (2006), Petter and Anne (2002), Helen and Christine (2008), Liyi, Pinghao and Qihua (2011) and; Wojciech and Zahir, (2010) conducted studies. None of the studies examined e-sourcing and service delivery by government institutions. Knowledge on the effect of e-sourcing on service delivery by such institutions as county governments is lacking.

1.2 Statement of the Problem

Despite the importance of county governments especially in Kenya's current landscape, they face a myriad of challenges which they have attributed to delayed funding from national government. Further, earlier researchers indicate that costs hamper public participation in county resource management. They add that county governments particularly in Western Kenya require increased vigilance on county resources given the population associated with them. Given that resource management is a bigger challenge in western Kenya there is need to establish the contribution of public procurement process

to this and particularly what role e-procurement may play since there has never been an attempt to attribute the same to the county governments' procurement process. Moreover previous studies even in other contexts have not addressed e-ordering specifically. Particularly they have not addressed e-ordering and its relationship with service delivery. Similarly, no studies concentrated on effect of e-contracting on service delivery. Therefore, knowledge is lacking on the relationship e-ordering and e-contracting has with service delivery among county governments. From the literature, it can also be pointed out that a number of the studies focused on adoption of e-procurement. Others looked at impacts of e-procurement and e-commerce adoption. They focused on procurement and or operational performance associated with e procurement and/ or e-commerce. None of the studies investigated specifically e-information sharing against service delivery by a government entity. Therefore there is lack of knowledge on the relationship between e-information sharing and service delivery particularly among county governments. The studies also covered e procurement and defined it in various ways. They investigated perceptions of managers on e-procurement, plans for e procurement adoption, factors affecting e-procurement and e-procurement users' information behavior. Further, they looked at operational performance. They focused on IT and service organizations. None of the studies examined e-sourcing and service delivery by government institutions. Knowledge on the effect of e-sourcing on service delivery by such institutions as county governments is lacking.

1.3 Objectives of the Study

Overall objective of this study was to establish effect of e-procurement on service delivery among county governments in Western Kenya.

Specifically the study sought to:

(i) Determine the effect of e-ordering on service delivery among county governments in Western Kenya.

(ii) Establish the effect of e-contracting on service delivery among county governments in Western Kenya.

(iii) Determine the effect of e-information sharing on service delivery among county governments in Western Kenya.

(iv) Establish the effect of e-sourcing on service delivery among county governments in Western Kenya.

1.4 Research Hypotheses

The study was guided by the following research hypotheses:

H_{01}: E-ordering has no effect on service delivery among county governments in Western Kenya.

H_{02}: E-contracting has no effect on service delivery among county governments in Western Kenya.

H_{03}: E-information sharing has no effect on service delivery among county governments in Western Kenya.

H_{04}: E-sourcing has no effect on service delivery among county governments in Western Kenya.

1.5 Scope of the Study

The study was carried out in western Kenya. For purposes of the study western Kenya covered the counties of Vihiga, Kakamega, Bungoma and Busia. This area has been chosen because it is reported that it faces the greatest challenges with county resource management associated with its overall population. It was concerned with county governments and focused on the practices of e-sourcing, e-contracting, e-ordering and e-information sharing by these governments with their suppliers and how these influence their service delivery. It was concerned with the period the county governments have been in place up to today.

1.6 Significance of the Study

This study will provide an opportunity for county governments of western Kenya to assess their procurement activities. It is expected that the findings of the study will be beneficial to policy makers within the function of procurement of these county governments and also to policy makers within these governments but outside the function. The county governments concerned may base their argument for or against technology adoption and use for other functions based on these findings. The national government is also likely to benefit from the outcome of the study as it may inform it on the direction of regulation and policy for the county governments. Researchers may also benefit from the study by drawing from knowledge provided by the study and using the study as a foundation for additional research.

1.7 Conceptual Framework

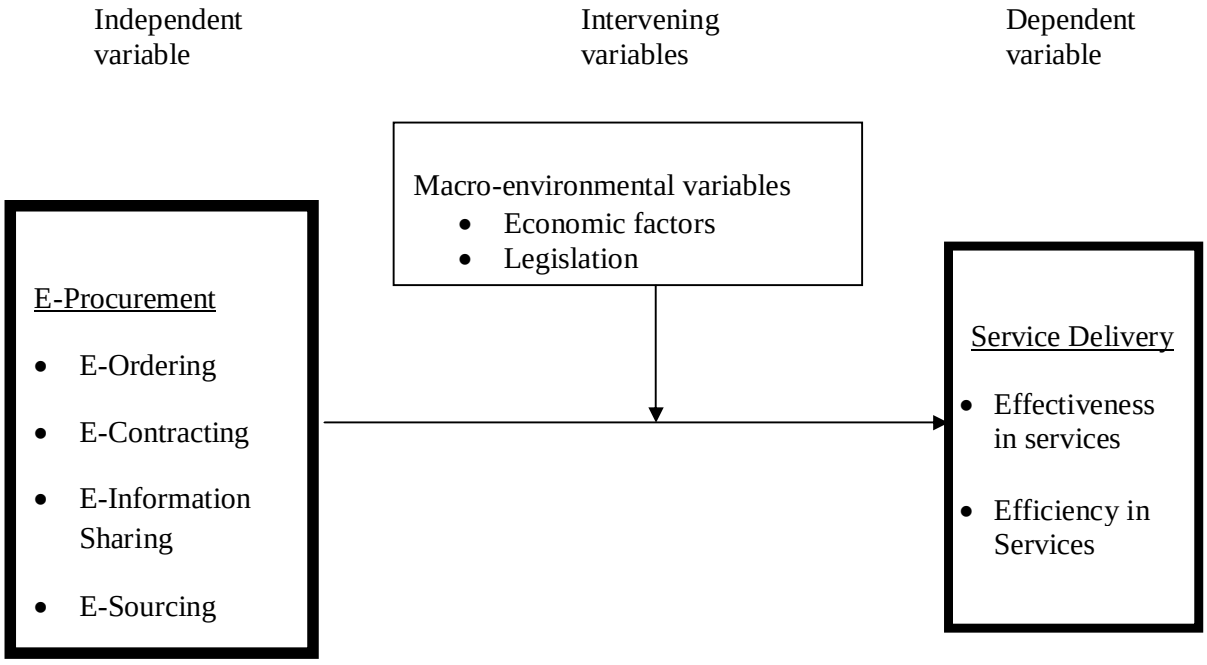

Figure 1.1: Expected Relationship between E-Procurement and Service Delivery

Source: Adapted from Daniel and Jose (2011)

In the conceptual framework above, e-procurement which is indicated by e-ordering, e-sourcing, e-information sharing and e-contracting is expected to have effect on service delivery which is indicated by effectiveness in services and efficiency in services. It is also observed that the relationship may be influenced by macro-environmental variables such as economic factors and legislation.

CHAPTER TWO
LITERATURE REVIEW

This chapter focuses on the theoretical foundations on which the study is built and also explores comparative empirical literature which helps to explain the gap which the study sought to address after discussing concepts of e-procurement and service delivery.

2.1 Theoretical Literature Review

The study was anchored on two theories. Resource Based View Theory of the firm and Innovation Diffusion Theory.

2.1.1 Resource Based View Theory (RBV)

It was advanced by Prahalad and Hamel (1990). It argues that resources internal to the firm are sources of competitive advantage. According to the theory such resources should be valuable in that they should be rare, inimitable and difficult to substitute. The theory argues that resources believed to be valuable are those that are capable of facilitating conception or implementation of strategies that improve performance, exploit market opportunities or neutralize impending threats. This theory is focused on internal resources of an entity which it prescribes if harnessed, enables achievement of higher performance. Previous researchers indicate that intangible assets such as knowledge management, organizational learning and market orientation allow an organization to develop these abilities that enhance competitive advantage leading to superior market performance.

This theory explains the position of county governments in adopting and operating on e-procurement platforms. E-procurement is technology driven. Technology is a resource. According to the theory, it is therefore expected that county governments should perform better by way of service delivery in the advent of adoption and operation of e-procurement. E procurement as a resource, if harnessed should lead them to better service delivery.

2.1.2 Innovation Diffusion Theory

This was proposed by Rogers (1962). The theory presents that innovation is a process aimed to improve economic development. According to innovation diffusion theory, innovation is defined as an idea perceived as new by individuals. OECD (1997) cited by

Andreanne and Swaminathan (2007) defined innovation as all the scientific, technological, organizational, financial, and commercial activities necessary to create, implement and market new or improved products or processes. Innovation theory brings on board four important elements.

This theory assumes that adopters of innovation are categorized into five; innovators, individuals who want to be the first to try the innovation, Early Adopters, people who represent opinion leaders, Early Majority individuals who need to see evidence that the innovation works before they can adopt it, Late Majority, skeptical individuals who only adopts an innovation after it has been tried by the majority and Laggards, individuals who are very skeptical of change and are the hardest group to involve in the innovation process. According to innovation theory, rate of adoption of innovative strategies can be looked at in terms of; relative advantage given to the organization, compatibility, complexity, trial-ability of the new strategies and observability to the stakeholders within the social system. The second factor is communication that lays information and creating and sharing information relating to innovative initiatives in the organization. The third element is time that considers the duration involved in the innovation-decision process. The last element is the social context of the new systems. The theory points out that with different levels of operation on e platform, different levels of performance by way of service delivery are expected. The concepts in this theory are relevant to this study in that e procurement, diffused to different extents among the county governments, is expected to lead to different service delivery levels.

2.1.3 Concept of E-procurement

Chaffey (2002) conceptualizes e-procurement as an electronic integration and management of all procurement activities including purchase request, authorization, ordering, delivery and payment between a purchaser and a supplier. Rayport and Jaworski (2002) refer to e-procurement as a B2B e-commerce application with Web-based functions that allow employees of a buying organization to purchase goods and services and allow suppliers to manage and communicate the fulfillment of the purchase orders submitted.

It includes catalogue management, requisition, control and approval, receiving and exception processing, and financials and payment processing. Thomson and Singh (2001)

advocate that e-procurement processes include sourcing of buyers and sellers, a digital catalogue of products, online bidding, ordering, payments, goods dispatch notices (fulfillment), logistics and supply chain management. With ever-increasing competitive pressures, growing numbers of firms use electronic procurement (e-procurement) in an attempt to reduce costs and increase profitability. Uba, Sharifai, Conrad and Leticia (2013) contend e-procurement consists of e-purchasing, e-market research, e-payment and e-data interchange. Academicians and practitioners alike agree that one of the most important benefits of e-procurement is its ability to facilitate integration within the firm and across the supply chain (Dawn, Delvon & Larry, 2010). However, there is much to be discovered about the prevalence of implementation of e-procurement. .

Today, organizations find themselves facing rapid series of market shifts, new technological innovations, and changes in government policies (Eisenhardt & Brown, 2009). The mirror image of such phenomena is an increasingly turbulent environment that firms have to deal with (Haeckel & Nolan, 2008; Bradley & Nolan, 2008). As a consequence, successful organizations are those that have learnt how to be innovative and creative without renouncing to the level of discipline that is instrumental in effectively executing plans. In doing so, they have to modify their organizational designs, taking advantage of Information and Communication Technologies (ICTs). ICT is a critical enabler of the redefinition of the organization. It permits the distribution of power, function, and control to wherever they are most effective; given the mission and objectives of the organization and the culture it enjoys (Morton, 2010).

The practice of supplies and procurement has existed since time immemorial at various levels; personal, home and organizational levels. The procurement process has evolved from its primitive sense to a modern one where physical purchases and negotiations have been replaced by electronic means. This may have a significant effect on the way organizations perform. Information Technology (IT) has evolved over time ranging from simple calculation to decision making. The invention of IT intended to support workers in reducing their work time complexities and optimal consolidation of storage space; rather than bulky, tedious and manual storage of information. IT grew to greater heights where new innovations like talking on phone, paying school dues, paying utility bills and buying and selling of goods and services were realized. These innovations spread world over and Uganda was not any exception. Though, IT literacy levels are reportedly low in Uganda,

e-procurement is practiced to some significant levels. Patrick and Robert (2009), contend that, by now, most companies have ridden one or more strategic sourcing waves that have collectively saved their organizations billions of dollars. Yet even after having benefited from these initiatives, the average company still leaves on the table unrealized savings equaling 5 to 10 percent of its total spending. These savings are not lost because of ill-conceived strategies or organizational incompetence; rather, their loss is inherent in flawed or incomplete procurement operating models. Similarly Carter and Grim (2001), Postulate that in almost every country in the world today, any government purchasing or procurement amounts almost one fifth of Gross Domestic Product that is a significant amount of money. As a direct consequence of this, there is a considerable increase in concern by purchasing professionals to manage effectively, transparently, and fairly large annual government purchasing volumes of goods and services. On the other hand, enterprises have tried to gain the benefits e-procurement can deliver: cost reduction, process streamlining, improved contract compliance, increased speed under management, and more. However, many challenges stood in the way and only in recent years have leading enterprises have taken full advantage of the value of e-procurement.

Raju (2009) further says that the broad spectrum of e-Procurement is much more than just a plain vanilla system for making purchases online. It is a comprehensive platform - using the Internet to make it easier, faster and cost effective for businesses to source their requirements on a timely basis, and in a way that is aligned with organizational goals and objectives. In the current scenario, characterized by focus on key strategic initiatives, lesser time-to-market and increased global competition, e-Procurement aids organizations in streamlining their entire purchasing process, so that they can focus on core business activities and increase profitability.

2.1.4 Concept of Service Delivery

Service delivery can be assessed in the form of changes in the well-being of individuals that can be attributed to particular interventions, such as a project, program or policy by the institution concerned (Gupta, 2005). County government is expected to contribute to service delivery which in turn causes advancement towards attainment of the Millennium Development Goals (Dehn, et al., 2005). Service delivery can be viewed in terms of the quality and quantity of services they provide. According to Amin et al. (2008), the measurement of service delivery can represent a powerful mechanism for obtaining

feedback from client to providers and a better understanding of service delivery will enable policy makers to increase the efficiency and effectiveness with which resources are translated into welfare outcomes. Efficiency is the ratio of translation of resources into outcomes while effectiveness refers to the degree to which objectives are achieved and the extent to which targeted problems are solved (Stevenson & William, 1999). Efficiency is generally seen as the ratio of time or resources spent in performing a task to some pre determined standard time or resources.

A study carried out by Akaranga (2008), revealed that all government ministries and state corporations in Kenya had not done well in service delivery. He attributed this to implementation of performance contracting.

2.1.5 E-procurement and Service Delivery

E-procurement is expected to improve performance of institutions thereby enhancing their service delivery. In the case of government at regional and national levels, performance in form of service delivery is argued can accrue from Studies have been done on e-procurement. Batenburg (2007) conducted a study on e-procurement adoption by European firms. The study concluded that there exists country differences in 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. Another study was also carried out by Greunen, Herselman and Niekerk (2010) on the implementation of regulation-based e-procurement in the Eastern Cape provincial administration, South Africa.

2.2 Empirical Literature Review

2.2.1 E-Ordering and Service Delivery

Barngetuny and Kimutai (2015) sought to investigate the effects of E-procurement on supply chain management performance in Elgeyo Marakwet County. The study was conducted on public entities in Elgeyo Marakwet County. The study was limited to e-procurement and supply chain management performance. The study adopted the use of questionnaires and interview schedules to collect primary data. The research also adopted descriptive design to collect the quantitative and qualitative data that describes the effects of e-procurement and supply chain management. The target population for this study was

employees in public entities in Elgeyo Marakwet County; this included the County Government of Elgeyo Marakwet and Iten County Referral Hospital. This study also adopted stratified sampling technique where the study population was stratified into management and non management strata. Then purposive sampling was used to select 30 employees of Elgeyo Marakwet County and 10 employees from County referral hospital Iten. Data collected was done through both qualitative and quantitative. Qualitative data was analyzed through content analysis. Quantitative data was analyzed through the use of frequency distribution, mean scores and standard deviations. With the help of Statistical Package for Social Science (SPSS) the findings were then presented in form of frequency distribution tables, bar charts and pie charts. The data was finally summarized according to the study's specific objectives. The study established a correlation between all the variables of the study and the independent variables.

Yen and Ng (2013) conducted a study on the impacts of e-procurement in the procurement process on the supply chain by analyzing the project of Hong Kong Textile. They used SWOT analysis to describe impacts in each stage of procurement process. Strengths and weaknesses were used as internal performance measurement in the procurement process, for example, efficiency, and effectiveness. Opportunities and threats were identified as the electronic environments that support e-procurement.

Wojciech and Zahir (2010) aimed to present electronic procurement benefits identified in four case Central Europe companies from the information technology (IT), hi-tech sector. Multi-case study design was applied. The benefits reported in the companies were analyzed and classified according to taxonomies from the information systems discipline. Finally, a new benefits classification was proposed. The framework was developed based on information systems literature. The research confirmed difficulties with benefits evaluation, as, apart from operational benefits, non-financial, intangible benefits at strategic level were also identified.

Gupta and Palmer (2003), using a survey of 168 US public and private sector organizations, indicate that e-Procurement technologies will become an important part of supply chain management and that the rate of adoption will accelerate as the adopters share their experiences of success factors and perceptions of low risk. Similarly, Barua,

Konana, Whinston and Yin (2001) identified e-Procurement as the element of e-business most contributory towards the e-Business operational excellence of large corporations.

In another study, the extent to which organizations had plans to utilize electronic marketplaces for purchases was investigated. The survey was conducted in Norway. Survey results indicated that most organizations had plans, only 3 percent had no plans (Petter & Anne, 2002) while 34 percent had concrete plans to utilize electronic marketplaces for purchases. Responding organizations planned to purchase significantly more indirect goods than indirect services on electronic marketplaces. The main benefit expected from utilizing electronic marketplaces for purchases was reduced transaction costs. Strategic importance of business to business electronic markets can significantly predict the extent to which responding organizations and plans to utilize electronic marketplaces for purchases.

A study done by Basheka et al. (2012) on adoption of new approaches for public procurement efficiency: critical success factors (CSFs) for the implementation of e-procurement in Uganda's public sector confirm that in Uganda's context, the major CSFs for e-procurement include: careful involvement of suppliers; systematic risk management approaches; systematic redesign of organizational processes; use of experienced consultants; careful selection of software providers. The five critical success factors identified were: employees and management commitment to success of adoption; reliability of information technology and supplier performance; monitoring the performance of e-procurement systems; user acceptance of e-procurement systems and top management support. The challenges established are: resistance to change from employees, lack of e-procurement approval by company board, existence of old IT equipment among the firms that need overhaul and lack of managerial support.

Matunga, Nyanamba and Okibo (2013) assessed the effect of e-procurement on efficient procurement in public hospitals. The objectives of the study were to assess the extent to which e-procurement has improved the quality of goods in public hospitals, to determine the extent to which e-procurement has reduced price charged for goods purchased in public hospitals and to identify the extent to which e-procurement has ensured best value for money in public hospitals procurement. The study established that Kisii Level 5 hospital uses e-tendering, e-quotations and e-sourcing as the main e-procurement

applications and that the greatest challenges faced when using e-market provider was inadequate funding, organization's inability to handle change management and lack of training of employees on how to use the system. The study concluded that public hospitals have adopted some of the e-procurement applications regardless of the challenges that accompany the adoption.

Rotich and Okello (2015) analysed use of e-procurement on performance of the procurement functions of county governments in Kenya. This study aimed at examining the relationship between e-procurement and procurement performance of County Governments in Kenya. Data was collected in Kericho County. This study adopted a correlational research design. The sample frame was purposively selected to constitute 120 employees working in procurement, finance and accounts and IT departments of Kericho County using stratified random sampling. Data was collected by use of structured questionnaires. Both descriptive analysis as well as inferential analysis (correlation analysis) was used. The results revealed that e-procurement is positively related with performance of supply chain function of County Governments in Kenya. The study therefore recommended that the Government come up with policies on adoption of e-procurement practices and provide critical resources and leadership in adoption of e-procurement.

The studies above investigated plans to utilize electronic marketplaces (Petter and Anne, 2002), Wojciech and Zahir, (2010) aimed to present electronic procurement benefits while Gupta and Palmer (2003), investigated adoption of e-procurement. Similarly, Barua, Konana, Whinston and Yin (2001) identified e-Procurement as contributory towards the e-Business operational excellence of large corporations quite apart from Basheka, Oluka and Mugurusi (2012) who looked at the adoption of new approaches for public procurement efficiency: critical success factors (CSFs) for the implementation of e-procurement. Rotich and Okello (2015) analysed use of e-procurement on performance of the procurement functions also inconsistent with Matunga, Nyanamba and Okibo (2013) who assessed the effect of e-procurement on efficient procurement. Yen and Ng (2013) standing alone, conducted study on the impacts of e-procurement in the procurement process. None of the studies above addressed e-ordering specifically. Neither did they address e-ordering and its relationship with service delivery. Consequently, knowledge is lacking on effect of e-ordering on service delivery.

Particularly, it is not known what effect e-ordering has on service delivery among county governments in Western Kenya.

2.2.2 E-Contracting and Service Delivery

Ngeno and Owenga (2015) carried out a study to determine the influence of technology on progress of e-procurement in the county, assess how organizational culture affects the implementation of e-procurement and to establish how environment influences the use of e-procurement system in the County Government of Bomet. The research study employed a cross sectional survey design that use simple and stratified random sampling methodology with the simple frame being constructed from the departments which are concerned with the use of e-procurement. The sample size was drawn from a population of 45 staff members working in procurement, accounts and IFMIS/ICT departments. In this regard, 45 questionnaires were administered to all the staff working in the said departments and a total of 41 questionnaires were successfully filled and returned representing a 91% response rate. The research established that preferred way of procurement is e-procurement with 76% of the respondents supporting while 24% preferred the manual way. The research found out that technology, environment and organizational culture greatly influences the adoption of the e -procurement system.

Vaidya, Sajeev and Callender (2006) conducted a study on Critical Factors that Influence e-procurement Implementation Success in the Public Sector in England and Australia. They found out that despite the efforts put by the governments through reforms towards adoption of e-procurement, adoption of e-procurement still remains a major challenge for many procurement functions. The findings further revealed that successful implementation of e-procurement established systems and feedback mechanism. They associated e-procurement with improved procurement performance.

Abarden Group (2001) found out that e-procurement solutions leads to improved satisfaction of customer demands, improved contract compliance, enhanced supply chain capacity, reduced inventory costs and improved inventory management. The group identified the key to e-procurement success in high technology firms in Netherlands and Central America. They pointed out that e-procurement should not be treated as a strategy, the organization must know what is spent on, the organization must have a plan, the implementation of e-procurement begin by benchmarking, the implementation of e-

procurement must be led from the top, the implementation of e-procurement must be supported by other functional areas.

She and Thuraisingham (2007) study on security for Enterprise Resource Planning Systems in USA established that e-procurement enhances security of management data which may enhance procurement performance. The above finding is in agreement with the findings of Martinez (2008) from Asian Pacific, European, North American, and South American Region on Procurement Goals, ERP, and Supplier Coordination in the Context of Competition and Global Environment that ERP systems improve customer delivery and enable collaboration with suppliers and customers. Improved supplier and customer relations and enhance achievement of procurements strategic goals. Nah and Delgado (2006) in his study on critical Success Factors for Enterprise Resource Planning Implementation and Upgrade in Santiago revealed that implementation of ERP requires critical factors such as: business plan and direction, change management, communication, appropriate technical skills, project and implementation management, top management commitment and leadership and systems management.

Ho, Tai, Wu and Jou (2008) explored the impacts of web-based e-procurement on organizational performance. From organizational and inter-organizational perspectives, the study proposed a performance impact model of implementing Web-based e-procurement system for direct procurement. In the performance impact model, the strategic dimension is about partner relationship, and the operational efficiency dimension included supplier performance, buyer performance, process integration, and process automation. Based on a survey of Taiwanese manufacturing firms, the results of this study showed that the electronic execution of purchasing activities improves both of the operational efficiency dimension and the strategic dimension. The results demonstrated implementing Web-based e-procurement system not only could enhance the performance of the buyer organization but also could enhance the performance of the supplier organization and improve partner relationship management.

Oduor (2010) while evaluating the effects of information technology on the performance of retail industry in Nairobi, Kenya observed that all over the world most organizations have involved computers and computerized operations systems to perform most tasks with organizations that vary from planning, management, storage of data and

communication process in their organization in order to bring efficiency and reliability with in operations. Despite of the fact that the adaptation of computerized systems is expensive the benefits that are associated with their adaptation cannot be overlooked and this has seen many organizations in the recent past allocating huge sums of money on the installation and implementation.

Motiwalla, Khan and Xu (2005) in a study by Muhia and Afande (2015) in Kenya with reference to Kenya Revenue Authority undertook a study to identify the factors that impact the adoption/use of e-business across three different sectors. The researchers concluded that similarities in the level of IT adoption were identified within sectors because engaging in a particular activity prompts firms to develop similar behavior patterns. This would explain why firms engaged in information-intensive activities are more likely to accept new technological innovations.

While Batenburg (2007) found that there exists country differences on e-procurement adoption, Abarden Group (2001) found out that e-procurement solutions leads to improved satisfaction of customer demands, improved contract compliance, enhanced supply chain capacity, reduced inventory costs and improved inventory management. This is consistent with the findings of She and Thuraisingham (2007) who established that e-procurement enhances security of management data. The above finding is also in agreement with the findings of Martinez (2008) on Procurement Goals. On the other hand Nah and Santiago (2006) investigated critical Success Factors for Enterprise Resource Planning Implementation and Upgrade and revealed that implementation of ERP requires critical factors such as: business plan and direction and others while Chin-Fu, *et al.* (2008) explored the impacts of web-based e-procurement on organizational performance quite apart from what Oduor (2010) did and found. Motiwalla, Khan and Xu (2005), did a general e-business study different from Vaidya, Sajeev and Callender (2006) who assessed critical factors that influence e-procurement. They identified the factors that impact the adoption/use of e-business. None of the studies above concentrated on effect of e-contracting on service delivery. As a consequence, there is lack of knowledge on this relationship particularly among county governments.

2.2.3 E-Information Sharing and Service Delivery

Anuar (2015) investigated the impact of electronic procurement technologies usage and procurement practices on procurement performance in an organization. The project paper posited a model of the relationships between e-procurement technology (EPT) usage, procurement practices (PPR), and procurement performance (PP). A survey technique using questionnaires was used. The findings suggested that EPT usage and Procurement Practices positively affects procurement performance in an organization. The findings of this paper primarily pertain to the operational level of the organization. Future research was suggested to isolate the impact of individual EPTs on organization performance.

Oyando, Kibet and Musiega(2014) sought to assess the factors that influence the performance of supplies unit with special focus on County Government of Kakamega. The study adopted a descriptive research design since the study intended to gather quantitative and qualitative data that would describe the effects of public procurement regulation on public procurement of devolved county governments in Kenya. The target population was the employees of Kakamega County Government. The total number of respondents in this study was 119. Primary data was gathered using semi-structured questionnaires where the respondent was issued with the questionnaires. Descriptive analysis was used; this included the use of weighted means, standard deviation, relative frequencies and percentages. Descriptive statistics was used to summarize the data. This included percentages and frequencies. Regression analysis was used to establish the relationship between the study variable. The study established that financial stability of a supplier had a positive effect on county government supplies units in Kakamega County. The study also revealed that quality management had a positive impact on county government supplies units in Kakamega County. The study further established that reliability of supplier had a positive effect on county government supplies units in Kakamega County. The study established the performance of suppliers before awarding tenders to them had positive influence on the county government supplies units in Kakamega County

Morteza, Daniel and Jose (2011) examined the factors within the technology-organization-environment (TOE) framework that affect the decision to adopt electronic commerce (EC) and extent of EC adoption, as well as adoption and non-adoption of different EC applications within small- and medium-sized enterprises (SMEs). A

questionnaire-based survey was conducted to collect data from 235 managers or owners of manufacturing SMEs in Iran. The data was analyzed by employing factorial analysis and relevant hypotheses were derived and tested by multiple and logistic regression analysis. Findings showed that EC adoption within SMEs is affected by perceived relative advantage, perceived compatibility, CEO's innovativeness, information intensity, buyer/supplier pressure, support from technology vendors, and competition. Similarly, description on determinants of adoption and non-adoption of different EC applications has been provided.

Wei-Hsi Hung (2014) explored the impact of Web-based e-procurement on performance: organizational, inter-organizational, and systems perspectives. This study investigated how the advantages derived from implementing a Web-based e-procurement system in a supply chain can influence a firm's organizational performance. They proposed a model that includes the contextual factors from organizational, inter-organizational, and systems perspectives involved in the processes of Web-enabled direct procurement. To test the model, the study conducted a survey in 105 manufacturing firms in Taiwan and used partial least-squares regression for data analysis. The results revealed that electronic purchasing activities improve organizational-level efficiency as well as the inter-organizational dimension. In addition, an enhanced partnership has a positive impact on the performance of both suppliers and buyers. Finally, system initiation and system breadth both have a positive impact on buyers' organizational performance.

Panayiotou, Gayialis, and Tatsiopoulos (2011) conducted a case study that focused on analyzing the Greek government procurement processes carried out by the General Secretariat of Procurement. This study identified tangible (quantifiable) and intangible (difficult to quantify) benefits. Tangible benefits included cost of supply reduction, tender costs reduction and lead time savings. Intangible benefits included process improvement and organizational benefits.

Another study was conducted by Croom and Brandon - Jones (2009). This study exploited issues related to implementation and impact of e-procurement in nine public sectors in the United Kingdom (UK). Five impacts were identified in this study, namely: change in total cost of acquisitions, changes in organizational characteristics, changes in governance structure, management and implementation.

Muhia and Afande (2015) studied adoption of E-Procurement Strategy and Procurement performance in State Corporations in Kenya. The focus was on Kenya Revenue Authority. The study aimed to determine Role of E-procurement strategies in enhancing procurement performance in state corporations in Kenya with reference to Kenya Revenue Authority. The study focused on the management and activities of the staff of Kenya Revenue Authority, Nairobi and included the staff from relevant Departments in the Organization. The researcher adapted a descriptive research design as there were variables which could not be quantified but could only be described in descriptive statistics. Through random stratified sampling method the researcher selected 45 respondents out of total of the 90 population. In addition, 20 suppliers were purposively selected to participate in the study. Findings of the study indicate that electronic communication positively influenced procurement performance in Kenya Revenue Authority as it leads to instant responses and real-time information. The findings also show that electronic order processing positively influenced procurement performance in Kenya Revenue Authority.

The findings also indicated that self-invoicing on behalf of clients can add to the bottom line, month-end reconciliation can end the problem of the wrong items being ordered or the wrong price being offered as business processes have been streamlined and all are working off the same catalog. The internet, via e-procurement, has made procurement more effective and efficient in the sense that purchasing of goods and services by organizations is made easier, faster and cheaper. Level of customer service influenced procurement performance in Kenya Revenue Authority.

Muinde and Shale (2014) studied role of procurement strategy in enhancing procurement performance of saving and credit cooperatives in Kenya. The overall objective of this study was to examine the role of e-procurement strategy in enhancing procurement performance of SACCOS in Kenya. A descriptive research design was used in this study. The study targets the entire 1000 staff working for Kitui Teachers Sacco Limited. A descriptive research design was used in this study aided by Statistical Package for Social Sciences (SPSS). It established that majority of the employees from procurement departments in SACCOS in Kenya possess adequate skills and competence to conduct e-procurement for innovations. The study concluded that SACCOS can employ effective

customer service level on e-procurement for long term SACCO success and the ability to expand and maintain a large and loyal customer base by implementing the use of technological innovations and ICT. The study concluded that e-business, electronic data interchange transaction costs management, and good governance and internet control application affects the procurement of SACCOS in Kenya. The study showed that audits and compliance of SACCOS in Kenya affect their procurement performance.

Njuguna, (2011) looked at the factors that have driven the adoption of e-procurement in telecommunication sector with a special focus on Safaricom Kenya ltd. The study found out that despite the potential demonstrated by various researchers in the area, e-procurement implementation and its general adoption got off to a slow start.

Njuguna (2011) and Muhia and Afande (2015) looked at adoption of e-procurement, but the former only investigated rate of adoption among telecommunication firms. The latter surveyed adoption of E-Procurement Strategy and Procurement Performance in State Corporations in Kenya and found that electronic communication positively influenced procurement performance. Similarly Morteza, Daniel and Jose (2011) examined electronic commerce (EC) adoption and found that EC adoption within SMEs is affected by perceived relative advantage, perceived compatibility, CEO's innovativeness, information intensity, buyer/supplier pressure, support from technology vendors, and competition. Wei-Hsi Hung (2014) explored the impact of Web-based e-procurement on performance: organizational, inter-organizational, and systems perspectives and revealed that electronic purchasing activities improve organizational-level efficiency as well as the inter-organizational dimension. Muinde and Shale (2014) on the other hand studied role of procurement strategy in enhancing procurement performance of saving and credit cooperatives and concluded that e- business, electronic data interchange transaction costs management, and good governance and internet control application affects the procurement of SACCOS in Kenya. Panayiotou, Gayialis, and Tatsiopoulos (2011) did a case study on the Greek government procurement processes carried out by the General Secretariat of Procurement and found that e procurement had benefits which include cost of supply reduction, tender costs reduction, lead time savings, process improvement and organizational benefits. Similarly, Croom and Brandon - Jones (2009) exploited issues related to implementation and impact of e-procurement in nine public sectors in the United Kingdom (UK) and identified change in total cost of acquisitions, changes in

organizational characteristics, changes in governance structure, management and implementation as the impacts.

From the literature above, it can be pointed out that a number of the studies focused on adoption of e-procurement. Others looked at impacts of e-procurement and e-commerce adoption. They focused on procurement and or operational performance associated with e procurement and or e-commerce. None of the studies investigated specifically e-information sharing against service delivery by a government entity. Knowledge on the effect of e-information sharing on service delivery among county governments is therefore lacking.

2.2.4 E-Sourcing and Service Delivery

Rotich, Bernard and Waruguru (2015) examined the relationship between e-tendering and procurement performance of County Governments in Kenya. Data was collected in Kericho County. The study adopted a correlational research design. The target population for this study was employees of Kericho County while the sample frame was purposively selected to constitute 120 employees working in procurement, finance and accounts and IT departments of Kericho County. Stratified sampling was used to determine the sample size after while the sample elements were selected through simple random sampling. Data was collected by use of structured questionnaires that were issued by the researcher and collected later for analysis. Frequencies and percentages were used to describe the independent and dependent variable while correlation analysis was used to test the relationship between e-tendering and procurement performance. The results revealed that e-tendering is positively related with performance of supply chain function of County Governments in Kenya.

Quesada, Gonzalez and Mueller (2010) investigated the impact of electronic procurement technologies on procurement practices (PPR) and procurement performance (PP). The paper posited a model of the relationships between e-procurement technology (EPT) usage, PPR, and PP. The model was tested and validated using a sample of 368 procurement specialists in the USA. The findings suggested that EPT usage positively affected managers' perceptions of both PPR and PP. The study whose findings primarily pertained to operational level of an organization, suggested that future research should isolate the impact of individual EPTs on firm performance.

Wojciech and Zahir (2010) aimed to present electronic procurement benefits identified in four case companies from the information technology (IT), hi-tech sector in the UK. Multi-case study design was applied. The benefits reported in the companies were analyzed and classified according to taxonomies from the information systems discipline. Finally, a new benefits classification was proposed. The framework was developed based on information systems literature. The research confirmed difficulties with benefits evaluation, as, apart from operational benefits, non-financial, intangible benefits at strategic level were also identified. New taxonomy was proposed, which allowed evaluation of the complex e-procurement impact.

Nepelski (2006) examined how electronic procurement influences the organization of economic transactions among firms in Netherlands Testing the relationship between the effect of electronic procurement on procurement cost and sourcing strategy, the study exposed new evidence that electronic procurement leads to more market transactions. The conclusion was that electronic procurement increases market transparency, lowers search and supplier switching costs and improves the management of supply chain and contradicts the predictions that ICT will lead to a dominance of network-like organizational form and an increasing reliance on hybrid forms of organizing economic transactions.

Helen and Christine (2008) examined factors influencing e-procurement adoption in the United Nations (UN) system of organizations. They used an extended multi-method case study of e-procurement in the UN. A three stage methodology was adopted – a questionnaire survey of UN organizations, case studies of e-procurement issues in three UN organizations, and an interactive workshop with the heads of purchasing of UN organizations. The Study found that e-procurement is being used in the UN for transactions of routine, non-strategic purchases. UN development agencies are more likely to adopt e-procurement than humanitarian aid agencies as their operations are more predictable.

A survey was conducted in Norway. Survey results in indicate that most organizations had plans, only 3 percent had no plans (Petter & Anne, 2002) while 34 percent had concrete plans to utilize electronic marketplaces for purchases. Responding organizations planned to purchase significantly more indirect goods than indirect services on electronic

marketplaces. The main benefit expected from utilizing electronic marketplaces for purchases was reduced transaction costs. Strategic importance of business to business electronic markets can significantly predict the extent to which responding organizations had plans to utilize electronic marketplaces for purchases.

Liyi, Pinghao and Qihua (2011) aimed to report on users' information behavior in China, a topic which has not been researched extensively. The study investigated users' information behavior at seven "211 Project" universities in Wuhan, a city in central China. The questionnaire included question about respondents' basic identifying information (educational level, job, etc.) and their information service requirements. Correlations among users' education level, users' jobs, users' retrieval methods, literature use, etc. were analyzed. The results showed that most National Science and Technology Library (NSTL) users are graduate students and young staff members. And the number of male users surpasses female ones slightly. The purpose of the utilization of electronic resources for customers is scientific research, teaching and the need for self-development. During a year, the demand of user is the highest in March and the lowest in August. The users' knowledge service types include learning the progress of science and technology, citation retrieval and analysis, statistical analysis, intelligent retrieval and knowledge aggregation.

Uba et al. (2013) used survey design on 202 employees to establish the relationship between e-procurement and the performance of selected service organizations in Uganda; and found that there is a significant relationship between e-procurement and performance of the organizations. They conceptualized e-procurement as e-purchasing, e-market research, e-payment and e-data interchange. This proposition comes as a result of penetration of IT in all aspects of life to the effect that today everything tends to rotate around use of technology. Also to note is that competition compels one to devise means to beat others and technology is the way to go.

Quesada, Gonzalez and Mueller (2010) found that electronic procurement technologies usage positively affects managers' perceptions of both procurement practices and procurement practices. He dealt with perceptions of managers. On the other hand Nepelski (2006) found that electronic procurement increases market transparency, lowers search and supplier switching costs and improves the management of supply chains.

Petter and Anne (2002) added a lone voice on this subject. They looked at Norwegian firms plans for e-marketplace engagements. These works differ with those of Helen and Christine (2008) who examined factors and singled out nature of transactions and nature of agencies as affecting plans for adoption. Liyi, Pinghao and Qihua (2011) reported on users' information behavior in China. They found NSTL users are graduate students and young staff members. Wojciech and Zahir, (2010) studied IT companies and presented electronic procurement benefits.

The reviewed studies covered e-procurement and defined it in various ways. They investigated perceptions of managers on e-procurement, plans for e-procurement adoption, factors affecting e-procurement and e-procurement users' information behavior. Further, they looked at operational performance. They focused on IT and service organizations. None of the studies examined e-sourcing and service delivery by government institutions. Knowledge on the effect of e-sourcing on service delivery by such institutions as county governments is lacking.

CHAPTER THREE
RESEARCH METHODOLOGY

This chapter presents the methodology that the researcher used to conduct the study. It outlines the research design, study area, target population, sample size, sampling technique, data type and source, data collection method, instrument validation and reliability test, data analysis and presentation.

3.1 Research Design

This study adopted a correlation research design. Quantitative approach was used. A research design functions as the research blue print for measurement and analysis of data. Kothari (2004) describe a research design as a plan and a structure of investigation conceived to find answers to research questions. According to Mugenda and Mugenda (2003), correlational research design is connected with providing solutions to the problems. It is found suitable for examining effect.

3.2 Study Area

The study area was county governments within western Kenya. Western Kenya was defined in this study by the counties of Vihiga, Bungoma, Kakamega and Busia. The counties are within the former western province, $0^0$30'N $34^0$35'E. See appendix 3. It covers an area of 7,400.4 km^2 with a total population of 4,334,202 (KNBS, 2009). It is bordering Uganda and it is on the west of Eastern Rift Valley.

3.3 Target Population

The population of this study comprised all procurement officers and committee members engaged in procurement activities categorized as below in Table 3.1.

Table 3.1: Population distribution

County Government	Population
Procurement officers	40
Non Procurement officer Committee members	160
TOTAL	**200**

Source: County Governments of Busia, Bungoma, Vihiga and Kakamega (2016)

3.4 Sample Size and Sampling Technique

The formula adopted for the sample size is

$n = N / [1+N (e)^2]$ (Yamane, 1967) (3.1)

Where n is the required sample size, N (200) is the population of procurement officers and committee members and e is the level of precision at 95% confidence level set at 0.05.

Therefore;

$n = 200 / [1+200(0.05)*(0.05)] = 200/1.5$

= 133 Procurement officers and non procurement officer committee members

Table 3.2: Sample distribution

County Government	Population	Sample
Procurement officers	40	40
Non Procurement officer Committee members	160	93
TOTAL	**200**	**133**

Source: Adapted from County Governments of Vihiga, Bungoma, Kakamega and Busia, 2016

Cluster sampling was used with counties forming the clusters. Procurement officers were picked by purposive sampling. Simple random sampling was then used to pick the non procurement officer procurement committee members. The two groups formed the sample for the study.

3.5 Data Collection Procedure

Primary data was collected using self-administered structured questionnaire. Secondary data was collected through document review.

3.5.1 Data Type and Source

Both primary and secondary data was used. Primary data was obtained from respondents while secondary data was collected from documents in the custody of the county

governments concerned. The researcher gathered secondary data from the governments' records and related reports.

3.6 Data Collection Instruments and Techniques

The study used self administered questionnaires as its data collection instrument.

3.7 Reliability Test for Data Collection Instrument

Reliability of the questionnaire was done using a pilot test which sought to answer the question, does the questionnaire consistently measure whatever it purports to measures? 10 procurement officers drawn from the four counties were used in order to confirm the clarity of the questions. The 10 procurement officers were however excluded from the final sample of the study leaving an effective sample of 123 respondents. The instrument was deemed to be reliable at Cronbach's Alpha of .701 (Norland, 1990).

Table 3.3: Summary of Pilot Results Based on Cronbach's Alpha Reliability Test

Variables	No. of Items	Cronbach's Alpha
E-Ordering	4	0.713
E-Contracting	4	0.723
E-Information sharing	4	0.750
E-Sourcing	4	0.765
Effectiveness	5	0.875
Efficiency	5	0.716

Source: Field Data, 2016

All the variables had alpha values of above 0.701, indicating strong internal consistency among measures of variable items.

3.7.1 Validity Test for Data Collection Instrument

The validity of a measure is defined as the extent to which a construct or a set of measures correctly represents the concept of the study, and the degree to which it is free from any systematic or non-random error (Nunally, 1978). Validity was established using

a panel of experts /academic advisers. The basic principle for establishing validity is the same as for corroborating audit observations and conclusions generally, that is, compared to evidence from different sources and of a different nature.

3.8 Data Analysis and Presentation

The study adopted a correlational research approach which is used to summarize the characteristics of the respondents. The quantitative data was analysed by use of both the descriptive and inferential statistics. The descriptive statistics involved the use of, frequencies, percentages, mean, and standard deviation while inferential statistics entailed use of Pearson correlation and multiple regression analyses. Results were presented in tables and pie chart.

3.8.1 Model Specification

The correlation model used in the study is: (3.2)

$$r = \frac{N\Sigma xy - (\Sigma x)(\Sigma y)}{\sqrt{[N\Sigma x^2 - (\Sigma x)^2][N\Sigma y^2 - (\Sigma y)^2]}}$$

Where:

N	=	number of pairs of scores
Σxy	=	sum of the products of paired scores
Σx	=	sum of x scores
Σy	=	sum of y scores
Σx^2	=	sum of squared x scores
Σy^2	=	sum of squared y scores

We use the symbol **r** to stand for the correlation.

In order to exhibit the effect of E- Procurement on service delivery, the estimation procedure Daniel and Jose (2011) used was adapted as:

$$\mathbf{Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + e_i} \quad (3.3)$$

Where:

Y= is Service delivery (for $_i = 1...2$)

X_1 = e-ordering

X_2 = e-contracting

X_3 = e-information sharing

X_4 = e-sourcing

β_0 =Y intercept in the equation

β_1 = measure of effect of e-ordering on service delivery

β_2= measure of effect of e-contracting on service delivery

β_3 = measure of effect of e-information sharing on service delivery

β_4= measure of effect of e-sourcing on service delivery

ε = error term.

CHAPTER FOUR
RESULTS AND DISCUSSIONS

4.1 Response Return Rate

The researcher administered the questionnaires in person to the respondents. Some respondents filled the questionnaires in the researcher's presence and returned them immediately. Others opted to fill them at their own free time. Out of the 123 questionnaires administered to the respondents, 120 of them were returned constituting a response rate of 97.56 % of the administered questionnaires.

4.2 Demographic Characteristics of the Sample

The study sought to establish the background of the respondents in the study in terms of period worked in the county, highest education level attained and experience in procurement profession. The results were as shown in the following sections.

Table 4.1: Period worked in the county government

Period	Frequency	Percent	Valid Percent	Cumulative Percent
One year	20	16.7	16.7	16.7
2 years	15	12.5	12.5	29.2
3 years	60	50.0	50.0	79.2
4 years	25	20.8	20.8	100.0
Total	**120**	**100.0**	**100.0**	

Source: Field Data, 2016

Table 4.1 shows that 50.0 % of respondents had worked in the county governments for 3 years which therefore indicates low labour turnover, 20.8 % had worked for a period 4 years and only 16.7 % have been in the counties for a period of 1 year. This implies that the data was obtained from respondents who had gotten experience on the use of the e-procurement and were also more familiar with the service delivery dynamics in the counties.

Table 4.2 Highest education level attained

Highest Education level	Frequency	Percent	Valid Percent	Cumulative Percent
Professional certificate	66	55.0	55.0	55.0
Professional diploma	38	31.7	31.7	86.7
Bachelor's degree	9	7.5	7.5	94.2
Master's degree	7	5.8	5.8	100.0
Total	**120**	**100.0**	**100.0**	

Source: Field Data, 2016

The findings in the Table 4.2 shows that 55.0% of the respondents are professional certificate holders, 31.7 % are professional diploma holders, 7.5% have bachelor's qualification and only 5.8 % have master's qualification. This implies that data for the study was obtained from learned respondents who have easily got adopted to use e-procurement systems and service delivery matters hence the reliability of the data.

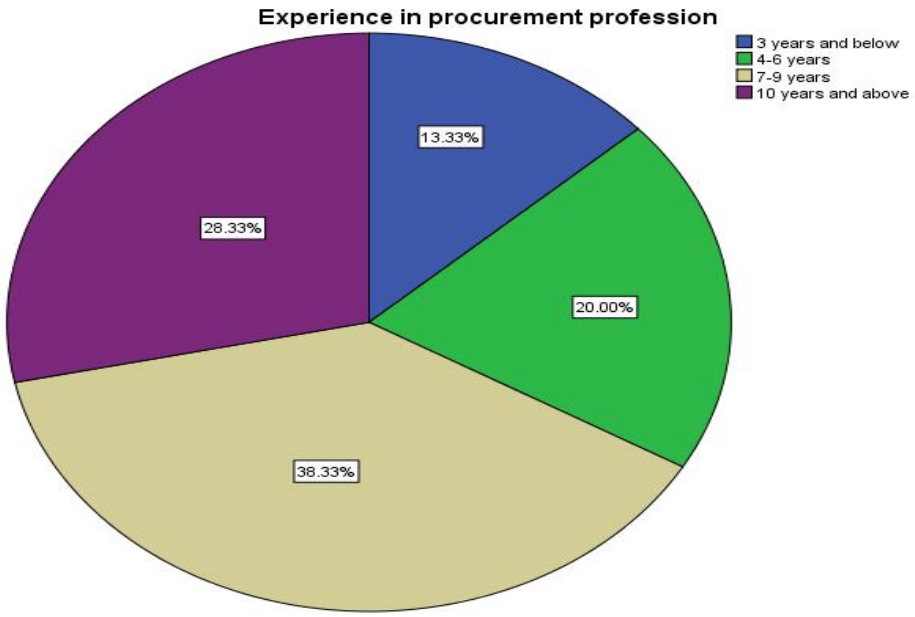

Figure 4.1: Respondents' Experience in Procurement Profession

Source: Field Data, 2016

Figure 4.1 shows that majority (38.33%) of respondents had been in the procurement profession for a period between 7-9 years which therefore indicates that the data was obtained from respondents who had gotten professional experience on the e-procurement and were also more familiar with the service delivery dynamics in the profession.

4.3: Descriptive Statistics on E-Procurement and Service Delivery among Counties in Western Kenya

Descriptive statistics on the extent of e-procurement and service delivery among the counties in Western Kenya namely frequencies, percentages; mean and standard deviations were computed.

4.3.1 Extent of E-Ordering Among counties in Western Kenya

The extent of e-ordering among the counties in the sample was measured using four items. Respondents were asked to rate the extent to which e-ordering was practiced among the counties in Western Kenya. Responses were elicited on a 5-point scale (1-very low, 2-low, 3-moderate, 4-high, and 5-very high). These responses were then analyzed using frequencies, means and standard deviations.

Table 4.3: Rating of Extent of E-Ordering Practice Among Counties in Western Kenya (n =120)

Constructs	5	4	3	2	1	Mean	Std. Dev
Overall Mean = 4.0896							
a. Placing orders for suppliers on line	68(56.7%)	25(20.8%)	14(11.7%)	7(5.8%)	6(5.0%)	4.1833	1.15942
b. Defining order specification on line							
c. Receiving order acceptance on line	73(60.8%)	20(16.7%)	13(10.8%)	6(5.0%)	8(6.7%)	4.2000	1.22028
d. Purchase approval done on line	69(57.5%)	23(19.2%)	19(15.8%)	4(3.3%)	5(4.2%)	4.2250	1.09592
	58(48.3%)	16(13.3%)	20(16.7%)	10(8.3%)	16(13.3%)	3.750	1.46241

Key: *Very high=5, High =4, Moderate=3, Low=2, Very low=1*

Source: Field data, 2016

Results presented in Table 4.3 suggest that the respondents rated highly all the constructs of E-ordering within their counties. The overall mean response score for all the items was 4.0896, coded as high meaning that E-ordering is highly practiced by counties in Western Kenya. The most highly rated activity was the receiving order acceptance on line (Mean =4.2250, Std. Dev =1.09592) while the least rated activity was the purchase approval done on line (Mean=3.750, Std. Dev = 1.46241). Besides, the small values of the standard deviations imply that there were minimal variations in the responses on the items that were rated. This result is in tandem with the finding of Basheka *et al*, 2012 who document that e-ordering was highly practiced by enterprises. On the contrary, the finding is at variance with that of Gupta and Palmer, 2003 who found that e-ordering was minimally practiced by organizations in India.

4.3.2 Extent of E-Contracting Among counties in Western Kenya

The extent of e-contracting among the counties in the western Kenya was measured using four items. Respondents were asked to rate the extent to which e-contracting was practiced among the counties in the sample. Responses were elicited on a 5-point scale (1-very low, 2-low, 3-moderate, 4-high, and 5-very high). These responses were then analyzed using frequencies, means and standard deviations.

Table 4.4: Rating of Extent of E-Contracting Practice Among Counties in Western Kenya (n =120)

Constructs	5	4	3	2	1	Mean	Std. Dev
Overall Mean = 2.041675							
a. Signing of agreements on line	17(14.2%)	13(10.8%)	16(13.3%)	26(21.7%)	48(40.0%)	2.3750	1.45557
b. Monitoring contract on line	14(11.7%)	7(5.8%)	10(8.3%)	29(24.2%)	60(50.0%)	2.0500	1.37107
c. Evaluating contract on line	8(6.7%)	9(7.5%)	10(8.3%)	23(19.2%)	70(58.3%)	1.8500	1.24786
d. Delivery of contract documents on line	5(4.2%)	9(7.5%)	14(11.7%)	32(26.7%)	60(50.0%)	1.8917	1.13608

Key: *Very high=5, High =4, Moderate=3, Low=2, Very low=1*

Source: Field data, 2016

Table 4.4 results suggest that the respondents rated low all the constructs of E-contracting within their counties. The overall mean response score for all the items was 2.041675, coded as low meaning that E-contracting is lowly practiced by counties in Western Kenya. This finding is inconsistent with previous studies (Batenbury, 2007; Oduor, 2010) who found that e-contracting element of E-procurement was widely practiced among organizations in the public sector.

4.3.3 Extent of E-Information sharing among counties in Western Kenya

The extent of e-information sharing among the counties in the sample was measured using four items. Respondents were asked to rate the extent to which e-information sharing was practiced among the counties in Western Kenya. Responses were elicited on a 5-point scale (1-very low, 2-low, 3-moderate, 4-high, and 5-very high). These responses were then analyzed using frequencies, means and standard deviations as shown below.

Table 4.5: Rating of Extent of E-Information sharing Practice Among Counties in Western Kenya (n =120)

Constructs	5	4	3	2	1	Mean	Std. Dev
Overall Mean = 4.09375							
a. Viewing supplier catalogues on line	50(50.0%)	20(16.7%)	18(15.0%)	12(10.0%)	10(8.3%)	3.900	1.34352
b. Gathering information on suppliers previous clientele on line	54(45.0%)	30(25.0%)	16(13.3%)	11(9.2%)	9(7.5%)	3.9083	1.27679
c. Distributing information about pricing and exchanging technical information	66(55.0%)	36(30.0%)	13(10.8%)	0(0.00%)	5(4.2%)	4.3167	0.9700
d. Electronically consult references for service delivery	67(55.8%)	30(25.0%)	13(10.8%)	6(5.0%)	4(3.3%)	4.250	1.05320

Key: *Very high=5, High =4, Moderate=3, Low=2, Very low=1*

Source: Field data, 2016

Results presented in Table 4.5 suggest that the respondents rated highly all the constructs of E-information sharing within their counties. The overall mean response score for all the items was 4.09375, coded as high meaning that E-information sharing is highly practiced by counties in Western Kenya. The most highly rated activity was distributing information about pricing and exchanging technical information (Mean =4.3167, Std. Dev =0.9700) while the least rated activity was viewing supplier catalogues on line (Mean=3.900, Std. Dev = 1.34352). These results are in tandem with those of Njuguna, 20111; Muhia and Afande, 2015; and Morteza, David and Jose, 2011 who document that E-information sharing is highly practiced among organization in both private and public sectors in the advent of technology.

4.3.4 Extent of E-Sourcing among counties in Western Kenya

The extent of e-sourcing among the counties in the sample was measured using four items whereby, respondents were asked to rate the extent to which e-sourcing was practiced among the counties in Western Kenya. Responses were elicited on a 5-point scale (1-very low, 2-low, 3-moderate, 4-high, and 5-very high). These responses were then analyzed using frequencies, means and standard deviations.

Table 4.6: Rating of Extent of E-Sourcing Practice Among Counties in Western Kenya (n =120)

Constructs	5	4	3	2	1	Mean	Std. Dev
Overall Mean = 4.077075							
a. Searching for new suppliers on line	69(57.5%)	21(17.5%)	19(15.8%)	5(4.2%)	6(5.0%)	4.1833	1.15215
b. Supplier appraisal on line	49(40.8%)	26(21.7%)	21(17.5%)	14(11.7%)	10(8.3%)	3.750	1.32367
c. Electronically search for supplier location	78(65.0%)	19(15.8%)	11(9.2%)	9(7.5%)	3(2.5%)	4.3333	1.07947
d. Using electronic supplier catalogues	56(46.7%)	30(25.0%)	24(20.0%)	3(2.5%)	7(5.8%)	4.0417	1.14051

Key: *Very high=5, High =4, Moderate=3, Low=2, Very low=1*

Source: Field data, 2016

Table 4.6 results suggest that the respondents rated highly all the constructs of E-sourcing within their counties. The overall mean response score for all the items was 4.077075, coded as high meaning that E-sourcing is highly practiced by counties in Western Kenya. This finding is consistent with those of Uba *et al,* 2013; Helen and Christine, 2008 who report that e-sourcing dimension of e-procurement as being the most prevalent practice among organizations in the developed world.

4.4: Effect of E-Ordering on Service Delivery

In order to assess the effect of E-ordering on service delivery, Pearson's correlation and multiple regression analyses were performed and the results are summarized in the Tables 4.7 and 4.8 as shown below.

Table 4.7: Correlations of E-Ordering with Service delivery of County governments in Western Kenya

Variables		1	2	3
1.	E-Ordering	1		
2.	Effectiveness	.457**		
		(.000)	1	
3.	Efficiency	.341**		1
		(.000)		

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field data, 2016

Table 4.7 indicates that E-ordering had a positive and significant association with effectiveness (r =.457, p =.000) and efficiency (r = .341, p = .000) implying that use of E-ordering by county governments' leads to improved efficiency and effectiveness. These findings are in tandem with previous studies (Rotich and Okello, 2015; Yen and Ng, 2013 and Gupta and Palmer, 2013) who report a positive association between E-procurement and performance of enterprises. However, the results are at variance with the findings of Matunga, Nyanamba and Okibo (2013) who found a negative association between E-ordering and service delivery.

The correlation coefficient of this association however, is small (r < .50) indicating that some other variables might be influencing the associations between the variables. As a

result, further analysis permitting all variables that influence county governments' service delivery at once is necessary (Maddala, 2005).Multiple regression analysis, a multivariate analysis technique is used to estimate equation 3.1. Table 4.8 presents multiple regression results on the effect of E-Procurement on service delivery of county governments in Western Kenya.

Table 4.8: Multiple Regression Analysis Estimation Results on the Effect of E-Procurement on Service Delivery of County Governments in Western Kenya

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	Beta	Std. Error	Beta			Tolerance	VIF
(Constant)	.089	.171		.523	.604		
E-Ordering	.353	.064	.430	5.479	.000	.125	7.995
E-Contracting	.215	.088	.158	2.448	.018	.186	5.385
E-Information sharing	.449	.100	.421	4.482	.000	.087	11.440
E-Sourcing	.414	.090	.363	4.595	.000	.612	1.634

a. Dependent Variable: Service delivery

Source: Field data, 2016

Table 4.8 exhibits the results of the multiple regression analysis. The results indicate that E-ordering was a positive significant predictor of service delivery ($\beta = .353$ ($p = .000$). This value is statistically significant since the p-value is less than 0.01. It can be inferred from this value that a unit change in e-ordering leads to an increase in service delivery of 0.353, all things being fixed. This result corroborates the findings of Rotich and Okello (2015); Yen and Ng (2013) and Gupta and Palmer (2013) who found a positive relationship between E-procurement and performance of enterprises. However, the results contradict the findings of Matunga, Nyanamba and Okibo (2013) who found a negative and significant ($p = 0.001$) relationship between e-ordering and service delivery.

From the findings of objective one, it can be concluded that embracing E-ordering by county governments' leads to improved service delivery.

4.5 Effect of E-Ccontracting on service delivery

In order to assess the effect of E-contracting on service delivery, Pearson's correlation and multiple regression analyses were performed and the results are summarized in the Tables 4.9 and 4.10.

Table 4.9: Correlations of E-Contracting with Service delivery of County governments in Western Kenya

Variables	1	2	3
1. E-Contracting	1		
2. Effectiveness	.354*		
	(.0162)	1	
3. Efficiency	.265*		1
	(.023)		

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Field data, 2016

Table 4.9 indicates that E-contracting had a positive and significant association with effectiveness (r = .354, p =.0162) and efficiency (r =.265, p = .023) meaning that use of E-contracting by county governments' leads to improved efficiency and effectiveness. These findings support previous studies' findings by Ngeno and Owenga (2015); Vaidya, Sajeev and Callender (2006); Abarden Group (2001) who report a positive association between E-procurement and performance of public enterprises. However, the results are at variance with the findings of Oduor (2010) who found a negative association between E-contracting and service delivery.

Table 4.10: Multiple Regression Analysis Estimation Results on the Effect of E-Procurement on Service Delivery of County Governments in Western Kenya

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	Beta	Std. Error	Beta			Tolerance	VIF
(Constant)	.089	.171		.523	.604		
E-Ordering	.353	.064	.430	5.479	.000	.125	7.995
E-Contracting	.215	.088	.158	2.448	.018	.186	5.385
E-Information sharing	.449	.100	.421	4.482	.000	.087	11.440
E-Sourcing	.414	.090	.363	4.595	.000	.612	1.634

b. Dependent Variable: Service delivery

Source: Field data, 2016

Multiple regression analysis results (Table 4.10) indicate that that E-contracting was a positive significant predictor of service delivery (β = .215 (p = .018). This value is statistically significant since the p-value is less than 0.05. It can be inferred from this value that a unit change in E-contracting leads to an increase in service delivery of 0.215, all things being fixed. This is in tandem with the findings of Ngeno and Owenga (2015); Vaidya, Sajeev and Callender (2006); Abarden Group (2001) who report a positive association between E-contracting and performance of public enterprises. However, the results contradict the findings of Oduor (2010) who found a negative relationship between E-contracting and service delivery.

From the findings of objective two, it can be concluded that embracing E-contracting by county governments' leads to improved service delivery.

4.6 Effect of E-Information sharing on Service Delivery

To assess the effect of E-information sharing on service delivery, Pearson's correlation and multiple regression analyses were performed and the results are summarized in the Tables 4.11and 4.12

Table 4.11: Correlations of E-Information Sharing with Service delivery of County governments in Western Kenya

Variables		1	2	3
1.	E-Information sharing	1		
2.	Effectiveness	.441**		
		(.000)	1	
3.	Efficiency	.493**		1
		(.000)		

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field data, 2016

Table 4.11 shows that E-information sharing had a positive and significant association with effectiveness (r = .441, p =.000) and efficiency (r = .493, p = .000). This implies that use of E-information sharing by county governments' leads to improved service delivery measured in terms of efficiency and effectiveness. These results support the findings of Anuar (2015); Croon and Brandon-Jones (2015); Muhia and Afande (2015) who report a positive association between E-procurement and performance of enterprises. However, the results are at variance with the findings of Njuguna (2011) who found a negative association between E-information sharing and service delivery.

Table 4.12: Multiple Regression Analysis Estimation Results on the Effect of E-Procurement on Service Delivery of County Governments in Western Kenya

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	Beta	Std. Error	Beta			Tolerance	VIF
(Constant)	.089	.171		.523	.604		
E-Ordering	.353	.064	.430	5.479	.000	.125	7.995
E-Contracting	.215	.088	.158	2.448	.018	.186	5.385
E-Information sharing	.449	.100	.421	4.482	.000	.087	11.440
E-Sourcing	.414	.090	.363	4.595	.000	.612	1.634

c. Dependent Variable: Service delivery

Source: Field data, 2016

Multiple regression analysis results (Table 4.12) indicate that that E-information sharing was a positive significant predictor of service delivery (β = .449 (p = .000). This value is statistically significant since the p-value is less than 0.01. It can be inferred from this value that a unit change in E-information sharing leads to an increase in service delivery of 0.449, all things being fixed. This is in tandem with the findings of Muhia and Afande (2015) who report a positive effect of E-information sharing and service delivery in public enterprises. However, the results contradict the findings of Njuguna (2011) who report a negative relationship between E-information sharing and service delivery.

From the findings of objective three, it can be concluded that adopting E-information sharing by county governments' leads to improved service delivery.

4.7 Effect of E-Sourcing on Service Delivery

In order to assess the effect of E-sourcing on service delivery, Pearson's correlation and multiple regression analyses were performed and the results are summarized in the Tables 4.13 and 4.14.

Table 4.13: Correlations of E-Sourcing with Service delivery of County governments in Western Kenya

Variables		1	2	3
1.	E-Sourcing	1		
2.	Effectiveness	.217*		
		(.021)	1	
3.	Efficiency	.296*		1
		(.019)		

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Field data, 2016

Table 4.13 indicates that E-sourcing had a positive and significant association with effectiveness (r = .217, p =.021) and efficiency (r = .296, p = .019). This means that use of E-sourcing by county governments' leads to improved service delivery measured in terms of efficiency and effectiveness. These findings are in tandem with previous studies (Rotich, Benard and Waruguru, 2015; Quesada, Gonzalez and Mueller, 2010; Nepelski, 2006 and Uba *et al.*, 2013) who report a positive association between E-sourcing and

performance of enterprises. However, the results are at variance with the findings of Liyi, Pinghao and Qihua (2011) who found a negative association between E-sourcing and service delivery.

Table 4.14: Multiple Regression Analysis Estimation Results on the Effect of E-Procurement on Service Delivery of County Governments in Western Kenya

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	Beta	Std. Error	Beta			Tolerance	VIF
(Constant)	.089	.171		.523	.604		
E-Ordering	.353	.064	.430	5.479	.000	.125	7.995
E-Contracting	.215	.088	.158	2.448	.018	.186	5.385
E-Information sharing	.449	.100	.421	4.482	.000	.087	11.440
E-Sourcing	.414	.090	.363	4.595	.000	.612	1.634

d. Dependent Variable: Service delivery

Source: Field data, 2016

Similarly, multiple regression analysis results (Table 4.14) indicate that that E-sourcing was a positive significant predictor of service delivery ($\beta = .414$ ($p = .000$). This value is statistically significant since the p-value is less than 0.01. It can be inferred from this value that a unit change in E-sourcing leads to an increase in service delivery of 0.414, all things being fixed. This is in tandem with the findings of Nepelski (2006) and Uba *et al.* (2013) who report a positive effect of E-sourcing and service delivery in corporations.

From the findings of objective four, it can be concluded that embracing E-sourcing by county governments' leads to improved service delivery.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents a summary of study findings, conclusions and recommendations based on the major findings.

5.1 Summary of Findings

Based on multivariate analysis, objective one found that E-ordering positively affects service delivery of county governments in western Kenya.

Objective two found out that E-contracting positively significantly influences service delivery, whereas objective three found that E-information sharing positively significantly affects service delivery amongst county governments in western Kenya.

Lastly, the findings of objective three were that E-sourcing positively significantly influences service delivery.

5.2 Conclusions of the Study

From the findings of objective one, it is concluded that embracing E-ordering by county governments' leads to improved service delivery.

From the findings of objective two, it can be concluded that use E-contracting leads to better service delivery.

Based on the findings of objective three, the study concludes that adopting E-information sharing improves service delivery.

Lastly, from the findings of objective four, it can be concluded that use E-sourcing leads to better service delivery among county governments in western Kenya.

5.3 Recommendations of the Study

Based on conclusion of objective one, county governments in western Kenya should intensify use of E-ordering.

From the conclusion of objective two, county governments should enhance application of E-contracting as this was found to improve service delivery.

Similarly, from conclusion of objective three, county governments should continue embracing E-information sharing as this was found to improve service delivery.

Lastly, from the conclusion of objective four, county governments should intensify adoption of E-sourcing as this was found to enhance service delivery.

5.4 Limitations of the Study

The outcome of the study cannot be generalized to all county governments in Kenya since the study was limited to county governments in western Kenya and did not incorporate all county governments in Kenya. The study adopted a correlational research design. The use of predetermined questions may have forced respondents to respond to questions even without properly understanding them.

5.5 Suggestions for Further Research

In order to improve this study, the researcher would like to suggest the following for further investigation. An exclusive study on the E-procurement constraints facing county governments in Kenya should be carried out. Future research should be conducted on determinants of E-procurement adoption and performance in Kenya and compare their performance over a period of time using secondary data. Future studies could also explore the relative importance of E-procurement practices. Further research could be conducted based on county regions in various parts of Kenya since such areas represent a variation in cultural orientation and habits. Comparisons could be done on whether or not there is any variation or similarity. Lastly, future research efforts could dwell on comparative analysis of E-procurement and service delivery among counties in Kenya and use more robust research designs such as time series and panel methodologies.

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APPENDICES

Appendix 1: Letter of Introduction

Akoth Matildah Ajwang
C/O Department of Management Sciences
School of Business and Economics
Maseno University

Date: _____

TO WHOM IT MAY CONCERN

Dear Sir/Madam

ACADEMIC RESEARCH

I am a student at Maseno University pursuing Master of Science in Supply Chain Management. As part of the requirements, I am carrying out this research entitled, "Role of e-procurement on service delivery among county governments in western Kenya." Please assist to answer the questions provided in a questionnaire. Your Identity is not required and the information you provide will be treated in strict confidence.

I remain grateful.
Yours Sincerely

Akoth Matildah Ajwang
MSC/BE/00192/2014

RESEARCH SUPERVISOR
Dr Charles Ondoro
Maseno University

Appendix II: Questionnaire

a) General Information

1. Period worked in the county government 1 year ( ) 2years( ) 3years( ) 4 years ( )
2. The highest education level attained by the respondent Professional certificate ( ) Professional diploma ( ) Bachelor's degree ( ) Master's degree ( )
3. Experience in procurement profession 3 years and below ( ) 4-6 years( ) 7-9 years ( ) 10 years and above

b) E-Procurement

To what extent are the following e-procurement activities carried out in the county government

E-Procurement	**EXTENT**				
	Very High **5**	**High** 4	**Moderate** **3**	**Low** **2**	**Very low** **1**
E-Ordering					
• Placing orders for supplies online					
• Defining order specifications online					
• Receiving order acceptance online					
• Purchase approval done online					
E-Contracting					
• Signing of agreements online					
• Monitoring contract online					
• Evaluating contract online					
• Delivery of contract documents online					
E-Information Sharing					
• Viewing supplier catalogues online					
• Gathering information on suppliers previous clientele online					
• Distributing information about pricing and exchanging other technical information online					
• Electronically consult references for service quality.					
E-Sourcing					
• Search for new suppliers online					
• Supplier appraisal online					
• Electronically search for suppliers location					
• Using electronic supplier catalogues					

c) Service Delivery

What is the extent of service delivery by the county government in terms of the following (Tick one box to indicate extent)

Service Delivery	**EXTENT**				
	Very High **5**	**High** **4**	**Moderate** **3**	**Low** **2**	**Very low** **1**
EFFECTIVENESS					
• Numbers of projects completed against numbers scheduled					
• Numbers of projects initiated against numbers planned					
• The spread of essential services in the county					
• Quality of essential services in the county					
• Conformity with standards					
EFFICIENCY					
• Reduction in level of physical resource wastage					
• Reduction of time wastage in activities					
• Reduction in number of complaints about delays in service delivery					
• Increase in coordination of processes of service delivery within the county government					
• Reduction in numbers of staff in different functions of the county government					

Thanks for participating!

Appendix III: Map of Western Kenya Counties

Appendix IV: Raw Data

S.NO	County specific			E-Procurement Constructs							E-Procurement Constructs									SERVICE DELIVERY			
	P	H	E	P	D	R	PU	SI	MO	EV	DE	VI	GA	DI	EL	SE	SU	EL	US	EF_1	EF_2	EF_1	EF_2
1	1	2	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	2	2	3	2
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117	1	1	3	5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
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119	1	1	1	5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
120	2	2	4	4	4	4	5	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	5	4

Source: Research data, 2017