E-GOVERNMENT STRATEGY IMPLEMENTATION AND PERFORMANCE OF THE PUBLIC SECTOR IN KENYA

ALFRED NGUGI MUNGAI

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DECLARATION

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Signature…….. Date…3/12/2015…….

Alfred Ngugi Mungai

Department of Business Administration

We confirm that the work reported in this thesis was carried out by the candidate under our supervision as the Kenyatta University appointed supervisors

Signature…….. Date…3/12/15……..

Dr. Muathe SMA, (PhD)

Department of Business Administration,

School of Business,

Kenyatta University.

Signature…….. Date…3RD DECEMBER 2015……..

Dr. Kilika JM, (PhD)

Department of Business Administration,

School of Business,

Kenyatta University

DEDICATION

I wish to dedicate this work to my mother Veronica, my wife Beatrice and my daughter Wairimu for their invaluable patience and support. To my sons Joseph, John and Peter, thanks a lot. You all inspired me to work hard.

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ACRONYMS AND ABBREVIATIONS

ADF IV	Fourth African Development Forum
ADF	African Development Forum
BCS	British Computer Society
CCK	Communications Commission of Kenya
CIS	Community Information System
E-government	Electronic government
EMIS	Education Management Information System
E-procurement	Electronic procurement
EPS	E-procurement Systems
ERP	Economic Recovery Programs
ERP	Enterprise Resource Planning
ERPS	Enterprise Resource Planning Software
ERS	Economic Recovery Strategy
E-services	Electronic services
E-tendering	Electronic tendering
G2B	Government-to-Businesses
G2E	Government-to- Employee
G2C	Government-to-Citizens
G2G	Government-to-Government

GCCN	Government Common Core Network
GDC	Government Data Centre
HIS	Health Information System
ICT	Information Communication Technology
IDT	Innovation Diffusion Theory
IFMS	Integrated Financial Management System
IMS	Information Management System
IPPS	Integrated Personnel and Payroll System
IS	Information Systems
IT	Information Technology
KRA	Kenya Revenue Authority
LIS	Land Information Analysis
MIS	Management Information System
RBM	Results-Based Management
RoK	Republic of Kenya
RRA	Rapid Results Approach
RRI	Rapid Results Initiative
SCT	Social Cognitive Theory
SGN	Secure Government Network
SPSS	Statistical Package for Social Sciences
TAM	Technology Acceptance Model

TCIP	Transparency Communication Infrastructure Project
UN	United Nations
UTAUT	Unified Theory of Acceptance and Use of Technology
NACOSTI	National Commission for Science, Technology and Innovation

OPERATIONAL DEFINITION OF TERMS

E-government platform: Digital platform or an information system with ICT capabilities that allows different users to cooperate and contribute towards a shared goal by accessing shared resources

E-government: This is the use of internet and web-based technologies to offer government services online to the public so as to ensure economic growth and benefit.

Implementation: Process of putting e-government plan into effect in the public sector.

Performance: The framework of e- government as a general measure of government communication with its citizen and overall rate of service delivery, which is used to evaluate ministries in the same government or to contrast the public sectors in aggregation. The study thus measures the service delivery performance in the Kenyan public sector as well as e-government implementation.

Public Sector Performance: This is measured in terms of how well the government offers services to the public in the context of e-government.

Public Sector: This is the section of the economy concerned with providing diverse government services. The composition of the public sector differs across countries but in most countries includes such services as those offered by the government ministries.

Infrastructure: Installed physical facilities mostly hardware's platforms used to facilitate communication between the government and its citizens and vice versa.

ABSTRACT

The Kenya public sector has the vision to realize e-government strategy to reach the public and to promote performance by enhancing e-participation and e-consultation in the policy/ decision- making process. Notably a number of projects have commenced but have met serious challenges in the implementation stages. Yet few studies have attempted to carefully analyse e-government strategy implementation and performance of the public sector in Kenya. The general objective of the study was to investigat e e-government strategy implementation and performance of the public sector in Kenya. Specifically the study was narrowed: to establish the relationship between ICT infrastructure (service oriented architecture) and public sector performance in Kenya, to determine the relationship between e-level applications and public sector performance in Kenya, to examine the relationship between e-government institutional framework and public sector performance in Kenya, to establish the relationship between e-government legal framework and public sector performance in Kenya and to assess the mediating influence between e-government platform and the public sector performance in Kenya.This study was anchored on Management Information Systems Theory while Resource Based View, Unified Theory of Acceptance of Technology and Stakeholders Theory acted as supporting theories as they relate well with study hypotheses. A positivism orientation was adopted in this study. The study employed descriptive and explanatory research design. The study population was 13,228 which comprised of Directors of administration, ICT departmental heads, and customer care supervisors as the key informants in the government ministries and also the users (members of the public) who visited the current 18 Ministries with e-government related issues. Multistage sampling was applied where larger clusters were subdivided into smaller samples for the purposes of surveying. The study used disproportionate stratified sampling whereby the proportionate sample was adjusted to embrace a better sample size which was 384. The study collected primary data using both an interview guide and a semi structured questionnaire. The SPSS (version 17) computer software aided the analysis. Descriptive statistics and inferential statistics, specifically regression analysis were used to analyze quantitative data. Qualitative data was analyzed using content analysis. The study established a significant relationship between e-government performance and ICT infrastructure. It was also confirmed that ICT infrastructure has a significant relationship with public sector performance in Kenya. The study further established a significant relationship between e-government performance and e-level applications and that there was a significant relationship between e-government performance and e-government institutional framework. The study concludes that e-government institutional framework has an influence on public sector performance in Kenya while there is a significant relationship between e-government performance and e-government legal framework. This study further concludes that e-government platform has a mediating relationship with public sector performance in Kenya. The study concludes that e-government implementation by the government should be well regulated so as to ensure the process is effective in all the mini stries. The stud y also recommends that management teams responsible for implementation of e-government strategy at the ministries should ensure the process leads to promoting access to facilities by the users at the points of service delivery.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The present decade is characterized by huge and quick improvements in the field of innovation in e-government, which is created by the progression of innovation especially in the field of the web and in this manner influencing a lot of aspects of life in the world (Mansar, 2006). The term electronic government (e-government) is of recent origin. E-government is discussed distinctively by diverse researchers. On the other hand, as perceived by Lee (2010), it is vital to offer definitions that provide a significant comprehension of E-government. E-government in general includes a process of utilizing Information and Communication Technology (ICT) to change both back-end and front-end government functions and to give out services, data and information to all government clients, who include; members of the public, business organizations, government personnel and other government organizations. E-government uses a scope of IT innovation tools, for example, the Wide Area Networks, Internet, and Mobile Computing, to upgrade government procedures to enhance competence and proficiency in the provision of government services. E-government can in this way be divided into what are known as essential conveyance models; the connection amongst the government and citizens (G2C), electronic collaborations between government organizations and private organizations (G2B), relationship between public institutions (G2G), and the relationship amongst government and its personnel/employees (G2E) (Benbasat & Zmud, 2003).

E-government strategy is an emerging application area in the IT domain. One essential advantage of utilizing E-government services is to get data about new business opportunities online (Ho, 2002). In the event that business organizations and governments are mindful of the present status of e-government adoption, organization performance and appropriate strategies can be utilized to decrease a percentage of the inherent barriers. Further, an understanding of the kind of technology that supports the use of e-government

technique can provide input to enable more business firms access government services online (Zhao, 2003).

As of now, most governments exchange information and services with citizens, business organizations, and across different arms of government to form a favorable environment inside their nations (Zhao, 2003). The move from traditional government services to E-government services gives better public services and quality of life. It permits the users of government services to perform their business transactions with government agencies electronically, at any time and location of their choice (Al-Omari& Al-Omary, 2006). This has numerous favorable circumstances for the citizens of any nation, for example, giving simple access to data, convenient services, quick response to requests, and quick conveyance of services, enhanced information security and data privacy. Consequently, this prompts a considerable convenience in E-government. E-government as a procedure is used to help individuals take advantage from data innovation (Titah & Barki, 2006). E-government has enhanced the way services are introduced to the citizens.

Change has been observed in governments and other autonomous public policy organs who have understood the significance of e-government strategy as a vital tool for responsive administration (Scott, 2001). Generally, many governments have been utilizing study-and-file approaches in dealing with their business organizations which has proved to be disadvantageous in the extent to which accountability is considered (Mansar, 2006). Due to the changing landscape where the larger part of governments' interface with the public users, organizations and private bodies occur at the local level, it is critical that necessary attention be given towards putting up procedures that permit consultative and participatory administration. The ideal model transformation in the transformation of government has been achieved partly by the fast execution of e-government procedures that can possibly change the way services are delivered to the public by public institutions (Zhang, 2005).

1.1.1 E-Government Strategy

E-government strategy refers to the delivery of government services by means of a particular digital technology. O'Leary, Gerard and Blomgren (2006) propose that e-

government alludes to the conveyance of information and services online through the web or by other advanced digital means. Pina and Acerete (2005) additionally attest that e-government includes utilizing information technology, and particularly the web, to enhance the conveyance of government's services to citizens, business organizations, and other government bodies. These applications show that the web is a vital component/ingredient for E-government. However, despite the fact that these definitions give an outline of E-government, they additionally obscure the real importance of what E-government really is about. The extent of E-government goes past utilizing the web and the conveyance of government services online such that the web is only one of the conceivable channels for E-government.

E-government has been explained from two prominent viewpoints; interaction and development. The interaction viewpoint relates to upgrading the government organization with four primary constituencies of stakeholders; citizens, business organizations, employees, and other government bodies. The connections with the stakeholders are generally alluded to as Government-to-Citizens (G2C), Government-to-Businesses (G2B), Government-to-Employee (G2E), and Government-to-Government (G2G) (Sharma, 2007).

E-government is both a procedure and an empowering agent to service conveyance. The procedure component highlights that e-government is a strategy proposed to change business models in the general public. It is about altering the manner governments customarily work manually. E-government is not a static activity but rather a continuous reform procedure aimed at accomplishing better performing public institutions. The empowering agent component recommends that the change procedure is encouraged by an extensive variety of ICTs. In other words, in e-government, it is conceivable to use and integrate the forces of more than one type of innovation, for example, the web and cell phones (Rasheed, 2004).

Governments can make use of various advancements in technology to accomplish their aspired changes. In any case, the procedure and the empowering agent (ICT) are not the reason for e-government. The aim is to guarantee that government customers (i.e. citizens, businesses, and other government bodies) are contented with the services provided. This can be accomplished through enhancing the range and quality of ICT-enabled public

service provided by public sector. E-government is portrayed as a critical move to introduce changes that are required to influence the proficiency, effectiveness and responsibility of the public sector (Cordella, 2007). Badran (2004) indicates that e-government is intended for the purpose of enhancing the administration of public finances, human resource capacity and service conveyance, access to the nature of public services, especially for poor individuals, investment atmosphere for, example by lowering regulatory burdens and transaction costs, and the effectiveness, transparency and accountability of governments.

E-government in many nations focuses on improvement of service conveyance platforms. Service conveyance is anchored on four main pillars; institutional framework; legal framework; ICT infrastructure; and E- level applications. Even though every pillar advances benefits as a behind the scene function, however all are basic to the conveyance of e-government supported services, and each needs a practical consideration by political management, government units and the e-government program. Like the services in particular, e-government depends on the quality and development of these four pillars. Together they form the basis for e-government transformation and are key factors for government change as the basic building blocks of an e-government strategy (Mansar, 2006).

1.1.2 Implementation of E-Government Strategy

In more than 66% of the nations studied, e-government system and policy are facilitated by an inter-ministerial board of trustees often headed by the head of state and some section of his or her (or the cabinet's) office (Odedra, 1993). Examples comprise of China's State Council Information Leading Group, the Republic of Korea's Presidential Committee on Government Innovation and Decentralization, Kenya's Directorate of e-Government and Mexico's President's Office for Government Innovation (Orodho, 2005). These advisory bodies guide the e-government processes in the ministries and departments. Despite the fact that these entities have an advisory role, they function as independent entities for key oversight and strategy harmonization for all the ministries. Additional institutions remain in charge of executing particular areas of the national e-government strategy.

To build e-government capacity, countries must comprehensively examine their development and innovation upgrading requirements and allow active contribution by all main participants (OSD, 2001). E-government is a highly dynamic process, with constant innovations in technologies, applications, products, and processes. It cannot be pushed or defined solely by government. Institutional frameworks should provide opportunities for all major stakeholders in government, the private sector, academia, and civil society to build mutual understanding and deliver input into e-government strategies and procedures. This is particularly significant given the magnitude and interdependencies of e-government investments, modernization initiatives, and spillover influences for major shareholders (Badran, 2004).

E-government develops alongside a nation's requirements and execution abilities. Therefore, to guarantee coherence and adjustment, the strategy formulation process must be regulated (Al-Azzam, 2001). Institutionalization is however required to secure necessary commitment to the strategy and to help transform the strategy documents into engagements. The desired transformation can be realized when the e-government system implementation process is driven by institutional components that help coordinate potential application of e-government in various areas of the economy (MOH, 2007). This study underscores e-government execution as an illustration of technology adoption and along these lines confirms Rogers' (2003) strategic management theory which stipulates that if the apparent point of interest in the application of a technology is positive, there is a high probability that it will be embraced more quickly by the users. The perceived characteristics are the attributes of advancement that have an effect on the probability of acknowledgment and adoption, furthermore on the rate at which this procedure develops. Innovation characteristics supporting diffusion are relative benefit, similarity, multifaceted nature, observability and trialibility (Rogers, 2003).

E-government is a vital component in the transformation of government. It offers an enabling infrastructure under which there is enhanced integration and cooperation inside and amongst public institutions, between the governments and private businesses, and between government and the citizens who are served through e-government (Gronlund, 2005). It also helps to create the necessary capacity required by public servants to

undertake the new opportunities offered by ICT, for example, the web. The e-government Strategy as highlighted by the strategic management theory is intended to accomplish specified goals and objectives, which include: better and effective conveyance of government data and services to the users, support proficiency among public workers, support active involvement of users in government processes and economic empowerment in accordance with government policy directives as set out in the economic recovery framework for growth and job creation (Orlikowski & Lacono, 2001).

Governments in Africa have comprehended and valued the impact of e-government policy to the realization of the public sector development agenda. In the recent past, strategy development plans on e-government have been started in Senegal, South Africa and Kenya (Orodho, 2005). In spite of the fact that it cannot be concluded, that all political leaders in Africa have comprehended the significance of e-government, a number of them have acknowledged the idea and perceived the need to embrace it, if Africa were to become competitive in worldwide economic value chains. The African continent in general has not been left behind in the transformation of e-government. This can be substantiated by a report by the fourth African Development Forum (ADF IV, 2004) and which reads in part: "*E-government strategy is an important innovation for enhancing good government and strengthening the democratic process and can also facilitate access to information, freedom of expression, greater equity, efficiency, productivity, growth and social inclusion*" (OSD, 2001, pg 87).

Public sectors need to take advantage of the benefits of data management technology to improve the relations and collaborations among people, business organizations and governments as governments around the globe apply the techniques and electronic frameworks for the execution of their operations to support the public institutions and private business organizations (Al-Azzam, 2001). E-government has diverse viewpoints; the most essential is the move from a conventional government to an administration that is electronically based on the Internet by overcoming technical hindrances and the utilization of diverse electronic tools and frameworks that enhance work procedures, the removal centralism, improving the level of performance and to address every aspect of bureaucratic administration (MOH, 2007). It is trusted that the immense advancement in this field helps

public institutions to adapt to the environment, maintain competitiveness hence achieve effectiveness in their managerial and organizational frameworks towards accomplishing their national and organizational objectives (Badran, 2004).

The utilization of ICTs and the appropriation of different administration approaches in the public sector in developing nations, for example, Kenya are in progress with the premise of effectively taking part in globalization procedures geared towards contributing in national advancement (Sawyer & Chen, 2014). The Kenyan public sector has been involved in the utilization of ICTs and the appropriation of better administration approaches in the public sector as a way of effectively taking part in globalization efforts aimed at contributing in national growth and development (Sawyer & Chen, 2014). The Kenyan public institutions have in the recent past undertaken computerization programs within their operations. Recently, these initiatives have been placed under the framework of e-government, which has progressively been captured in the government development agenda as a key driver of economic success (Waema & Mitulla, 2007). For example, the Kenya e-government secretariat was set up in 2004 under the Office of the President to be an oversight body to integrate all ICT programs within government and was intended for upgrading service provision in all ministries. The Ministry of ICT was formed in 2004 with the main function to coordinate the wider global information access objectives to empower the nationals to effectively take part in a worldwide economy that is progressively becoming knowledge based (MoICT, 2008). The Ministry of Health, together with a group of non-governmental organizations (NGOs), other development bodies and medical institut ions have joined forces under an activity known as AfriAfya (www.afriafya.org) with the objective of enhancing access to health management data through the utilization of ICTs.

1.1.3 E-government Platform

The e-government platform is established with a vision of expanded capacity in government operations and empowering of government offices to share public information and upgrade interdepartmental coordination and in this manner decreasing expenses towards ensuring efficient work processes (Gronlund, 2005). The deployment of e-government platform is however facing difficulties, for example, in its insignificant utilization where the use of most ICT ventures is still limited, like PCs being utilized as

word processors (Republic of Kenya, 2009). In this regard, required is a careful comprehension of these difficulties and the different issues they may pose as regards to e-government appropriation for them to be adequately addressed through measures proposed within the study.

In guaranteeing enhanced execution of public sector services, government organizations have tried a few endeavors towards rearranging their operations, procedures, and capacities as far as information management capability improvement is concerned (CGEC, 2002). While focusing on the need to enhance their capacity to give citizens the necessary services and to lower the expenses of these services, governments worldwide have put resources into e-government to rearrange their work procedures. These procedures have either been intended to enhance the administrative processes anticipated to offer the services as an improvement from the initial information administration approaches or have changed the general organization of the procedures expected to give the services, through integrated service platforms. Following private business activities, operators in the public sector institutions have understood e-government as either, a device to harmonize existing processes or as an instrument to inspire transformation of public organizations by guaranteeing information management capabilities (Birks *et al.*, 2001).

Viable data management capabilities are a necessary ingredient to effectiveness in government institutions on the grounds that it drives and supports long term performance. Zhang (2015) asserts that the resources for e-government capacity could incorporate capital equipment, necessary funding, and the competencies of individual workers. Public institutions administrators can enhance public value by designing required capabilities to obtain funding to boost e-government enhancement strategies. As indicated by Mansar (2006), organizational development, particularly for embracing advanced e-government abilities, adequate funding is vital to acquiring and creating satisfactory levels of equipment and programming, and preparing the end-users as required. Titah and Barki (2006) point out that e-government capacity incorporates both the specialized and administrative ability needed to give reliable e-government - empowered administration. The utilization of innovation to solve particular issues or to perform a specific function additionally requires satisfactory skills for of e-government service advancement.

The e-government platform by utilizing user compatible programs improves governments' ability to focus on service administration to general public, and a high proportion of nations' e-government plans confirm this objective. Provision of one-stop shops, sensitization and customization of services for individuals with physical disabilities and delivering information in diverse language societies are amongst the methods adapted in the e-government strategies (Coleman, 2006). From the perspective of users, e-government allows a faster incorporation of services from individual organizations. The usage of e-government guarantees a quantum leap in endeavors to give a cross-government customer focus and public sectors are active in creating platforms that harmonize data and services for particular user groups to enhance e-government program compatibility within their needs and expectations (Kumar *et al.*,2007).

The whole e-government platform ought to be secured to ensure information protection and security. Data security is critical as it guarantees new innovations that incorporate e-government frameworks to be embraced. It assures the expected adopters and implementers required trust in using the new innovation. This guarantees security of the data transacted over the e-government platform which fortifies services through user validation, authorization, dependability and approval (Kane, 2010). It additionally empowers the active participation and inclusion of users in the e-government framework. Guaranteeing security over the e-government framework will have an effect on clients' ability to adopt to the provided e-government services which is vital for fruitful e-government adoption. As indicated by Waema (2012) whether users are utilizing appropriate platforms or open source applications, the guarantee for interoperability and access to all users, taking into account smooth interdepartmental coordination should be maintained. Indeed, branded software should enhance applicability with other technologies and enhance worldwide interoperability principles for it to draw and sustain clients.

Orlikowski and Lacono (2001) attest that providing of an e-engagement platform can make e-government more citizens driven. They additionally considered that a successful e-engagement platform ought to have the capacity to support public involvement. To support public involvement, e-consultation ought to be more conducive and intriguing than conventional paper-structure consultation. For instance, e-consultation documents ought to

be short and free of government terminologies to make them less demanding to comprehend, and the outline of online interactive platform can be livelier with more graphics. Citizen-focused governments may also consider allowing citizens to initiate their areas of choice for discussion in the e-engagement platform (Cordella, 2007).

1.1.4 Public Sector Performance

Public sector performance refers to how well a public sector entity accomplishes its business oriented objectives and in addition its financial objectives. Public sector performance implies fulfillment of the goals of the public sector as set out in the strategic plan (Hooley, Greenley, Cadogan & Fah y, 2005). Performance can be categorized in different ways. It may be focused on budgetary performance, market performance, e-government performance or general performance depending upon the perspective in which the analyst is working from. In spite of the fact that the idea of public sector performance is effectively thought to be straightforward and unequivocal, on the other hand, it is not simply something one watches and measures. It is a relative idea described in terms of certain difficult set of time-based and causality-based pointers focusing on future achievement of goals and objectives. Above all, public sector performance is concerned with the ability to produce forthcoming desired ideals and consequences (Lebas & Euske, 2002).

There have been attempts to develop measurement and assessment tools for public sector performance. As a result of global competitiveness, the change in the population structure and many other factors, expenditure pressures on public performance are increasing. At the same time, the citizens and businesses expect increasingly high-quality services from both central and local government. Securing the sustainability of public performance in general, maintaining national competitiveness and securing the quality and availability of public services requires a continuous and sustainable enhancement of the proficiency, operational efficiency and productivity of the government and the operations in its finances. Monopoly of government makes it lack competitive orientation and service consciousness (Pollitt, 2005).

Public sector performance has become a crucial component in modern public sector management. Consequently, various nations have incorporated it as a tool to assess organizational and individual competence in a bid to ensure that public organizations achieve the requirements and prospects of the public (Kane, 2010). To ensure public sector performance, governments have adopted service delivery charters, which were consequently included as important performance indicators in contracts of public institutions. Additionally, the performance contracts include a requirement for public organizations to conduct independent annual surveys to determine and increase customer satisfaction levels.

E-government in the context of e-government framework is taken as an entry point for data conveyance or an avenue through which policy decisions are made and implemented (Rasheed, 2004). The development of the web has had a transformational impact on the worldwide society ensuring data and services available in areas that were not considered only 10 years back (Napoli, Ewing & Pitt, 2000). The utilization of the web and web instruments have been used to enhance legislative procedures, political or societal decision making and have additionally guaranteed better services to general society (Peters, 2013).

Fruitful e-government activities can have a substantial effect on enhancing citizen involvement and personal satisfaction through efficient partnerships between various stakeholders (North, 1990). Governments in Africa need to create policy frameworks, upheld by regulation for e-government, that are connected to key development goals. This explanation further demonstrates that policy development in Africa does not comprehend the need for a vast engagement of e-government operations in a bid to be sufficiently empowered economically in view of the countries' resources and accountability (Kumar, Mukerji, Irfan & Ajax, 2007). It can thus be concluded that the e-government platform can enhance service provision by public institutions towards achieving efficiency and responsiveness, advance collaborative and joint-up services in which different partners in business can realize benefits through integrated portals or 'one-stop-shops'. E-government approach has the capability to upgrade performance by allowing decision making closer to the doorsteps of conventional citizens through collaborative thinking made conceivable with the utilization of technology (Tassabehji & Elliman, 2006).

The Results Based Management approach (RBM) was introduced to make sure effective administration of the public service is accomplished and to create a foundation for the transformation of the wider public service with a view to enhance performance and service provision (Kumar, Mukerji, Irfan & Ajax, 2007). The performance methodologies that the Kenyan administration has embraced since year 2003 with a desired goal to enhance provision of services to the general public include: Rapid Results Approach (RRA); Performance Contracting; Citizen Service Delivery Charters; Transformative Leadership, Values and Ethics and Institutional Capacity Building and e-government (Republic of Kenya, 2007).

During the past five years, the government has invested substantial resources towards set up and establishment of e-government infrastructure in the public sector (Aberbach & Christensen, 2005). These ventures are financed through funding arrangements between the state and development bodies. Reports from the government demonstrate that foreign financing part constitutes the biggest percentage of this investment with regard to innovation. The local i nput is normally in form of specialized staff and office space including networked buildings. In this way, the e-government system and administration structure are interconnecting all ministries to the Internet under the Executive Network (Republic of Kenya, 2009).

A report by World Bank (2002) shows that the major yet lowest examined ventures are e-government initiatives or projects in diverse sectors, stressing the significance of orderly evaluation of the effect of these applications. The e-government unit of the European Commission (2006) notes that after at least a decade of large investments (running into billions of Shillings) aimed at digitalizing the public sector, public sectors in Africa are still unable to objectively measure and quantify the advantages and achievements of such ventures. The absence of monitoring in implementation is one of the reasons behind this gap which may be fairly addressed by providing the data regarding distribution of funds and other operational and statistical information (European Commission, 2006).

With the rise of the idea of e-government, public services around the globe have understood the significance of making their administrations more effective and accessible (Chircu, 2004). While citizens have become more exposed to the internet and experience

better electronic services (e-services) from the private businesses, they start to expect the same treatment from government organizations for their public services. E-government helps to benchmark with the private sector by giving out more efficient, straightforward and transparent services to people and business organizations (Gilbert & Balestrini, 2004). In spite of the notion that, the advantages of e-government are clearly documented, data on execution and appropriation of the idea has been meager in both developed and developing nations. Since the onset of the e-government paradigm, there have been numerous studies which have investigated the difficulties that impact e-government implementation in diverse national settings (Cavalluzzo & Ittner, 2004).

Barnes and Vidgen (2004) assert that even though many nations may have comparable attributes, the Kenyan perspective presents a variety of difficulties that influence the effective execution of e-government projects. The qualities that characterize the Kenyan e-government environment and have an impact on performance are: most e-government projects are at first donor financed; a few donations are made without adequate consultation or undertaking needs assessment by the recipient organizations within government (Omolo, 2005). Muir and Oppenheim (2002) report that, financing capital and human resource are needed within the project stage; the required funding for e-government is insufficient yet rising; absence of e-government strategies and master plans to guide ventures to conclusion resulting in various donors subsidizing similar e-government ventures, hence there have been various donations for the same project because of absence of coordination; an emphasis on e-government applications that enhances conventional functions as opposed to viable data processing and conveyance within and without government offices and unsteady e-government resources (Zhu & He, 2002). While these matters have been raised from a practical perspective, their content however requires interpretation from the strategic management point of view utilizing a variety of theoretical perspectives. At hand is the part of the e-government system informed by the innovation hypotheses, the execution perspective which is informed by stakeholders concerns, strategic change measurements, inner strategic execution limitations and the interface with the users. In this perspective, evaluation of the effect made by this strategy ought to be done in the context of the different theoretical viewpoints.

In this study, the terms public sector performance and e-government performance are used interchangeably.

1.1.5 E-government Strategy in Kenya

The institutional structure in the Kenya public sector has gained enormous growth in e-government strategy which is vital in facilitating economic development and henceforth, the administration continues to give utmost consideration thereto (Kane, 2010). Part of the e-government key activities include: starting enactment and strategies to build up proper e-government institutional structure; enactment of the Communications Commission of Kenya (CCK) Act in 1998; enactment of the Kenya e-government Strategy in 2004; and the formation of the Ministry of ICT and the ICT Board to give the institutional framework aimed at changing government operations by the use of e-government to enhance performance b y guaranteeing efficient and timely conve yance of government services (Republic of Kenya, 2009). The Directorate of e-government has established the Government Data Center (GDC) for storing and processing of government applications and data. The center is connected to the Government Common Core Network (GCCN) that networks all government ministries through enterprise architecture that combines data warehousing, re-engineering processes and virtualized technologies.

The government has recognized e-government as key driver to the provision of effective and accessible services to citizens, business organizations and public agencies. The Kenya Vision 2030 recognizes ICT as a key pillar to development and success. E-government spares citizens travel time to government institutions and permits round-the-clock access to various services. Commendable efforts have been made on e-applications, capacity building and infrastructural growth (Waema, 2012).

The foundation for e-government legal framework today is premised in the constitution of Kenya (2010), which has rebuilt the nation's political and managerial structure by devolving a great deal of power to the new county government entities, and which sets out some core principles of administration. These incorporate constitutional commitments in favor of the privacy of communications, freedom of expression and free media, which are obtained from the Universal Declaration of Human Rights. The administration's general

strategy for national improvement is set out in its Vision 2030 framework, which was conceptualized in 2007 with the objective for Kenya to become a 'globally competitive and prosperous country with a high quality of life by 2030' (Kane, 2010, p19). The initiative rests on three pillars of economic, social and political development with ambitious targets for developmental progress, including an anticipated 10% rate of growth in GDP per annum from 2012. The ICT sector features in this vision for national advancement, with a particular emphasis on business process outsourcing (BPO), subsequently redefined in development planning documents in the more extensive term 'IT-enabled services' (ITES).

Vision 2030 has been structured in the first of what is envisioned to be a series of five-year development plans, the Medium Term Framework (2008-2012). This identified a number of e-government developments underway at the time it was agreed as having significant potential for Kenya in the forthcoming landing of submarine cables and the proposed national fiber optic backbone project as well as the plans of the ICT Board for a BPO park and digital villages. These are seen as important steps in enhancing national competitiveness, developing a 'knowledge-based society' and creating employment opportunities. It also promised a review of the 2006 Telecommunications/ICT Sector Policy. A significant part of the effort to deliver the e-government enabled development objectives is the responsibility of the ICT Board, which was established in 2007 to promote Kenya as a destination for business process outsourcing, build e-government capacity within the country, and manage other ICT-enabled development interventions. E-government is also a prominent feature of government policy as was first outlined in the e-government strategy of 2004.

ICT infrastructure is a pre-requisite to e-government. The Kenya public sector has begun a connectivity and e-service provision scheme through a Secure Government Network (SGN) that gives connection, web and email services to government departments. The scheme is supported by the World Bank under the Transparency Communication Infrastructure Project (TCIP). Its objective is to improve ICT network, enhance conveyance of services, expand the nature of information from government to citizens and increase the government's ability to ensure transparency in its anticorruption efforts (Republic of Kenya, 2008b). The project is a major source of economic growth by

improving partnerships among public-private corporations. It offers technical help to the Ministry of Information and Communications secretariat, CCK e-government Directorate, KENET and the Public Procurement Over-sight Authority. The recently launched e-government Information Portal provides a "one stop shop" for user interaction with government agencies which will provide a portfolio of cross-governmental services. The most eye-catching current project of the Ministry of Information and Communication and the ICT Board is the development of a technology city at Konza in Machakos County. This is a US$14.5bn project which is presented as a driver for the growth targets established in Vision 2030 (Kane, 2010).

The Ministry of Information and Communications developed a National ICT Sector roadmap for the duration between 2008 to 2012, as was agreed in 2006, which has now come to the end of its term. The goals of this plan were to: upgrade national competitiveness through the advancement of the BPO sector; develop a 'knowledge based society'; guarantee computerized access through a project of 'digitalized villages'; and reinforce the nation's ability to meet future innovative difficulties (Cuts International, 2008).

The rollout of the e-government strategy has enhanced service provision through business level incorporated applications. Good examples are the Oracle based Enterprise Resource Planning Software (ERPS, for example, the Integrated Financial Management Information System (IFMIS) and the Integrated Personnel and Payroll System (IPPS), e-tax, Land Information Analysis (LIS), Education Management Information System (EMIS), Health Information System (HIS), and Community Information System (CIS). The Ministry of Health has tested various online initiatives, for example, telemedicine and is currently in process of coordinating and integrating all its medical activities with the plan of the national healthcare policy. The e-Health policy will guarantee consistency with the National IT/ICT and National e-government policy infrastructure (Republic of Kenya, 2008b).

The IFMIS has enhanced responsibility and openness in utilization of government resources. The ministry of ICT through NITA has ensured that all IFMS/IPPS use the national backbone infrastructure as their primary vehicle/source for connectivity which has

ensured efficient service delivery. IFMIS sites have so far been connected to the GCCN. The Kenya Revenue Authority's (KRA) e-tax payment system is among the key ICT applications that are at the top notch. Reports attribute expanded tax regime to the e-tax payment system. The Directorate of e-government, a unit in the Office of the President, was set up to coordinate provision of online services to the public (Cuts International, 2008).

1.2 Statement of the Problem

The adoption of e-government has brought about changes in many aspects of individuals' day to day lives around the world. This transformation has to a great extent altered the way governments around the world communicate with their citizens, organizations, agencies, workers and other various stakeholders (Lee, 2010). Changes from manual handling of information to electronic storage and access advancement have stimulated the adoption of electronic government or e-government (Ismail & King, 2005). The insurgency in e-government has raised the attention among nations with emphasis on comprehension of the key advantages to the clients (Sharma, 2007). Nevertheless, there have been unsuccessful efforts to execute e-government programs. This is generally in view of the fact that they need sufficient institutional mechanisms for the programs' inventive designs, efficient execution, objective assessment, and repeated adaptation (Badran, 2004).

Just like other different nations in Africa, the Kenya public sector has the longing to implement e-government methodology as an approach to broaden its reach to its people with a perspective to advance e-involvement and e-consultation in the procedures/decision making processes. Notably various e-government activities have been started though they have met serious difficulties in the implementation stages (Benington, 2009). The UN e-government report (2008) characterizes nations in four distinct components: High e-government limit (index = 2.00 – 3.25), Medium e-government limit (1.60-1.99), Minimal e-government limit (1.00 – 1.59) and Deficient e-government limit (below 1.00). Kenya is classified as having inadequate e-government investment with an index of 0.76 below Rwanda, South Africa and Burkina Faso in the Africa classification (UN Report, 2008).

The 2008's e-government procedure execution Index shows Kenya in 128th position out of 182 nations studied with an e-readiness index of 0.22 out of 1 (UN Report, 2008).

Despite the fact that this may build a case for e-government execution, there is a probability of a user reaction because of the negative aspects of the digitalized government system. As the utilization and integration of these technologies increase, the potential negative results for citizens also increase. Intrusive information collection, abuse of individual data and constant monitoring are common apprehensions. Given that the state is the biggest single authority over citizen data, the potential for these fears to become reality is not entirely misinformed and might eventually influence citizen assessment and the general fulfillment with service delivery in the public sector.

Though studies by scholars persist to show the most outstanding adoption constructs as well as different systems and models for comprehension of e-government strategy implementation, research by sovereign consultancy/research institutions has created a large group of statistics and league tables of good and poor practices of service conveyance (like Badran, 2004; Rogers, 1995; Coleman, 2006). Yet, no studies have endeavored to extensively comprehend the impact of e-government strategy execution on public sector performance. Over and again despite the fact that it is appreciated that the understanding and desires of the users contrast those of the service providers in connection to key dimensions, for example, productivity, ease of use, mindfulness, security, trust, regulation, accessibility and availability, the assessment techniques and benchmarks utilized for measuring the service users' (citizens) perception with respect to the above measurements have leaned towards the service providers' (government agency) impression of what constitutes best practice to the detriment of the users.

One of the most essential quality factors of an e-government project is end user fulfillment (Yidiz, 2007) as the e-government strategy is embraced with the expectation to improve public service delivery. Despite the fact that Kenya has made important strides towards usage of e-government, such endeavors are likely to face difficulties later on since reports demonstrate that most public institutions with e-government system compatibility are not utilizing e-government for an expansive extent of their transactions. Such ability derives from the e-government platform that renders the ability to connect the e-government

strategy with service delivery. Therefore, from a service delivery perspective, the relationships among the components of the e-government strategy implementation, the e-government platform and performance need to be established. Moreover, the information of the condition of e-government implementation pattern and the influence of e-government on performance among Kenyan public sector has also been inadequate due to the few studies done on the status of e-government implementation in Kenya (Kane, 2010; Simenda, 2009). It is therefore not clear on the extent e-government strategy has been implemented and how that extent may have enhanced performance of the public sector. This study therefore assessed the e-government strategy implementation and performance of the public sector in Kenya.

1.3 Objectives of the Study

The general objective of the study was to establish the relationship between e-government strategy implementation and performance of the public sector in Kenya.

Specifically the study aimed:

i. To establish the relationship between ICT infrastructure and public sector performance in Kenya
ii. To determine the relationship between e-level applications and public sector performance in Kenya
iii. To examine the relationship between e-government institutional framework and public sector performance in Kenya
iv. To establish the relationship between e-government legal framework and public sector performance in Kenya
v. To establish the mediating influence of e-government platform on the relationship between e-government strategy implementation pillars and the public sector performance in Kenya

1.4 Research Hypotheses

The study was guided by the following hypotheses stated in the null form:

Ho_1: ICT infrastructure has no relationship with public sector performance in Kenya

Ho_2: E-level applications have no relationship with public sector performance in Kenya

Ho_3: E-government institutional framework has no influence on public sector performance in Kenya

Ho_4: E-government legal framework does not relate to public sector performance in Kenya

Ho_5: E-government platform has no mediating influence on the relationship between e-government strategy implementation pillars and the public sector performance in Kenya

1.5 Significance of the Study

The study would be of great significance in solving the inconsistencies, which were tested and cleared in the current study. The findings may attract further research into other factors influencing public sector performance, including the other measures of success and failure that have not been studied in the Kenyan context. Business firms will use the findings of this study to formulate appropriate policies and guidelines on strategic response to modern global competitive challenges to better their performance.

The research contributes to an understanding of the e-government implementation roadmap, which would benefit agency practitioners undertaking e-government projects. In addition, this study contributes to the examination of normative standards for evaluating the role of e-government for governments in developing countries. This study supports the empirical assessment of the content of government websites and the information, communication and service delivery functions in Kenya. From the existing literature, no similar study has been done on the relationship among variables using the e-government pillars in the Kenyan context and specifically focusing on the government ministries in Nairobi County. The study may therefore become a reference point for future researchers. The study will contribute to the existing body of knowledge by bridging the knowledge gaps in e-government strategy implementation and public sector performance.

There is a need for context specific research on e-government and its impact on performance of the public sector. The findings of this research would be valuable to policy

makers on the introduction and application of e-government in government ministries. The study would also assist in providing information on the effects of e-government on public sector performance in Kenya. The findings of this study would be valuable to officers in government ministries and more specifically in the Directorate of e-government because of their key role in the implementation of e-government.

1.6 Study Scope

The study assessed e-government strategy implementation in all Kenyan Ministries. The required data was collected between the month of December 2014 and January 2015. The target population for this study comprised; all Ministry Directors of Administration, ICT Departmental Heads, Customer Care supervisors and users who are the members of the public. The geographical scope was Nairobi County only.

1.7 Organization of the Study

The first chapter outlines the background of the study, the problem statement, the objectives of the study and the research hypotheses. The background of e-government strategy was discussed in view of identifying the research gaps as presented in the background information and the problem statement. The discussion went ahead to create the study objectives and also highlighted the importance of the study to the society.

Chapter two commenced with theoretical literature on e-government. The chapter also shed light on the review of related literature, which basically focused on e-government strategies and performance. The conceptual framework that showed the relationship among variables in the study was also presented.

In chapter three, the researcher presents the research methodology that described the research design, target population, sample and sampling procedures. This chapter also contained a description of the instruments that were used for data collection, including the validity and reliability of these instruments. Data collection and analysis procedures were also highlighted.

Chapter four contains results and discussions of the study. Data analysis and interpretation of results was conducted on the data gleaned from the research survey conducted within

the ambit of this research. Specific focus was leveled at aspects such as descriptive survey analysis and key research findings.

Chapter five has the summary, conclusion and recommendations. In this chapter the researcher made conclusions where recommendations were made and final analogies of the research were drawn.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Reviewing relevant literature and defining the theoretical framework on the basis of which analysis of empirical data from the field is made are core activities of any researcher in the social sciences. The first section of this chapter, thus, presents the theory used by the study while the second section presents review of related literature in line with the objectives and research hypotheses as stipulated in the first chapter. Finally, the chapter presents the conceptual framework that the researcher used in the analysis of the empirical data.

2.2 Theoretical Review

This study was anchored on Management Information Systems Theory while Resource Based View, Unified Theory of Acceptance and Use of Technology (UTAUT) and the Stakeholder Theory acted as supporting theories as they related well with the study hypotheses. These theories were relevant in organizational contexts used to implement e-government.

2.2.1 Management Information Systems Theory

According to this theory as proposed by Weber (1986), underlying ideas relevant to e-government in general are presented to enable the subsequent discussion of theory in Information Systems. According to Affisco and Soliman (2011), information system comprises of nodes capable of storing data, channels able to dispense information and actors acting and re-acting upon the information. Thus the actors or the persons within the group are part of the system rather than operators of the system. Since the operators are parts of the system, and since "the system" is a random combination of the activities and constituents of the study, the information system can be considered as a human activity system in the sense of Ismail and King (2005).

The system is an aggregate role of the organization, its people and its technological artifacts (Muir & Oppenheim, 2012). The higher-order object of the human action system in the information system does not occur as a discrete tangible object. It is rather an abstraction, to which it is suitable to attach properties and behaviors. The theory indicates that the short-term drive of the information system is to disseminate the correct piece of facts to the right actors in the right time. The long-term function of the information system is to assist in the viability of the organization by providing a sound base for decision, information merging and organizational development.

Information systems (IS) and information technologies (IT) are important components of prosperous businesses and organizations (Cole & Parston, 2006). The definition of both IS and IT are related to each other; however, they differ in their purposes. IT relates to the products, approaches, innovations, and values that are utilized for the purpose of creating information. In addition it can be referred to as "the planning, collection, transportation, recovery, storage, access, presentation, and conversion of information in all its forms (voice, graphic, text, video, and image). Data movement can occur between people, people and machines, or among machines. Information control guarantees proper selection, deployment, management, operation, conservation, and growth of the IT assets consistent with organizational aims and purposes (North & Thomas, 2011). IT refers to the products, approaches, innovations, and values that are used for producing data. IS "comprises of the data innovation infrastructure, application frameworks, and work force who utilize information innovation to convey data and communication services for exchange processing/operations and government/administration of an organization. In this manner IS comprises of elements which network to create data, which incorporate software, hardware, information, techniques, and individuals, though these segments can be inbuilt in each data framework.

The important part of the five segments is that IS is not just computers, programs, and equipment for communicating, but its focus is on hardware, software, information, strategies, and individuals; simply, data system implies an arrangement of correspondence between individuals. Additionally, Miranda and Kim (2015) assert that there are numerous roles of information system or data frameworks in an institution, for instance to build an

operation's proficiency, to process business exchanges, to give choice backing, to monitor and assess performance of employees, and to enhance documentation and correspondence channels. Information Technology (IT; i.e. hardware and software) is one vital part in an information system (IS). These days, IT is a vital element to consider in strategic planning of an institution. Furthermore, IT is the asset or capability base on which an enterprise builds its business information system. Additionally, the primary roles of IT have been analyzed and explained by Kostiwa (2013). He asserted that the key role of IT comprises of an initiator, a facilitator, and an enabler. The significance of an initiator in IT is to start another operation, or start the change of IT. More so, a facilitator of IT is an instrument which serves to oversee work which is less demanding. Finally, an enabler of IT offers the capacity or the important backing to accomplish an objective or a goal.

Based on the IMIS theory and the literature above, Figure 1 shows a frame of study used to anchor this study, which are the MIS execution procedure and its complicated key issues. Furthermore, achievement elements will be inspected in MIS execution. At last, the impact on organization and its methods which concentrate on effects and results are explored. As indicated by the model, it signifies MIS implementation process, in this study named, improvement and deployment procedure, and it's encompassing challenging issues as clarified by Kritsonis and Student (2014).

The implementation difficulties can be classified by issue category which can be summarized into five areas including: management issues, organization setting issues, management process issues, personal issues, and technical data issues. In this context, the model moreover introduces the key issues for MIS implementation achievement that affect the MIS implementation procedure. These achievement variables can be seen as tools which increase degree of execution procedure improvement and support in every phase of the execution process. Moreover, a noteworthy part of this success is the commitment to the accomplishment of MIS execution. The last component in the model is organization effects concentrating on impacts and results, which are controlled by actualizing MIS within the organization (Wei, 2013).

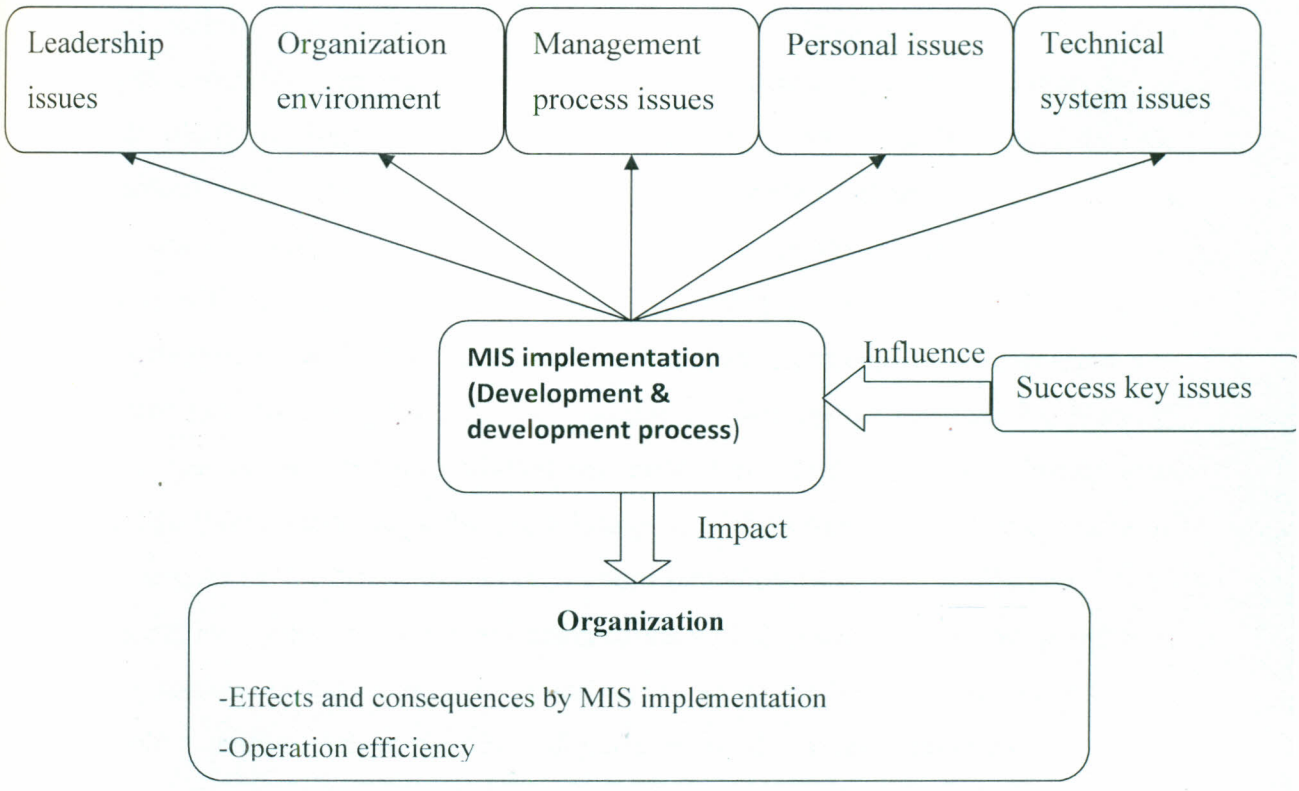


Figure 1 MIS implementation Process

Source: Yildiz (2003) pg. No. 117

The centrality of information systems to informatics has been documented for quite a while by the British Computer Society (BCS), which until its last reestablishment in 2004 described itself basically as the expert for information management system, and still is concerned, with expert accreditation for degree programs in all of the disciplines comprising informatics (Jaeger & Thompson, 2014). For a while now, this accreditation procedure has put a specific emphasis on the engineering aspects of projects, but its scope has increased, so that it does not put such prominence on the designing aspects of the projects. It is this broadening in the application of information systems concepts that has partly motivated the application of these concepts in extending this model of a three-dimensional knowledge space from e-government to informatics as a whole.

The specific concepts derived from Management Information Systems theory have a direct applicability in the mediating variables in the study where the theory indicates that every system must have a function, which will include carrying out some activities. From an e-

government information system view this function will basically comprise of data management capability, program compatibility and information security under the e-government platform. Each system must have a limit, and its activity will include communications over this limit. For an information system, these will comprise of conveying data by some means to and from the entities outside the limit of the system. Each system will be organized from sub-systems, utilizing some structured standards, where the sub-systems will either be systems in their own particular right, or components that are important to the point that they cannot be further sub-divided. In every e-government system the interior sub-systems must have both legal and institutional framework that interact to achieve the overall purpose of the system, where the interactions will either be with each other or across the system boundary (Al-Sebie & Elliman, 2011). For an information system these inward connections will also comprise of the sub-system applications conveying data amongst themselves by some methods. These concepts can then be applied within each of the three dimensions of the model, although the precise application of the concepts will obviously vary between the different dimensions thus supporting the mediating variables.

2.2.2 Resource Based View Theory

According to Conner (1991), the RBV theory suggests that the resources possessed by a firm are the primary determinants of its performance, and these may contribute to a sustainable competitive advantage of the firm. Researchers in the field of strategic management have for a long time underscored that competitive advantage relies on the match between unique internals (organizational) capacities and dynamic external (ecological e.g. e-government idea) circumstances (Sheng & Tam, 2014). Nevertheless, it has just been in the last ten years that the resource based perspective of an organization, has come into existence, articulating the relations among organization assets, capacities, and e-government implementation in guaranteeing competitive advantage. Figure 2 gives a graphical outline of those relationships.

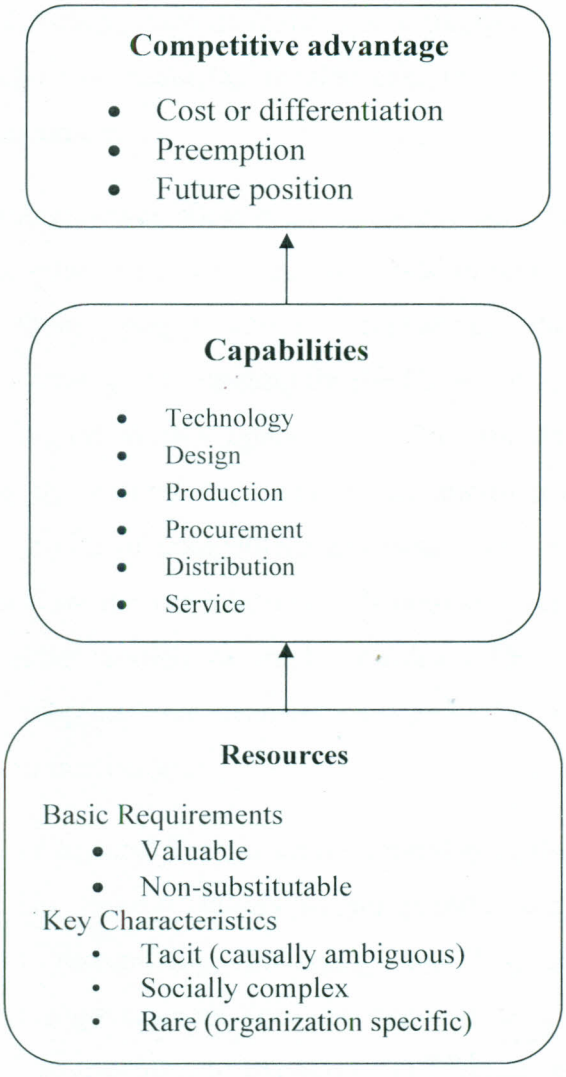


Figure 2: The Resource-Based View

Source: McMurvay & Cozens (2013) pg. No. 55

The idea of competitive advantage has been widely utilized in the strategic management writings. Relyea (2014) carefully established the ideas of cost leadership and distinction relative to competitors as two significant bases of competitive advantage: a low-cost environment allows an organization to utilize aggressive pricing and high sales capacity, while a differentiated product in this case e-government strategy creates positive reputation, facilitating fast and efficient delivery of services. Decisions concerning timing and commitment levels (which include maintaining user friendly interaction) are important in securing competitive advantage (Irani *et al.*, 2013). If an organization makes an early

move in e-government implementation, it is likely to prevent competition by employing superior strategies or acquiring ideal ac cess to vital raw materials, sites, construction capacity, or consumers.

Preemptive strategies thus allow organizations to achieve a strong attention and control of a specific niche either by achieving lower costs for services, providing customized services or both of them. Jaeger (2011) emphasized the importance of e-government implementation strategy "competing for the future" as an abandoned aspect of competitive advantage. In regard to this opinion, the firm should be apprehensive not only with productivity in the current state and in the intermediate term but also with its future situation as a source of competitive advantage. This interpretation necessitates explicit strategizing on how the organization will outmaneuver others when its present strategy formation is either copied or made obsolete. The connection between organization capabilities in adopting e-government strategy and competitive advantage has also been well presented in the literature.

Kaliontzoglou *et al.,* (2015) assessed the centrality of the independent variables, which are the e-government strategy pillars to competitive success and reemphasized the key significance of recognizing, managing and leveraging core competencies which incorporate the e-government idea as opposed to concentrating just on operational productivity in e-government planning. The resource based perspective pushes this reasoning one stride further; it sets out that competitive advantage can be managed if the capacities in the organization are anchored on the necessary infrastructure and applications that are not easily copied by competitors. As it were firms' assets must raise "hindrances to impersonation" (Kurunananda & Weerakkody, 2014). Thus IT infrastructure and applications are the essential units for analysis and incorporate physical, monetary resources and workers' ideas and organization (social) processes in guaranteeing effective execution of e-government strategy in public sector. Institution's capabilities result from bundles of resources being applied to impact on particular value-added tasks. In this regard, RBV theory has been used to analyse the connection between e-government strategy implementation and performance of the public sector.

In reference to RBV of a firm, Lee (2012) proposes that the progress of e-government and e-business development is enhanced through three resources: ICT infrastructure; Human capital; and Institutions. Each of these three resources represents technological, organizational, and environmental contexts respectively. The quality of ICT infrastructure signifies the level of computer and communications hardware and software available in a country. While the quality of human capital shows how well educated and trained are the citizens in a country, the quality of institutions is dictated by the legitimate and managerial system within which people, firms, and governments collaborate to produce growth and development in an economy. This theory was used to inform the independent variables of the study.

2.2.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT by Davis (1989) has clarified the critical factors and contingencies related to the prediction of behavioral intention to use a technology and primarily in organizational contexts. Venkatesh, Morris and Davies (2003) studied and concluded the distinctive models of IT adoption and combined the elements of eight well known models (theory of reasoned action; (TRA); Technology Acceptance Model (TAM); Motivational Model (MM); Theory of planned behavior; (TPB); the combined TAM-TPB; model of PC usage; Innovation diffusion theory (IDT); and Social cognitive theory (SCT) into a Unified Theory of Acceptance and Use of Technology (UTAUT). UTAUT gives immense change to our cognizance of customer affirmation. Conversely, the early UTAUT theory concentrated on huge organizations.

TAM has gotten wide backing through acknowledgment, application and replication for its ability to expound on government usage of Information System(IS) and is thought to be the most dynamic and convincing model in the explanation of IS application and conduct (Morris & Venkatesh, 2011). Moreover, it has been found that TAM ignores some crucial sources of variation and does not consider challenges, for instance, time or cash limitations as issues that would hinder users from using an IS. Moreover, TAM has neglected to give important data about the customer usage of a particular innovation owing to its simplification. Subsequently, different TAM models were proposed, which are appropriate to contemporary innovation. Consequently, researchers were confronted with a choice to

pick among a variety of models. It was as a result that another model was made to address these limitations; (UTAUT). The objective of this model is to understand perception/user satisfaction as a dependent variable (Navarra & Cornford, 2011). The examination model used as part of this study to analyse customer's perception of e-government is UTAUT.

The UTAUT model contains eight hypothetical models: the Theory of contemplated activity, the Technology acknowledgment model, the Motivational model, the Theory of planned conduct, a model combining the Technology acknowledgment model and the Theory of planned conduct, the model of PC usage, the Innovation diffusion hypothesis, and Social intellectual hypothesis. The UTAUT model coordinates these hypothetical models and is comprised of four principle determinants of utilization intents. In addition, the UTAUT model has been observed to be more applicable than the aforementioned hypothetical models, as it has the capacity to represent a higher rate of variance (R^2) in utilization intents. Yazici *et al.*,(2013) examined the unified hypothetical model in four distinctive organizational backgrounds for a duration of six months and the study demonstrated important aspects of intent (execution anticipation, required effort, social impact and encouraging conditions), while attitude toward utilizing innovation, self-adequacy and uneasiness were hypothesized not to be immediate determinants of intent.

The theory is supportive of the mediating variables in that if an e-government innovation is exceptionally well coordinated with a person's way of life, he or she can use it with insignificant changes and, from money saving point of view, perceive more prominent performance improvement. In this regard, it is unlikely that an individual will see the various benefits of using the innovation if its use is irrelevant with one's life (Weerakkody, 2009). Likewise, perception of performance of a development is a balance of the fit between the innovation and one's current practices and desired styles of life. At the point when the usage of an e-government innovation is compulsory, the fit between the innovation and one's current practices is particularly significant since appropriation of the innovation requires that users must follow a particular methodology to use the innovation to get to the required government services. Specific models try to anticipate and describe client conduct utilizing a mixture of independent variables. UTAUT hypothesis is created taking into account the theoretical and empirical similarities over the e-government

strategy pillars and e-government platform. The UTAUT holds that four key foundations (infrastructure, e-level applications, institutional framework and legal framework) are critical determinants or indicators of user intention and conduct (Traunmuller, 2015). This hypothesis underpins the dependent variable in the study which is public sector performance.

2.2.4 Stakeholder Theory

Stakeholder theory by Freeman (1984) provides an appropriate lens for considering a more complex perspective of the value those stakeholders seek as well as new ways to measure it. The stakeholder perspective on value offered in this paper draws attention to those factors that are most closely associated with building more value for stakeholders, and in so doing, allows academics to better measure it and enhances managerial ability to create it. Freeman, (1984) referred to stakeholders in an organization as any group or persons who can influence or are influenced by the accomplishment of the organization's goals. Stakeholders, in business terms, mostly allude to stockholders and those people or groups whose interests are fixed to the successful economic performance of any specific organization. The general perspective of the Stakeholder approach is a redefinition of the organization. The stakeholder concept explains what the organization ought to be and how it ought to be conceptualized.

Zweers and Planque (2011) state that the organization itself ought to be considered as grouping of shareholders and the reason for the organization should be to safeguard their interests, needs and perspectives. This management perspective is thought to be achieved by the supervisors of a firm. The management ought to from one perspective steer the organization in the right direction keeping in mind the end goal to guarantee the rights and interests of shareholders in management decisions. In order to achieve the desired goals and objectives the management must act as agents for the stockholders to guarantee the survival of the firm through protecting the stakes of every set of individuals (Corradini *et al.*, 2013).

Regarding e-government, shareholders represent a group of people and organizations that have a stake in the achievement or failure of specific policies in the execution of e-

government programs in general. Davis (2013) considers the various players that have different contending interests, measures the variation of that interest and its impact to the shareholders, and attempts to consider different results taking into account the various expectations among shareholders. The target of ST is to hypothesize government as an organization whose essential objective is to adjust myriad interests and present a result that is a consequence of that balance. A responsive government will measure and react to the shareholder interests, whether it is political, monetary, ethnic, or religious in nature. Gay and Airasian (2014) proposes another perspective, which shows another pattern in shareholder hypothesis. In this perspective the point of view of the shareholders themselves and their activities is additionally considered to be essential in the execution of e-government system. He attests "The rule of shareholder option of taking action permits shareholders to make a move against the executives for inability to perform the required obligation of care". All the aforementioned concepts and ideas of the shareholder thought are known as normative shareholder hypothesis in literature.

As indicated by Iwaarden *et al.*, (2013) non-governmental organizations (NGOs), the general public clients, media, business and policymakers are considering the idea and are attempting to actualize it in various ways. Most commitments on e-government are based on the normative principles. They advance the vision of the e-government technique and the function of directors whose goal is essentially to maximize value addition in order to ensure sustainable growth. Additionally, this point of view is by all accounts offering explanation to the way businesses have extensive obligations that are best characterized within the shareholder approach.

Applying a shareholder concept of activities instead of the more customary input output execution viewpoint infers holding a conviction that all players are included within e-government strategy with a view to acquire service delivery advantages. Shareholders guarantee certain functions as well as procedures of e-government ensure progressive results that provide efficiency and service proficiency advantages to its clients (Liu & Arnet, 2013). The stakeholder hypothesis is basically an administration instrument. The legitimacy, urgency and authenticity of services characterize e-government system shareholders. Power and legitimacy must be attended to if directors are to serve the

dynamic expectations of all shareholders. The stakeholder theory in this manner provides a platform for articulating the expectations of different actors in the e-government implementation agenda. Likewise, many studies have been done on analyzing the relative impact of diverse shareholders (Parasuraman *et al.*, 2015).

The theoretical background was intended to give managers the capacity to develop relevant strategies that can propel the achievement of e-government programs. At the end of the day, the point of view of stakeholder hypothesis was mostly viewed as inside-in (workers, directors), and inside out (clients), just like corporate administrators view their organizations and their general surroundings. Stakeholders hypothesis gives the advantage of figuring out who is key in setting legitimate or institutional structures, and if and how they can be overseen. Rowley (2013) made an observation that the stakeholder examination includes the utilization of categorization that is truly subjective as it matters who conducts the investigation and makes the difference between essential and/or persuasive or essential or secondary stakeholders. Parasuraman and Malhotra (2012) made an observation that there is no genuine theoretical match between stakeholder's hypothesis and an administration's performance goal of delivering services to individuals and organizations. March and Olsen (2012) however established that stakeholder theory was beneficial to understand e-services yet expressed that it needs adjustment to suit shareholder inclinations, needs, capacities, and in projecting required resources including information administration ability, data management capabilities and information security hence relating the study with the dependent variable.

2.3 Empirical Literature Review

2.3.1 ICT Infrastructure

IT is a vital tool in today's worldwide society with the presence of ICT infrastructure (service-oriented architecture). The introduction of computers and e-government has been the single enormous drive affecting organizations in recent years. ICT is altering the way business is conducted all over the world. Furthermore, it has given another definition to the word "Convenience". ICT has radically transformed the business scenes and the word "IT" has turned into the "Catchword" of the present day. ICT has turned out to be one of the

fundamental aspects of modern times. The viable utilization of e-government is a key component of competing in a quick paced, learning based economy. IT is the real contributor to the advancement of the developed nations (Rao, 2011).

The accomplishment or a failure of an organization in today's exceedingly dynamic and inventive business world depends on how efficiently they are able to streamline the flow of data between their various departments and outside world. This is where e-government becomes an integral factor as it deals with the utilization of innovation to computerize the stream of information in an organization information structure. The strategic opportunities structure enables authorities to recognize opportunities for the usage of e-government (Kwon & Zmud, 2011).

In ICT and on the Internet, infrastructure is the physical equipment used to interconnect computers and the individuals using them. The structure incorporates the transmission media; including phone lines, high quality TV lines, satellites and telephone wires, the switches, antennae, and different gadgets that control transmission paths. ICT Infrastructure additionally incorporates the software products used. Information Technology gives the instruments and capacities on which all organizations all over the world conduct business. With the introduction of new communication avenues, the general usage of PCs and the expansion of the Internet, all business undertakings use some form of technology (Keen & Klahr, 2012).Prior to the improvement of current innovation, there was barter trade system where people handled manually every aspect of running business. Hence, the IT transformation has enhanced the speed of doing business globally.

The technological developments created through IT radically reduced the cost of business processes and improved the productivities across the organization (Irani *et al.,* 2010). Many developing countries in Africa are gradually deploying e-government to address their advancement challenges by putting resources into e-government projects from their own sources and also by acquiring from diverse organizations. Lending for e-government by the World Bank has additionally been very pervasive and increasing at six times the rate of total banks' loan funding. A study has shown that there are critical e-government ventures present in more than 90% of all World Bank's funding in developing nations (Sharif, 2013). It is further approximated that the aggregate yearly worldwide budget on

ICT most likely surpasses 1.5 trillion US dollars and is increasing at around 10% compounded yearly.

Governments and their public institutions are part of this trend as they are increasingly becoming dependent on e-government forensuring fast and timely service delivery to the citizens (Ilie *et al.*, 201 4). In many organizations in the public sector, the use of e-government has become crucial in sustaining and extending the organizations' strategies and objectives. Information technology has enhanced service delivery of state ministries. Just like other businesses, ministries depend on ICT infrastructure to deliver services to the users (Seo, 2013). The Kenyan administration has started considerable ventures towards establishment of ICT base in its services. Financing for these ventures is accomplished through collaboration between the administration and development partners. Foreign funding constitutes the biggest portion of this expenditure in regards to technological innovation.

2.3.2 E-level Applications

A study by Hart and Cooke (2011) demonstrates that the e-government methodology literature and the resource based perspective of the firm specifically, outline the theoretical basis for research in data management and administration frameworks that has explained the connection between e-level applications and firm performance. In his examination of the origins of firm's relative advantage, Helbig *et al.*, (2013) recommend that organizations use resource picking and capacity building instruments to manage higher performance. Hofstede (2012) affirms that organizations add to a progression of e-level applications, where the original applications are assembled through incorporation of resources, where higher-order abilities are built through integration of lower-order applications.

Heeks (2011) affirms that the genuine locus of competitive advantage and higher firm performance lies in a dynamic e-level application that again shows the capacity to align higher-order IT applications, especially in view of changing business situations and key strategic opportunities. In relation with these thoughts, information frameworks administration specialists have conceptualized utilization of information in e-government as being related to capacity building procedures using administrative skills for the

procurement, administration, and utilization of e-government in key business processes which include e-government infrastructural capacity, IS-business partnering, solutions conveyance, and strategic planning as key e- applications of e-government. Guba and Lincoln (2013) recommended that e-level applications in e-government are vital inputs for higher-order business capacities through digitized procedures, data administration frameworks, and interoperability capabilities.

As indicated by Sivamohan and Clark (2015), the resource based perspective of the firm postulates that organizations contend on the premise of particular capabilities and assets that are rare, uncommon, hard to match, valuable and not easily substitutable by different applications. A firm with remarkable and distinctly reliable resources can enjoy high long-term performance of e-government. Straub (2014) perspective concludes that the vital assets expected to conceive, choose and execute techniques are distinct in different firms and remain so over a period of time. Key assets cannot be readily imitated while they are secured by a few separating mechanisms, for example, authentic uniqueness, embeddedness, and causal vagueness. In the same way as other intangible assets, for example, intellectual property rights and human capital, the application of the e-system of the firm, as the most critical component of structural capital, is a quality driver of the present world (Fountain, 2015).

E-government assumes an increasingly vital role in all parts of business operations and corporate techniques, and for all commercial ventures information management is viewed as a critical if not the most essential resource. Data management specialists have explained other different e-government related capabilities that serve as vital sources of competitive benefits. E-level applications in e-government can build a company's capacity to control over scattered operations, enhance data quality for decision making, and better monitor expenses and benefits. Fairweather and Rogerson (2012) contend that e-government investments by utilization of e-level applications enhances the organization's capacity to undertake different activities and that, these activities are a critical antecedent of firm performance. This empowers the firm to attain scale economies and bring down its total expenses per unit yield. It is vital to have the measures of e-level applications to apply the resource-based approach in examining the effect of e-government on firm performance.

Eisenhardt (2014) reports that organizations with high e-level applications have a tendency to outdo other firms on a number of profitability based performance measures.

The clearest change proposed by e-government process is to advance e-level applications which are results driven, where the productivity of the administration supersedes the requirement for efficiency and proficiency in the conveyance of public services (Brinkman, 2014). It additionally recommends structural or organizational structures that advance devolution, separation, and customized organizations, decentralized through a wide diversity of alternative service conveyance mechanisms, where public and private service institutions access resources for their operations. Practically, the information management framework is prioritised as the best approach for realizing a 'thin State' with 'thin Government' through 'thin Management.

The set of strategies and policies provided by public administration are grounded upon the issues and challenges encountered in public sector management and the solutions required thereto. Studies utilizing subjective measures to analyze e-government execution and e-level applications in guaranteeing organizational performance have demonstrated a steady pattern in results. Utilizing Dasgupta and Gupta (2015) subjective measures on organizational performance, Compeau *et al.*,(2014) found that when a firm's business strategy is aligned with e-government, it is perceived to have more sustainable performance, higher sales volume, stronger financial resources, and possess better image and customer loyalty as opposed to moderate and less aligned firms. Using similar measures, Dawes and Pardo (2013) found public institutions with e-government system capability, have realized better organizational performance. In another study, Pallotti and Oreste (2015) indicated that public institutions that implemented the e-government strategies can generate sufficient e-level applications and thereby improve performance.

Van Bavel and Burgelman (2013), recognized e-level applications as an emerging pattern in public administration, or as a particular e-administration method. Yet, in spite of the discussion with respect to e-level applications principle qualities, the use of public management as the primary driver of public institutions has brought about ambitious expectations, for example, to make the institutions more responsive, responsible,

straightforward and results driven, and in addition decentralized, proficient and client oriented (Chau & Hu, 2011).

Furthermore, governments need to accomplish these objectives within a slimmer structure, as the need to cut back the state has been another unquestionable feature of public administration (Burns & Wholey, 2013). These new goals implant thoughts that diverge from the conventional managerial practices, which have generally been driven by expectation of bureaucratic processes, and of equality: the conveyance of public services as guided by standards of impersonality and fairness. Public administration offers another rationale to drive the e-administration of the society, and is connected with a crucial change in the elements used to evaluate the processes of public administration towards enhancing efficiency in service delivery (Bose, 2014)

2.3.3 E-government Institutional Framework

According to Rhodes and Weller (2013), e-government institutional framework ensures that e-government is seen to be compatible with organizational values, experiences, beliefs, and needs of adopters. Relyea (2014) in his published review "Engaging Citizens Online for Better Policy-Making" undoubtedly highlights the cultural factors in various countries as an obstruction to people's execution of e-government. Parent and Gemino (2013) specify that citizens who are knowledgeable and utilize the internet frequently to connect and transact business activities are more likely able to interface with other individuals, organizations, and government using a well structured e-government institutional framework. This is because when individuals embrace e-government they have higher compatibility levels with its applications. Humphreys and Humphreys (2013) research exploring variables affecting citizens' aims to utilize online applications established that e-government institutional framework is a significant variable, having a positive effect on e-government implementation.

Compatibility with current applications is a critical element in the adoption process. If e-government is seen to link well with the existing work practices, environment, and overall objective, organizations will be more likely to adopt it. Murphy (2015) established that an e-government initiative is more likely to be embraced when it is in agreement with people's

employment obligations and values. E-government is likely to be well adopted not just on the basis of its alignment with profoundly held institutional structures but also on the ability to connect well with past thoughts. Acceptability of an innovation within an institution system can either accelerate or hinder its rate of adoption in an organization. The extent to which technology meets e-government institutional system needs is another measure for innovation advancement. Organization ought to reevaluate their needs, and afterwards prescribe to initiatives that satisfy these needs. At the point when users of public services feel their needs are met, a quicker rate of adopting the innovation is realized (Mingers, 2013).

E-government institutional framework can be discussed from various perspectives (McGowan & Klammer, 2013). In the context of government services, analyzing e-government institutional structures on the premise of individual citizens' ways of life is vital. After all, government services are intended to make daily life less demanding and convenient. Roode and Walsham (2013) examined e-government institutional system of an e-government innovation in terms of the degree to which clients trust that the innovation is compatible with their institutional structure.

An assessment of the extant literature by Lewin (2014) proposes that e-government institutional system is a vital aspect that positively affects user expectations for a innovation as noted by Dridi and Pernul (2015), who included correspondence with the institutional structure in their examination of user adoption of electronic tax documenting. If an e-government innovation is compatible with an individual's lifestyle, he or she can utilize it with insignificant changes and, from a money saving point of view, perceive greater performance improvement. As per Klischewski and Scholl (2014), perception of performance of technology advancement are a functional balance between the innovation and one's current practices and preferred way of life. They further advocate that when the selection of an e-government innovation is required; the fit between the innovation and one's current practices is particularly significant because adoption of the innovation implies that users must adhere to some preset steps so as to utilize the innovation to get required government services.

In Kijsanayotin *et al.*, (2009) investigation of e-government institutional structure, they found that e-government was more likely to be accepted when it was perceived to be in tandem with the individual occupational obligations and value framework. Martin (2013) found that the extent to which potential adopters are keen to use an Information Technology is influenced by the way they are acclimated to work environment. E-government institutional framework was found to be a critical determinant in user preparedness to utilize an e-government service. It is recommended that the flow and dispensation of e-government services should be compatible with the institutional framework. Themistocleous and Morabito (2014), posit that government services are given through a mixture of channels including banks, retailers, and post offices. As per Janssen and Shu (2013), innovation solutions that are provided through an e-government infrastructure are within the reach of all citizens. Flourishing e-government frameworks ought to have the capacity to: attract citizens who are connected on the web, move unconnected individuals online, and empower the change to e-government at three levels: government-to-government, government-to-business, and government-to-individual users (citizens).

E-government should convey public services in ways that address the needs of the individuals and organizations, utilizing the web and different technologies as enablers. E-government is a great deal more than building websites as Kouzmin (2013) attests that e-government is the foundation that institutions create to change the way they complete their missions. As expressed by Irani *et al.*,(2013), immediate impacts of e-government incorporate reduced expenses in government operations, critical savings in other areas for example, public procurement, taxation processes and trade operations, within enhanced and constant contact with citizens, particularly those living in remote or less developed areas. Janssen and Cresswell (2015) advices that empowering the change to e-government requires a wide vision of acknowledging and accommodating the points of view of different groups included in the process and especially for those anticipated to benefit from such change. There are primarily three groups (individual users, business organizations and government) included in empowering the change to e-government and their viewpoints ought to be considered.

Desired correspondence or fit amongst constituents of the organization processes, for example, between work arrangements and the organization structure and values, is required on the grounds that it could enhance organizational efficiency (Jain, 2012). Greater compatibility between e-government and the organization is preferable because of the fact that it allows less uncertainty in the potential adoption and customization of the e-government initiatives in a more seamless perspective. It is additionally likely to experience less general resistance amid execution. In this way, organizations view e-government as a perfect match to their organizational hierarchies; hence they ought to have a positive inclination to receive it. Positive empirical relationship between compatibility and e-government adoption has been explained by Infodev (2012). Research has shown that for e-government to be received and actualized effectively, enlightened administration, devolved structures, and legitimate innovative structures must be set up. Since e-government includes the utilization of innovation to work in decentralized settings, organizations with poor information structures, highly centralized and bureaucratic processes (need to "see" their workers working), and administrators unfamiliar to organizing and overseeing online transactions would be more unlikely to support e-government.

Fletcher (2013) study demonstrates that a good match between e-government and formal organizational arrangement is an essential variable affecting organizational efficiency. There is need for institutions to redefine themselves toward embracing e-government so as to react more viably to complexities in their surroundings. To accomplish higher performance, organizations within complex e-government projects are bound to have devolved structures and flexible administration strategies. Organizations have additionally been known to use virtual designs to meet the difficulties of e-government within their surroundings (Hennington & Janz, 2013). Additionally, the objectives of organizations with volatile environments seem to agree with the embraced objectives of e-government. Since e-government includes working in dispersed settings with decentralized structures and administration techniques, institutions in highly complex surroundings ought to view e-government to be more adjustable to suit their institutional frameworks than organization in more stable environments.

As indicated by Hoffman (2011) organizations working in highly variable surroundings need to embrace superior analytical skills and data handling capacities, wider e-government capabilities and be more adaptive to change than those in less dynamic situations. The dynamic environment utilizing e-government ought to be analysed more carefully, in order to achieve higher organizational performance (Gouscos *et al.*,2000). The work practices, qualities, and standards emerging from the use of e-government gives a favorable environment for employees to gain more skills and experience in data management, learning, and inventive capacities and, along these lines, ought to be seen to be more innovative within organizations experiencing high variability. An innovation may be compatible within profoundly imbedded social values as well as with previously embraced ideas. Compatibility of a development with a former thought can either accelerate or hinder its rate of adoption. Old notions are the primary mental instruments that people use to evaluate new thoughts. One cannot manage an innovation except on the premise of familiarity, with what is already known. Past practice gives a well-known standard against which a development can be interpreted, thus diminishing uncertainty.

Hiller and Belanger (2015) affirm that the rate of adoption of a new thought is influenced by preceding thoughts and this applies to e-government execution in the developing nations. Clearly, however, if a new thought were totally consistent with existing practice, there would be no advancement, at least in the minds of the potential adopters. As such, the more applicable e-government is the lesser extent an adjustment in conduct it represents. Elnaghi *et al.,* (2011) points out one dimension of the e-government institutional framework as the extent to which it meets a felt need. As per Glaser and Strauss (2015) change managers try to survey the needs of their customers and afterwards recommend e-government institutional frameworks that fulfill these needs. Finding felt needs is not a simple matter; change agents must evaluate the requirements of their customers keeping in mind the end goal to satisfy these needs. Informal inquiring into interpersonal contacts with individual customers, use of change agencies and review of customer needs are in some cases used to determine needs for innovation.

Potential users may not perceive that they require an innovation until they are aware of the new thought or of its outcomes. In these cases, change operators may look to generate

needs among their customers yet this must be done precisely to guarantee the organization vision, mission and objectives are accomplished (Faisal & Rahman, 2013). Subsequently one measurement of the e-government institutional structure is the extent to which an innovation is seen as addressing the needs of the customer. When felt needs are met a quicker rate of adoption usually occurs. In general, perceived relative advantage of e-government institutional framework is found to be one of the major characteristics to affect adoption of e-government among organizational adapters (Williams & Lal, 2014). Thus, perceived relative advantage is expected to significantly influence decision-making in all stages of thee-government adoption process. E-government institutional framework debate can be made with respect to perceived e-government institutional framework. In the business-to-business model, innovations are likely to be considered for potential adoption only if they to some degree match organizations' needs, activities, and value systems.

It is expected that the perceived e-government institutional framework will be important to potential adopters in all stages of the adoption process. However, the salience of both perceived advantage and e-government institutional framework are not expected to be constant over the different stages of innovation adoption. Subsequent to Lewin's theory of conflict, variances of relative advantage and e-government institutional framework are expected to grow in strength as the potential adopter approaches the adoption decision (Dwivedi & Williams, 2014). This is in agreement with Dwivedi *et al.,* (2013) who argue that institutional framework becomes a major issue for an organization when the e-government is to be implemented within the organization.

Denison *et al.,* (2015) study on e-government adoption within parastatals found that e-government adoption and usage is significantly affected by the e-government institutional framework (Lincoln, 2014). It is important that organizations consider the most fitting application in their environments when choosing whether or not to actualize new technology. Insufficient e-government investment decisions (with respect to the institutional structure and security issues of e-government) can have a considerable effect on organizational productivity. IT is a critical factor in improving organization performance. Nevertheless, with no strong e-government adoption and improvement procedures in the right place, the expected performance upgrade may not be realized. In

this way, with its counter-productiveness, e-government may be considered as wastage of resources.

2.3.4 E-government Legal Framework

Sallahudin *et al.,* (2000) states that the idea of an e-government framework is to give access to government services anywhere and anytime over open networks. One of the pivotal and emerging issues for the eventual fate of e-government is the legally recognized structure in gove rnment data applications. E-government legal framework is found to affect public services management with how it is implemented in the e-government framework (Affisco & Soliman, 2011). Trust on e-government plays a critical rolein ensuring a smooth flow of information between governments, business and the individuals. Consequently, e-government legal structure is one of key elements for accomplishing an advanced phase of e-government for national advancement. Government regulations and policy guidelines, competitive pressure and external support are thought to be elements that impact organizations eagerness to embrace e-government. It has been considered that policy guidelines from the set e-government legal framework have an impacton the adoption of e-government technique (Al-Omari, 2013).

Gruening (2001) gives three different phases which he proposes may be useful for comprehending the emerging trends in the nature of services provided through e-government in the public sector, though does not adequately clarif y the political and administrative logic that supports performance processes in the general public sector. The adoption of e-government changes the manner in which public workplaces organize and convey services. These advancements influence the nature or the methods of service dispensation which may have political and organizational implications (Muir & Oppenheim, 2012). The transformation realized through these performances should be contextualized within the wider organizational and political atmosphere within which they have been started. Effective information administration gives adequate clarifications on the foundation of e-government enabled public sector performance initiatives (North & Thomas, 2011).

The e-government strategy intends to change t he country into an information society anchored on a competitive, vibrant economy. As a part of its effort to change its general public, economy and government, a national strategy for e-government intends to offer top quality services for the users, enhance performance and government proficiency. It is further intended to enhance competitiveness in general public, upgrade the public sector openness and integrity, cut down on operating expenses and also to guarantee seamless interface with the government. This will go a long way to advance the execution of the e-government strategy, the improvement of skills and aptitudes in the public sector and to broaden e-government facilities, and data security (MoICT, 2005).

The expected e-government performance effectiveness through the utilization of e-government techniques requires consideration of a structure for evaluating the potential contribution to the relevant policy objective. According Denison *et al.*,(2015) many e-government initiatives have been developed from a supply-side "build and they will come" focus. While this is understandable in the early stages of online service rollout, initiatives need to meet a clear business need if they are to be effective (Kostiwa, 2013). There is a need to have the capacity to gauge potential interest, policy results and quality enhancements that can come about because of e-government initiatives. An appreciation of the reality that capturing the advantages of better data management and networking in general is a difficult exercise, for example, for health and welfare benefits and will require both persistence and full engagement by all partners. Sharing of data about people between diverse units of government and between governments and non-government organizations and initiatives raises issues of security insurance. The need to justify such sharing strengthens the need to document clearly the advantages to be realized (Kritsonis & Student, 2014).

Table 2.1 E-Government Conceptualizations

IT Conceptualization	Representation	Adapted to E-Government Conceptualization
Tool or feature view	Social Relations Tool	E-Government Technology provides opportunities for the government to convey social presence which enables it to alter its effectiveness and its communications behavior
	Labor Substitution Tool	E-Government Technology is a tool that enables the government to serve the public more cheaply and efficiently
	Productivity Tool	Performance capabilities of any E-Government system is designed in the technical features of the technology used during implementation
	Information Processing Tool	E-Government Technology alters and enhances the way that civil servants and government employees process information
Proxy View	Technology perception	E-Government Technology is largely represented by measures of users' perceptions of the technologies that have been adopted.
	Technology as Diffusion	Measures of diffusion and penetration of technologies such as e-mail, Internet, Intranets, Extranets, Mobile computing and Mobile telephony are indicative of E-Government Technology
	Technology as Capital	The impact that E-Government technology has on the productivity of government staff is dependent on the monetary resources allocated to E-Government projects
Ensemble or functional View	Technology as Development Project	E-Government Technology is a social process that is largely determined by the roles of various stakeholders during its design, development and implementation
	Technology as Production Network	E-Government Technology is focused on building of systems of alliances which tie together various stakeholders who work together to develop new technologies for maintaining governments' public service delivery
	Technology as Embedded Systems	Conditions of use of the E-Government Technology within a particular social context determines its Technology as a continuously evolving system embedded in a complex and dynamic social context.

	Technology as Structure	E-Government Technology embodies social structures built into it by its designers during development which are then appropriated by the users as they interact with the technology
Computational or Proof of Concept View	Technology as Algorithm	E-Government Technology is a set of rules and procedures that is used by Governments to build new or enhance systems that enhance their service delivery
	Technology as Model	E-Government Technology is regarded as technology used for representing government's processes, structures, events, knowledge as accessible database through the use of data modeling or simulation
Nominal View	Technology as Absent	E-Government Technology is absent and cannot be described, conceptualized or theorized

Source: Orlikowski and Iacono (2001)

2.3.5 Data Management Capabilities

As indicated by Dwivedi *et al.*, (2013), e-government can primarily be seen as an instrument to present a system of rationalization of public workplaces and customization of public services by the individual organizations. Additionally, e-government can also be considered as a crucial component to accomplish coordinated government services (Wei, 2013), as stipulated by the integrated public sector performances. The join-up government approach prescribes inter-departmental collaboration and coordination to provide integrated service delivery to citizens and e-government is designed to support and enhance these interdependences which include data management capabilities. In both cases, the e-government is explained in public sector performance paradigms which, as previously discussed, anchored on the same public data management principles. E-government enabled public sector performances and data management capabilities are therefore deeply intertwined as they share the same aims and the same performance goals. The use of e-government in the public sector affects the chief characteristics of the classic public administration paradigm, in the same way as data management capabilities techniques do. E-government therefore reshapes the production, coordination, control, and direction processes that take place ensuring proper data management capabilities within the public sector (Dwivedi & Williams, 2014).

With the objective of enhancing the performance of public service, government organizations have made several steps towards revamping their operations, procedures, and functions in terms of data management improvement (Williams & Lal, 2014). In order to enhance their capacity to provide the desired services and to lower the expenses of these services, governments around the globe have put resources into e-government to revamp their work practices. These ventures have either been aimed at enhancing the organizational procedures used to give these services thus improving on the initial information administration approaches or have changed the general organization of the procedures expected to give the services, as in the case of integrated performances. Following private business practices, public institutions have visualized e-government either as a device to rationalize existing procedures or as an instrument to promote a more significant re-designing of public organizations (Faisal & Rahman, 2013).

Bureaucratic tendencies and the high state of unnecessary interdependencies in accessing public information significantly influence the effectiveness of public performance. In this regard, other organization solutions are recommended that are geared towards achievement of new targets. Glaser and Strauss (2015) analyzes this transformation from bureaucratic government to an entrepreneurial government where, as proposed by the Elnaghi *et al.*, (2011) , it is important to have an administration that works efficiently and is cheaper to run with a vision to run government like private organizations. The entrepreneurial government is based on significant shift in regulatory practices, organizational solutions and targets to be realized by advancing competition between service provision, measuring public agencies performance concentrating not on information inputs but rather on results, considering users as clients, and preferring business sector practices to bureaucratic systems (Affisco & Soliman, 2011).

Inspite of the great expectations of e-government data management capabilities, the outcomes of the embracement of these strategies remain unexplored and subjective (Jaeger & Thompson, 2014). The procedure of organizational change expected to accomplish the outcomes has as a matter of fact been more reflective and confusing than anticipated. In general, such change requires redesigning of public work stations as well as a significant redefinition of the rationale underpinning their activities. Hiller and Belanger (2015) stress

the reconfiguration of public workers around one universally appropriate benchmark or principle, and that principle is clear data management capabilities. This change is required on the grounds that, from the perspective of private business practices, bureaucratic types of organizational administration are wasteful and ineffectual as they do not consider individuals' personal involvement and ideas, conversely with the incentive mechanism typical of private organizations (Gouscos *et al.*,2000).

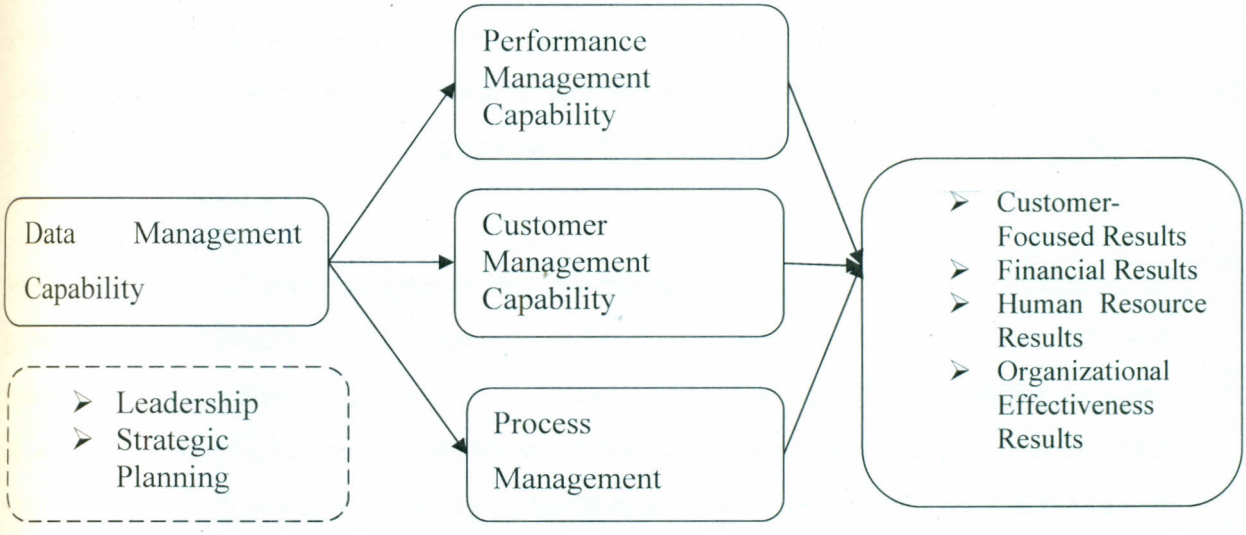


Figure 3: Model of data Management Capability

Source: Borins, (1997) pg. No. 45

Since integrating e-government is now considered necessary for business these days, it is crucial for businesses to predict information technology acceptance and usage, and to know how people respond to new and unfamiliar information technology. Model of data management uses UTAUT model as a theoretical basis for specifying the causal linkages between the two key features(perceived usefulness and perceived ease of use) and users' attitudes, intentions, and actual computer adoption behaviour (Hennington & Janz, 2013). The Model of data management capabilities is considerably less general than UTAUT model. The model is designed to apply not only to technology usage behaviour but can also be readily extended to apply to any type of technology, and consequently it could be applied to the study of users' acceptance of e-government (Sebie & Elliman, 2011).

The e-government adoption and public sector performance theories provide an important area of study to better understand the factors that steer and shape data management capabilities in enabling public sector performances (Sheng & Tam, 2014). Yet, e-government research has not extensively looked at this relationship. E-government in the public sector has mainly been discussed as a tool to help create new and better service delivery by increasing efficiency and transparency, and improving the coordination of public administration procedures and management. Fletcher (2013) advices that by making governments more accountable and transparent through a process of information rationalization, e-government has often considered as a valuable support for achieving the public administration performances envisaged by public data management trends whether implicitly or explicitly.

With a view to achieve integration and coordination among government agencies, e-government has become a central element in the reinvention of governments' agendas and public innovation efforts (McMurvay & Cozens, 2013). The use of e-government appears as a timely and crucial element in many of the key components identified under data management capabilities in ensuring governmental performances and in the integrated initiatives, in particular. Indeed, proper data management capabilities enable public sector performances to become embedded, as part of managerial performances, in many countries around the world. The effects of e-government on public administration and the services it delivers have commonly been debated by looking at what different technologies and their applications enable governments to do. Consequently data management capabilities in enabling public sector performances have been discussed as development processes which support the emerging aspects of e-government. Accordingly, literature debates these performances as a phenomenon that can be described in terms of its development phases (Irani *et al.*, 2013). The different phases are proposed to highlight how new functionalities structured within data management capabilities enable changes in the nature and organization of governments' activities.

According to Infodev (2012), the rationalization of existing processes deals with front and back office practices and the outsourcing of public functions, while the re-engineering of the overall organization is concerned with the reconfiguration of interdependences and

synergies among different government functions. In conclusion, this means that the policies that have informed the digitalization of public administration have been led by drivers which did not account for the implications that a change in the structure of public administration can have on the quality and value of the services provided. As noted before, managerial values, as inspired by well organized data management, have been the major initiators of e-government use in government. Addressing the question of whether and to what extent e-government enabled public sector performances are achieving the expected policy goals entails considering a broader set of values (Jain, 2012).

Jaeger (2011) argued that although valuable for assessing some of the aspects associated with the deployment of e-government in public sector organizations, the focus on efficiency, effectiveness and economy appears limited as already discussed in literature. This focus is mainly based on the search for best practices and universal strategies to successfully implement these programs, and marginalizes broader impacts of these performances. Since data management capabilities enable public sector performances and involves the deployment of a complex e-government infrastructure to redesign public sector organizations, they face a number of risks in relation to implementation, project management and policy, none of which can be managed on the basis of universal best practices and strategies. Accordingly, data management developments in the public sector should pay more attention to the complexities of their implementation, with particular focus on the potential consequences of the transformation of the relationship between the citizens and the state regarding shared expectations about the actions of the government. The outcomes of public sector performances in fact have an impact on social and political dimensions, which are not accounted for in private sector frameworks (Kaliontzoglou *et al.*, 2015). Yet, private sector data management capabilities experiences have often been the models followed to reorganize the public sector along the basic principles of efficiency that govern the private sector.

Public data management capabilities are inherently embedded in combination of public performances and organizational changes intended to ensure and drive a significant change in the organization of various public institutions. Research in the field has so far underscored the idea of information administration capacities as an approach to build

public sector productivity and enhance internal organization and administration abilities (Kurunananda & Weerakkody, 2014). This pattern has become apparent in the wide appropriation of e-government by users in public organizations that use specialized and key solutions - imported from private sector experiences to enhance their regulatory and administrative processes. This forms part of public management solutions, which prescribe e-government applications to modernize information management and administration capabilities. By concentrating on these objectives, to modernize public service administration, e-government empowered performance has frequently failed to highlight the more extensive effects that e-government can have on public institutions and the services they convey (Lee, 2012).

2.3.6 Program Compatibility

An effective e-government plan advances economic strategy goals (Janssen & Cresswell, 2015). More particular impacts may extend from effects on e-government creation, e-commerce diffusion and business profitability to indirect impacts, for example, lower operational costs attributable to more effective plans and efficiencies that are realized in a more extensive economy. E-government when adjusted to achieve modernization objectives, guarantees the necessary focus on the extra changes required to meet desired service convenience and also address the various administrative concerns. At the same time, it gives some important execution tools and facilitates necessary support from the top leadership and government personnel for accomplishing those targets. Irani *et al.*,(2013), highlight that through user engagement; e-government enhances the general trust in government and public operations. E-government enhances data streams and empowers active involvement by the users, is progressively seen as a significant tool for building trust around and amongst the governments and nationals. These aims may include maintaining a delicate balance between productivity and viability, effectiveness and transparency, required accountability and client focus. When this is the situation, customer needs should be given utmost attention, yet it ought not to be expected that such tradeoffs are unavoidable. Kouzmin (2013) declares that few nations have set up particular workplaces to handle public issues concernin g security and citizen trust; this backs both privacy protection and effective utilization of information.

According to a study done by Janssen and Shu (2013) the quest for improved productivity is an important driver of e-government application to guaranteeing better services in general public service and most national methodologies particularly addresses this objective. E-government use in government operations has regularly been driven by the need to lessen the wastage on public assets and resources, also to curtail general spending or to focus the use of resources in the right areas. Mass production tasks, disseminated networks of service outlets, remuneration process and internal public management working procedures, for example, finance and human resource administration all rely on e-government and will keep on being major areas of focus for efficiencies and performance improvement. Lately, Internet-based applications have been put in place, utilizing online platforms to lower the expenses of information entry and checking. This is additionally done to save money on communication costs with clients and amongst the government, to utilize available assets, for example, talented staff or facilities more effectively by enhancing record keeping arrangements, to replace manual procedures and to improve performance in the disbursement of payments and collection of tax revenues (Themistocleous & Morabito, 2014).

The enhancement of public services is an aim of all e-government plan statements as studied by (Margetts & Dunleavy, 2012). Certainly, given the focus in both strategies and explanations more commonly on online service platforms and online service objectives, it is likely to conclude that this could be the only aim of e-government. It has been beneficial as a method of increasing public attention in e-government, for example by promising to provide online services by a particular date and more often with the bigger aim of engagement with the public using efficient online platforms. Certain service delivery strategies have been established by governments to improve the quality of their services to consumers (Morris & Venkatesh, 2011). This has been achieved through the use of service delivery charters, including timelines for particular services, addressing customer service expectations, benchmarking with private service organizations and consumer survey insights. While a particular desire can be to have e-services for their own sake, such services are progressively being established in the perspective of wider, multi-channel service strategies. A fundamental component of public sector performance plans and e-government execution involves focusing on customer needs, with the particular aim of

providing individual users and business or ganizations with a rational interaction with government that meets their requirements rather than the bureaucracies of government. This customer attention has for a long time been a component of wider public administration performance, and predates the widespread utilization of the Internet as a service delivery tool (Navarra & Cornford, 2011).

The implementation of e-government has brought about major insights in the quest to offer wider consumer attention and public institutions are active in establishing enterprises that bring together information and services for particular user groups (Yazici *et al.*, 2013). Citizens get advantages from e-government services since they can appreciate the change in policies that may influence them or particular community actions or suggestions at local level and can undertake their normal transactions with government, such as tax filling, on a more transparent basis. The execution of the e-government approach mostly has improved governments' ability to focus services to the public, and many of the countries' e-government approaches replicate this objective. Providing one-stop shops, facilities and services for individuals with physical incapacities and information in diverse societies are amongst the methods embraced in the e-government plans (Weerakkody, 2009). From the perspective of users, e-government has made it easier to assimilate the services of specific agencies within an integrated platform.

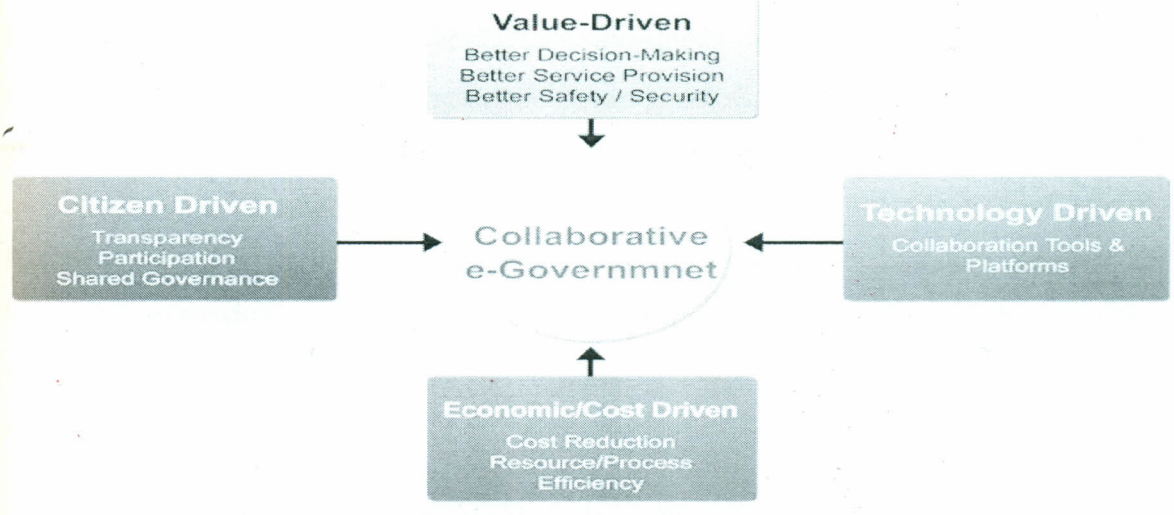


Figure 4: Primary Drivers of E-government in Ensuring Program Compatibility

Source: Borins (1997) pg. No. 71

As per (UN, 2008), there has been overwhelming concern in Web-based service administration, for example, through general government portals and sub portals concentrated on a specific subject or client group. Such administration requires adequate coordination between various agencies, with clear guidelines for information and data sharing arrangements. Integrated cross-agency exchange services are beginning to increase and are under dynamic focus in various nations. Particular activities which are anchored on the e-government platform to enhance service quality include: advancement of online portals concentrated on specific points or groups which bring together data and exchanges identifying with that specific subject or groups; measures that give focus within client groupings, for example, the capacity to choose data by size of business from a business portal, which helps small organizations find applicable data more promptly, or access to data by geographical region; utilization of email postings to give data, for instance discharge by national statistical agencies of new statistical data customized for particular groups of clients; services that permit clients to get customized data and services (Kijsanayotin *et al.*, 2013). For instance, a log-on name or password takes into account customization (e.g. by socio-demographic information); services that permit individual confirmed clients to submit taxation or other forms, to apply for help and to document compliance returns online. Such services necessitate some type of verification identified with the confidentiality and security prerequisites of the exchange involved.

Numerous nations have understood the advantages of cross-organization validation frameworks, and the United Kingdom's Gateway and Ireland's Vault projects expect to give a typical confirmation point to a scope of services (Traunmuller, 2015). They additionally give a vital empowering agent to online mass customization of services. Despite the fact that access to and convenience are vital drivers of many e-government initiatives, expanding awareness that e-government activities can also help accomplish vital results in real strategy areas, for example, education ,training, anti crime activities and security.

As indicated by Klischewski and Scholl (2014), strategies to upgrade policy results will encompass the full-scope of the strategy components address ed by governments. The application of e-government to enhance strategic policy development may take numerous

forms, however a major advantage is in the utilization of the systems capability to share information more adequately among a scope of dispersed partners. E-government activities may include online services that communicate specifically with end-clients, for instance to give data and enrolment facilities to help take-up of welfare disbursement programs or online data on education and training facilities. Other activities might include sharing data among different units of government and intermediaries, for instance in the healthsector where applications are used to record and share data more effectively on pharmaceutical products and other medical services with a specific goal to lower administrative expenses and give better care to the people. Such activities among others are being employed in Finland and Australia to enhance Medicare (Zweers & Planque, 2011). Enhanced administration of taxes, decreased interest for healthcare through better utilization of medical data or decreased unemployment payments owing to better coordinating of the unemployed to available vacancies by means of online employment registers can have a notable effect on performance of the public service. Furthermore, e-government helps to enhance social strategy. E-government guarantees organizations to advance the utilization of local dialects and give data about indigenous people groups. It helps structure groups of interest around public issues and provides information to empower particular and disenfranchised groups.

Dridi and Pernul (2015), points out that user involvement can help establish and reinforce the trust relationship amongst the governments and the users of public services. This is required in the accomplishment of an effective e-government execution roadmap and thus satisfying wider economic and social objectives which guarantee performance. Without trust, the rule of law, the authenticity of government initiatives, particular performance programs may not be realized. While the general framework includes a complicated web of components, e-government execution strategy applies as an enabling agent to engage users in the approach procedures, advance transparency in government thus counteracting corruption. User engagement basically incorporates data sharing, consultation and allowing feedback by the users of services. In a more enhanced perspective it incorporates user engagement for policy plans and decision making (Corradini *et al.*, 2013). Access to data, consultation, and involvement mechanism can have a pervasive effect on the e-government execution method. Consultation and informed involvement help lead to strategies that

address general society needs and furthermore expand support for, and trust, in public institutions and their approaches. Governments are effectively implementing e-government strategies applications in the e-government areas that are compatible with organizations policies, vision, mission and goals (Davis, 2013).

Five constructs have been identified which will be used as a basis for E-Government conceptualization. The five constructs are based on a summary of the predominant IT artifact conceptualizations proposed by Lewin (2014). These five conceptualizations are the tool view, proxy view, ensemble view, computational view and nominal view.

2.3.7 Information Security

In the quickly evolving world of ICT, different public sector organizations employ the e-government platform to anchor their activities towards digitalizing their services to their clients or users. This is achieved through the Internet with the view that clients can without much of a stretch utilize the accessible services at any point in time hence enjoying the benefits of accessibility and convenience of using WWW browsers (Airasian, 2014). Such digitizing of data is known as e-services. On the other hand, a significant concern over trust, authenticity and safety of such data requires a high level of security amongst e-government organizations. In this dimension, the role of e-government in ensuring trust and data security is to guarantee privacy, accessibility, honesty, verification and non-variation of data and also giving more emphasis on comprehension of client preparedness to use such electronic service (Iwaarden *et al.*, 2013).

There are a set of core security benchmarks that may be needed by an e-service application. Some of these security factors are described below. Managing E-government in a wider perspective is challenging and truly a complicated task. With the guide of distinctive layers, modular extensions of entire frameworks and the operability between diverse applications can be ascertained (Roode & Walsham, 2013). A few nonspecific models are currently accessible that address particular issues of complex framework on diverse levels. Three unique levels of security of e-services or Government to Citizen (G2C) have been differentiated as follows; network layer security, system layer security and information security. As indicated by Liu and Arnet (2013), the following issues

should have been identified: Authentication, Data Integrity, Trust, User Anonymity and Security dependencies, The security components depicted above are at the service level (application level). Other Security characteristics may be required at lower layers in the primary servers. Application level gateways are notable for the analysis of the whole messages as opposed to individual packs of information when the information is being transmitted (Parasuraman *et al.*, 2015).

McGowan and Klammer (2013) demonstrate that some information is not only private; clients do not want not to lose it or have other people to see it without their approval. Experience of social security number, Visa cards and bank accounts all together could subject the user to identity fraud. Organization archives may contain competitive advantages, individual data about workers or customers, or other important organizational records. A few approaches to shield critical client information from misfortune and/or unapproved access are required; this is done by information security that means shielding a database unauthorized access and other undesirable activities of unapproved clients. According to Rowley (2013) the following measures should be incorporated: back up ahead of schedule and regularly, utilization of first level and share level security, secret word to protect archives, utilize disk encryption, make utilization of public key infrastructure, conceal information with steganography, secure information in transit with IP security, secure remote transmissions and client rights administration so as to maintain control. The aforementioned efforts to establish safety are distinguished for a flawless case i.e. for completely developed framework. Nonetheless, applying it all at the preliminary stage may be expensive.

Parasuraman and Malhotra (2012) propose an organized collection of security components required at diverse levels that help institutions to effectively recognize and comprehend existing security gaps; monitor the advancement of security execution, practices, plans and quality; and monitor security venture, administration and organizational review gave a generalized view for developing nations additional characteristics such as security culture, security and protection framework, administration responsibility, administration style, senior management and user preparedness, aptitudes and skills training, administration

change and data security infrastructure as factors to be taken into consideration off (Mingers, 2013).

Security is customarily concerned with data properties of secrecy, honesty and accessibility. These properties enhance services, for example, client verification, approval, responsibility and reliability. As indicated by Murphy (2015) issues of security and protection in the administration of data frameworks are guided by these properties. It is necessary therefore to consider these issues in outlining e-government security framework. E-government services have various levels of sensitivity, hence should be secured through different validation approval strategies. Th e str ategy of e-government security can be applied to any administration structure with minor alterations. The difficulties in e-government services security enhancement includes recognizing clients, verifying clients, storing public and characterized data in same sites, checking approvals, evaluating and authorizing transactions, resolving conflict, and also maintaining adequate data backups. In this way e-government security frameworks ought to have the capacity to have the following prerequisites; ability to use various validation methods, approval, accreditation issuance and repudiation, enhanced confidentiality, conflict determination, responsibility, accessibility, data privacy protection, data integrity, obscurity and scalability (March & Olsen, 2012).

Many authors contend that information security management system (ISMS) comprises of many aspects, for example, strategies, norms, rules, codes of practice, innovation, and human issues, legal an d moral issues. Model of information systems (IS) research is generally understood and explained in the information system management literature (Rao, 2011). The model recognizes three data framework environments (client, IS advancement, and IS operations environments) and three data framework procedures (utilization, improvement, and operations procedures) (Kwon & Zmud, 2011). The environment component explains the resource capacity and limitations that determine the scope and form of information systems and IS processes.

There many risks that can influence e-government security, for example, adjustment of information, overall network access system, and client reprisals, theft of data, unapproved utilization of resources, spoofing or impersonation to gain unlawful access, virus attacks

from unauthorized programs, discloser and destruction (Keen & Klahr, 2012). As said before, the primary aims of security are the protection of the privacy, honesty, and accessibility of the data resources. Additionally, the applications that the software creates, stores, develops, or transmits, and also the execution programs. That implies, users in a safe system ought to have the assurance that their information is secured against unapproved access or change, and is well accessible.

The Following are insights about required information security aspects (Irani *et al.*, 2010). Confidentiality: the data printed by e-government is just for approved clients, which cannot be accessed by unapproved clients. Integrity's: the administration data that is kept or maintained transmission cannot be changed. Non-repudiation: the e-government data cannot be denied. Controllability: the spread of the internet data can be controlled. Efficiency: is a measure of pace and cost or is getting all transactions done in the briefest time possible with the slightest amount of effort and resources, Effectiveness; refers to ensuring excellent quality paying little respect to speed or is accomplishing a task in the right way. Efficiency signifies "doing the thing right," Effectiveness signifies "making the best decision." Vagueness: the issue lacks clarity and precision andis not well communicated/ expressed or not clearly decided or understood; unverifiable. Accuracy: The condition of being exact; free from errors, this exclusion emerging from carefulness; accurate adjustment to truth, or to a guideline or model; exactness; precision; comfort; and rightfulness; as, the value of testimony depends on its accuracy (Sharif, 2013).

In the categorization of impediments to e-government, authors in the field have laid out the difficulties and impediments connected with e-government. A classification framework that organizes these obstacles and difficulties into four main classifications: technical, political, cultural, and legal. As highlighted by Humphreys and Humphreys (2013) the capacity to give security and protection is not just an obstruction to the effective implementation of e-government but at the same time is an obstacle as far as technical, political, cultural and legal issues are concerned. In this manner, security assurance within the setting of e-government is an important factor for its effective execution (Ilie *et al.*, 2014). From an administration view, e-government adoption is turning into an unquestionable necessity. E-government deals with the operation of government and the

circulation of administrative data and services. The main objective of e-government is to have the capacity to offer an expanded portfolio of public services to citizens in an efficient and cost effective manner (Seo, 2013), as shown in Figure 5.

Figure 5: Development of a New Revolution in Governments

Source: Cordella (2007) pg. No. 88

The public release of data must be discharged through review (Hart & Cooke, 2011). The security difficulty in e-government is internal vulnerability and outside risk to manage such issues. Scholars proposed the utilization of different methods to take care of security issues. Bayesian Belief Networks also called Belief Network are the probability analysis and graph hypothesis, a result of the combination in 1985, which was initially advanced by Relyea (2014). It is a processing model that simulates the uncertainty of the causal relationship in the thinking process. Assessment routines for e-government security hazard evaluation and the simulation results point that utilizing the Bayesian system appraisal has

the same impact with the evaluation of the specialists. The algorithm is not only scientific and reasonable, but also can be applied to the expert system to express the human being's knowledge process (Helbig *et al.*,2013).

2.4 Summary of Literature Review and Research Gaps

The literature reviewed and discussed above, primarily focused on the private sector, identified a number of possible factors that influence the adoption of e-government within the public sector. However, it became apparent from this review, that there were a number of significant gaps in the current literature in relation to the uptake and adoption of e-government. More specifically, the following important gaps were identified: Current studies of e-government tended to adopt rather narrow definitions and conceptualizations of e-government; There have been few, if any studies which explicitly focused on the public sector, in general, nor the adoption of e-government by Kenyan public sector organizations, in particular; There exist a number of studies that recognized factors that might influence the implementation of e-government, but they tended not to be empirically tested. Moreover, such studies did not provide complete and coherent taxonomies of the problems with traditional government, or the potential benefits of, and inhibitors/ facilitators of e-government adoption; Where empirical studies of the adoption of e-government, have been conducted, they tend to be questionnaire-based, private sector-oriented, focusing on a restricted set of adoption factors and a narrow conceptualization of e-government. In particular, it is important that more case studies are conducted, so that the issue of causality can be more explicitly addressed. The existing empirical literature tends not to explicitly draw upon theory, to help interpret their results. Consequently, the extent to which an organization's adoption practices might be explained through the use of an appropriate theoretical lens, such as Management Information Systems Theory, have not been widely explored.

In regard to both general and specific literature, not many studies assessed factors affecting the use of e-government in Kenya. Numerous contentions for ICT planning demonstrate ICT projects as intricate activities hence additional research was expected to identify challenges, good practices and solutions for effective usage. The study aimed to extend previous research by incorporating concepts in the execution of e-government strategy and

examinee-government strategy execution and performance of the public sector and the moderating factors in its implementation. There was therefore need to carry out a primary research to close the gap between research variables as this was not made clear in literature reviewed by explaining whether the identified factors affected e-government strategy implementation in the Kenyan public sector positively or negatively.

Table 2.2: Summary of Empirical Studies and their Gaps

Author	Year	Study	Findings	Gap
Kritsonis, A. & Student, M.	2014	Good Governance Through E-Governance	Income levels, strength of institutions and the commitment of the government to promoting e-government were the most important factors	This study did not address the e-government enablers
Peters, B.	2013	Managing horizontal government: the politics of coordination	As a result of the introduction of e-government, five dimensions of changes in the service design are revealed; (i) the service encounter and service process; (ii) customers as the co-creators and sole producers of services; (iii) efficiency; (iv) increased complexity; and (v) integration.	The study only targeted the users and assumed the other stakeholders who are policy makers
Sawyer, S. & Chen T.	2014	Conceptualizing Information Technology in the Study of Information Systems	The study identifies four characteristics of a service dominant professional identity: (i) interaction; (ii) customer orientation; (iii) co-creation; and (iv) empowerment. The study finds that such an identity can be established through five socialisation processes: (i) collective socialisation; (ii) random socialisation; (iii) serial socialisation; (iv) investiture socialisation; and (v) divestiture	The study did not consider ICT pillars of infrastructure, e-level applications e-government institutional framework and e-government legal framework

			socialisation.	
Caba, C., Lopez, A. & Rodriguez, M.	2015	Citizen's access to on-line governmental financial information	Four categories of customer role during the co-creation process are identified. The customers are: information integrators, user accessibility, dialogue keepers, and knowledge transferees.	The study was conducted in a developed country leaving a gap for the developing countries
Kim, C.	2006	A cross-national analysis of global E-government	Most important factor was the economic growth of the country. Governments have to deliver information across agencies	The indicators used did not measure the actual variables of e-government platform
Torres, L., Pina, V. & Acerate, B.	2013	E-governance developments in European Union cities: Reshaping Government's Relationship with Citizens	The contributions made by this study are threefold. First, the study demonstrates that the application of S-D logic enables e-government organisations to facilitate value co-creation. Secondly, the inclusion of material on S-D logic contributes to the literature on e-government, which has previously mainly been based (implicitly or explicitly) on the logic. Thirdly, the model proposed here identifies three factors (treating customers and employees as operational resources, horizontal integration, and awareness of the various roles played by customers and employees) which are crucial to value co-creation.	The study did not focus on the public sector but rather on a private firm. The study findings are not generalizable.
Lincoln, N.	2014	Creating Public Value: Strategic Management in	Performance measures and indicators were influenced by the	The instrument used was through focus group discussion and

		Government	selection of methodologies, leadership and regulatory mechanisms of public sector	through this the concept e-government implementation was diluted
Drucker, T.	2010	Reengineering public sector organizations using information technology	The success or failure of an organization in today's highly competitive and technological business world depends on how they manage to streamline the flow of information between their departments and outside world.	Notably the study did not consider e-government legal framework as a variable to e-government reengineering.
Irani, Z., Love, P.. & Jones	2014	Digital Government and its Effectiveness in Public Management reform	ICT infrastructure flexibility should be viewed as an organizational core competency and that ICT infrastructure flexibility is necessary to handle increased customer demands without increased costs.	The study did not include inferential statistics. The study variables were not well addressed
Rowley, S.	2013	Exploring best Practices in Public–Private Partnership (PPP) in E-Government through Select Asian	Integration between business and information systems (IS) planning, rational-adaptation in IS planning, ICT managerial resources, and e-government implementation success are all factors likely to influence alignment	The study took one approach i.e. theoretical perspective. The historical perspective, conceptual perspective and contextual perspective were ignored by the author.
Martin, L.	2013	Overcoming the Confucian Psychological Barrier in Government Cyberspace	Firm specific and difficult to imitate characteristics of RBV enhance the value of IT related resources of the firm	The study failed to cover the entire scope of the firm i.e. the users but concentrated on the staff
Mingers, J.	2013	Information System and Information Infrastructure Deployment	Organization learning significantly mediates the effects of IT competency	The study failed to show the effect of e-government on firm performance

Parasuraman, A. & Malhotra, A.	2012	Capital Access Barriers to Public Procurement Performance	The strategic importance of IT is not growing but diminishing. As It becomes more standardized and affordable, it is gradually being transformed into a simple factor of production necessary for competitiveness but not for advantage	This divergent view is yet to be tested empirically
Liu, C., & Arnet, K.	2014	E-government strategy to the users application	Organizations whose managers have high degree of environmental dynamic capabilities. codification of knowledge and technical innovation are significantly related to develop of dynamic capabilities	Failed to show how e-government can be used to enhance dynamic capabilities through compatible programs
Hennington, A. & Janz, B.	2013	Factors affecting the adoption of the internet in the Public Sector	Strategic IT alignment has a positive significant influence on the agility and performance of the firm. The effects of strategic IT alignment is fully mediated by agility and that environmental volatility moderates the link between agility and performance	Failed to link IT capability with firm competitiveness
Glaser, B. G. & Strauss, A.	2015	Professional versus political contexts: institutional mitigation and the transaction cost heuristic in information systems outsourcing	Resource based view theory explains how organizations reduce interdependence and uncertainty	No link with e-government pillars and performance
Lincoln, Y.	2014	E-government policy and health information systems implementation	The inevitable dependence drives up the cost of resource acquisition. Embedded ties affect the specifications of the resources	The role of IT and institutional forces are not covered. Neither the impact on the firm performance is covered

Hofstede, G.	2012	Factors for successful e-government adoption	IT is valuable, but extent of influence is dependent on other internal factors including complementary resources	Relationship of IT with firm performance and the mediating factors is not explored
Bose, R.	2014	E-government security in developing countries	e-government has successfully enhanced innovation through external creativity and knowledge resources vi open innovation	Failed to indicate how the institutional forces have influenced the drive to open innovation and firm performance. Study neither covers the role of e-government in enhancing performance
Lincoln, Y.	2014	Achieving success/avoiding failure in e-government projects	IT deployed for knowledge management will not achieve much if not accompanied by corporate culture change. IT has been designed for knowledge management	Not linked with competitiveness and firm competence

Source: Author (2015)

2.5 Conceptual Framework

This study attempted to discuss the relations between the various independent variables with regard to performance of the public sector as the dependent variable.

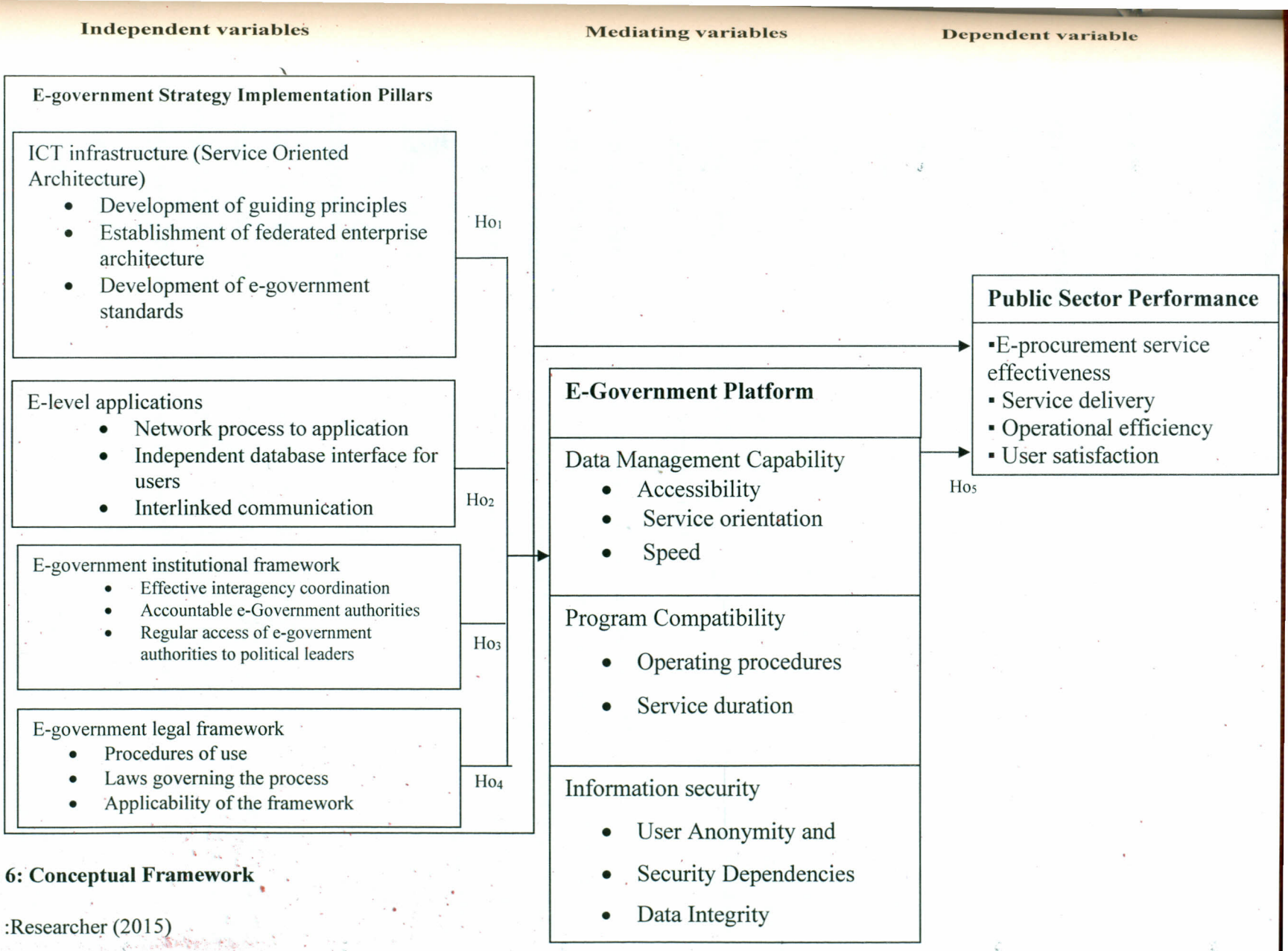


Figure 6: Conceptual Framework

Source :Researcher (2015)

2.5.1 Dependent Variable

2.5.1 Dependent Variable

The study identified performance of the public sector as the dependent variable. In this study, e-government performance as dependent variable included; services level, operational efficiency and user satisfaction in the public sector. Four items were used to represent service level to the public sector: improved quality of output in service delivery; increased client satisfaction; provide other means to access the information collected, generated and disseminated by the government; improved communication with citizens about public issues. The study operated the construct, operational efficiency, under the following three items: reduced overall cost for the agency cheaper cost of doing business than the traditional way, increased job satisfaction.

Performance was taken to be dependent on various factors related to the nature and type of e-government strategy implementation effect on ICT infrastructure, E-level applications, E-government institutional framework, E-government legal framework, data management capability, information security and program compatibility. This study attempted to explore how these independent variables influenced performance in the Kenyan public sector and specifically in Nairobi County.

2.5.2 Independent Variables

This study categorized four variables of e-government strategy implementation on performance as the independent variables. Determining the performance of e-government is a complicated element of e-government uses. E-government performance evaluation has developed into a favorable subject for many studies and applications (Traunmuller, 2015).

According to Kijsanayotin *et al.*, (2013), government policy and regulations are known major facilitators of e-government adoption through a gateway of e-government legal frameworks. These frameworks include; effective interagency organization, accountable e-government authorities and regular access of e-government authorities to political leaders.

Irani *et al.*,(2013), asserts that e-government institutional framework is one of the most vital variables to be examined as it replicates the cultural approval of e-government in the e-society. E-government institutional framework also comprises the degree to which a technology agrees with the firm's requirements, including the configuration of a firm's e-government policy with its business approach (Janssen and Cresswell, 2015). For technology innovations, it is especially significant that they fit with the most normally installed hardware platform and operating systems (ADF IV, 2004).

Kouzmin (2013) suggests that the genuine locus of competitive advantage and superior firm performance lies on dynamic e-level applications that again mirror the capacity to attain higher-order IT applications, especially in light of changing business situations and strategic opportunities. In line with these thoughts, information frameworks administration specialists have conceptualized utilization of information administration in e-government execution as related capacity building procedures and characterized them as administrative competencies for obtaining, administration, and utilization of e-government in key business processes and strategies that include e-government infrastructure capability, IS-business partnering, solutions delivery, vendor partnering, and strategic planning as key e-level applications of e-government (Yazici *et al.*,2013). Janssen and Shu (2013) proposed that e-level applications in e-government are antecedents of higher-level business abilities through digitized procedures, knowledge administration frameworks, and responsive capacities

An organization IT base allows organizations to take advantage of enhanced business practices. An especially critical feature of ICT framework is flexibility. Margetts and Dunleavy (2012) affirm that ICT base flexibility ought to be seen as an organizational core competency and that ICT framework flexibility is important to handle expanded client requirements without increasing expenses. As indicated by Navarra and Cornford (2011), integration between business and information systems (IS) planning, normal adjustment in IS planning, ICT administrative assets, and e-government execution achievement are all variables likely to influence alignment. Their relative significance, on the other hand, depends on the organizational setting and on whose viewpoint it is being looked from. The conceptual framework showed the relationship between the five dimensions of the study.

Each dimension and its relationship with other variables, as depicted in the model, were discussed further in the remainder of the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section covers the research philosophy, research design, model specification, measurement and definition of variables, target population, sample design, data collection, instrument reliability and validity and data analysis.

3.2 Research Philosophy

A positivism angle was applied for the purpose of the research. Positivists trust that genuineness is steady and can be observed and described from an objective perspective and meddling is possible with the phenomena being considered (Reeves &Hedberg, 2003). This perspective is by implication bolstered by Kaplan and Maxwell (1994) who, in an audit of 902 Information Systems examination articles, found that all the observational studies were done on the premise of the positivist methodology. Positivism has likewise had an especially fruitful relationship with the physical and natural sciences.

Positivism angle was applicable to this study since it was valuable in serving to clarify the interaction between e-government procedure and execution. The study concentrated on e-government implementation, which was thought to be a greater amount of the sociological sciences as well as physical sciences. Positivism investigation does predefine dependent and independent variables, as well as focuses on the full multifaceted nature of human sense making as the circumstances arise (Kaplan & Maxwell, 1994).

3.3 The Research Design

This study was undertaken throu gh the utilization of a descriptive study d esign. The descriptive study design was adopted because of the way that it permits examination of the relations of variables under study, utilizing linear regression model. It additionally permits more noteworthy adaptability in terms of cash and time and in addition maintaining a

strategic distance from the hardship of chasing for respondents more than once to deliver high response rate (Reeves &Hedberg, 2003). These reasons validate why this study embraced a descriptive research design.

A descriptive study design decides and reports the way things are (Mugenda & Mugenda, 2003). Creswell (2003) also perceive that a descriptive study design is utilized when information is gathered to represent persons, organizations, settings or phenomena. This design has been used previously by Easton & Mcoll (1997) and Gujarati (1995) studies. Descriptive study is an examination in which quantitative information is gathered and investigated to portray the particular phenomenon in its patterns and linkages between distinctive components at a given time. Descriptive study design was chosen because it empowered the analyst to sum up the findings gotten from the study test to a bigger populace.

3.4 Locale of Study

The study drew its population from the public sector in Kenya as represented by government ministries. The ministries were studied at their headquarters, which are located in Nairobi County. Nairobi County includes the managerial locale of the capital city of Kenya. Nairobi County is in this way synonymous with the city itself. As per the 2009 Population Census, Nairobi is the Kenya's biggest urban center with 3.1 million individuals (KNBS, 2010). The choice of Nairobi County as the study zone was impacted by the fact that it houses all administration ministerial stations.

Nachmias and Nachmias (2008) perceived that components, for example, familiarity to a zone, constraints of time, effort and cash may impact a locale chosen by the researcher. Hence, Nairobi was well known to the researcher. That is the reason why the researcher chose Nairobi County for the study. It was also judicious for the researcher to recognize an area that promoted information gathering. In addition, Orodho (2005) notes that doing a study in a setting where you are known as an associate and a companion promotes information gathering. Nairobi County has throughout the years grown enormously both in population and commercial enterprises, which had subsequently urged the Kenya government to create the Ministry of Metropolitan to deal with this growth.

The researcher had the capacity to conduct follow-up of these ministries as majority of them were reachable and centrally located. These combinations of qualities made it a proper area for the study. Also the couple of studies completed in Nairobi just investigated the impact of ICT on the development of large enterprises overlooking the e-government strategy implementation and performance of the public segment in Kenya.

3.5 Model Specification

The empirical model defines the relationship between the study variables through empirical research. According to Easton and Mcoll (1997) the process of defining the empirical model by inclusion of relevant independent variables and exclusion of irrelevant independent variables is referred to as model specification. The model used is as presented below;

i) Modeling the Direct Relationship

The study utilized a model of simple linear regression in measuring the connection between the two variables i.e. dependent and independent variables as proposed by Orodho (2005) and as shown below.

Figure 7 Model for Direct Relationship

(Y= E-government performance, β_0 = Constant terms, β_1- β_4 = coefficients of the independent variables, X_1 = ICT infrastructure, X_2 = E-level applications, X_3 = E-government institutional framework, X_4 = E-government legal framework, ϵ_1 = Error term which is the composite of other types of individual differences not explicitly identified in the model).

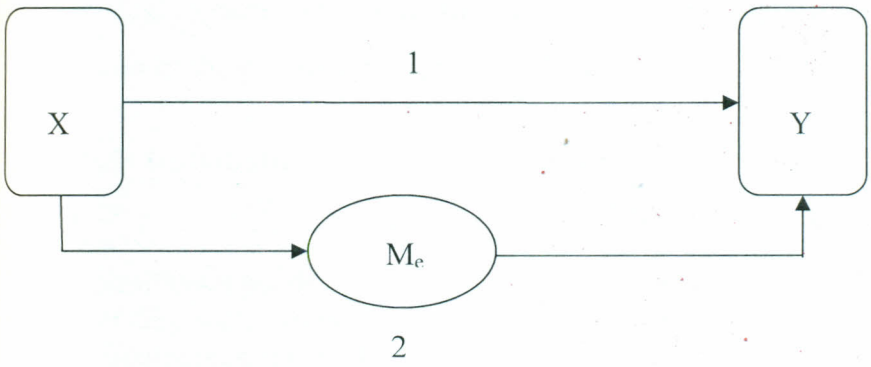
The regression model for the relationship is expressed as:

$$Y = \beta_0 + \beta_1 \chi_1 + \beta_2 \chi_2 + \beta_3 \chi_3 + \beta_4 \chi_4 + \varepsilon, \quad \text{.....Model 1}$$

ii) Modeling the Mediating Relationship

The study used two regression models to test whether e-government platform mediates the relationship between e-government implementation pillars and the public sector performance. The model was adopted from Easton and Mcoll (1997) and applied in this study as shown below;

Figure 8 Model for Mediating Variable



If step 1 is significant as well as step 2, then some form of mediation is supported. In step 2 if X is not significant after controlling for M then full mediation is supported. If in step 2, path 2 remains significant after controlling X then partial mediation is supported. The relationship are mediated as:

Step 1: Relationship between dependent and mediating variables

$$Y = \alpha + \beta_m \chi_m \text{ ..... Model 2}$$

Where:

Step 2: Relationship between independent and dependent when mediating variable is present

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

Where all the mediating variables are included

3.6 The Target Population

According to Nachmias and Nachmias (2008), a population is the collection of all cases that agree with some selected set of conditions. In regard to the 2009 Population Tally, Nairobi is the largest urban center in Kenya with 3.1 million persons (Kilele, 2010). The area is projected to be 30,389.7 KM^2 (Economic Survey, 2014).

The component of investigation for this research was the government Ministry. The populace of the study comprised the 18 ministries by which the current Government has organized its operations (GoK, 2014). The unit of observation in each ministry comprised the technical departments supporting service delivery and the users of the services. The distribution of the population is as shown below;

Table 3.1: Distribution of Target Population

Category	Frequency	Percentage
Directors	18	0.14
ICT Departmental heads	18	0.14
Customer care supervisors	18	0.14
Users (members of the public)	13174	99.58
Total	**13228**	**100**

Source: KNBS (2015)

The table above indicated that the sum populace for the study was13228 who comprised of 13,174 users (members of the public) estimated to visit government ministries for services and 54 members of staff who were the key informants for the study (KNBS, 2014).

3.7 Sampling Design and Procedure

A sample refers to a descriptive subsection of a population (Nachmias & Nachmias, 2008). With regard to Orodho (2005), the greater upper limit of the sample size is 2000- 3000 whereas the allowed lower limit is 30 cases for statistical data analysis. Multistage sampling was applied in the study to obtain the target respondents for the study. According to Nachmias and Nachmias (2008), multistage sampling is applied for it represents a more complicated form of mass sampling where bigger clusters are further divided into lesser, more targeted groups for the surveying purposes.

The multistage sampling method was applicable in the study in the following stages.

Stage 1: Identification of the level of study .I.e. technical areas supporting service delivery

The e-government strategy was assessed at the operational level. Thus, the target respondents in this study comprised of 13, 228 respondents who included Directors of administration, ICT heads, customer care supervisors as the key informants in the government ministries and also the users (members of the public) who visited the current 18 Ministries with e-government related issues. The study targeted 13,174 individuals from the general public who are approximated to have visited the 18 Ministries customer service desks daily with issues of e-government which included; e-tax forms, business licenses, e-health services, registration of persons as well as police documents which mainly include abstracts (KNBS, 2012).

Stage 2: Determination of sample size.

The total population of the respondents was over ten thousands and to get a representative population sample, the following sample determination formula where the population is above 10,000 was used.

The sample size was determined using statistical population surveys whereby:

$N=Z^2 * pq / d^2$

Where N = desired minimal sample size (where pop>10,000)

Z = Standard normal deviation which is equal to 1 at 95% confidence level.

P = Proportion of the target population estimated to have a particular characteristic being measured. In this case it was estimated to be 0.5.

$q = 1 - P$

d = the level of statistical significance set which in this case is 0.05.

$N = 1.96^2 \text{ X } 0.5 \text{ X } 0.5/0.05^2 = 384$

In order to obtain reliable results from the study it was necessary to have a representative sample, hence the sample size was 384 with a 5% margin of error and 95% confidence level.

Stage 3: Use of stratified method

The population from the various strata was not evenly distributed and use of a proportionate method would make some strata to be underrepresented. Researcher suggested the use of disproportionate stratified sampling whereby the proportionate sample was adjusted to embrace a better representation of the population strata. The population of 384 was aligned per the four strata. The disproportionate distribution of the sample size was done as shown in Table 3.2

Table 3.2 Proportionate Sample Size

Strata	Population	Proportionate sample	Disproportionate sample
• Directors of Administration	18	18	18
• ICT Departmental Heads	18	18	18
• Customer care supervisors	18	18	18
• Users (members of the public)	13174	382	330
Total	**13228**	**384**	**384**

Source: Researcher (2015)

Stage 4: Selection of the respondents

The researcher carried out purposive or judgmental sampling amongst the Directors of Administration, ICT Departmental Heads and the customer care supervisors. This judgmental sampling is in other ways a representation of a populace of concern without selecting by chance. One of the popular uses of judgmental sampling is in researches based on extremely small number of sites. Simple random technique was used to obtain eligible e-government users. All the eligible participants were selected and those who consented to participate were recruited into the study.

3.8 Validity of the Research Instrument

During questionnaire construction, various validity checks were conducted that ensured the instrument measured what it was supposed to measure and performed as it was designed to perform. The validity tests conducted were; content validity, face validity and construct validity.

To ensure content validity, the questionnaire was formulated and operationalized as per the study variables that ensured adequacy and representativeness of the items in each variable in relation to the purpose and objectives of the study. Further, content validity was verified through expert opinions from supervisors and practitioners.

Face validity was achieved when the questionnaire was subjected to expert analysis and opinions from two external experts who thoroughly checked the representativeness of the research instrument at face value with a view to ascertain whether it measured the constructs of the study.

Further the study considered construct validity issues through restricting the questions to the conceptualization of the variables and ensured that the indicators of each variable were within the same construct. The purpose of this check was to ensure that each measure adequately assessed the construct it was supposed to assess.

3.9 Reliability of the Research Instrument

The Cronbach's alpha dependability coefficient test of unwavering quality was utilized to test the dependability of the instruments. The Cronbach's alpha reliability coefficient is depicted as an arithmetical coefficient of dependability. Moreover, the variables obtained from test instruments are recognized to be reliable when they give steady and dependable results over repeated application of the test. The validity of the research instrument was tested for internal consistency by use of Cronbach's Alpha with a 70% acceptance level.

Table 3.3: Reliability Analysis

Variables	Number of items	α Scrores	Comments
ICT infrastructure (Service Oriented Architecture)	3	0.747080	Acceptable
E-level applications	3	0.686741	Acceptable
E-government institutional framework	3	0.762428	Acceptable
E-government legal framework	3	0.726524	Acceptable
Data Management Capability	3	0.718303	Acceptable
Program Compatibility	3	0.789243	Acceptable
Information security	3	0.703047	Acceptable
Public sector performance	3	0.88726	Acceptable
Overall	24	0.752578	Acceptable

Source: Survey data (2015)

The results in Table 3.4 above indicate that both the staff and user questionnaire construct factors were generally reliable as shown by an overall reliability score of 0.752578. Therefore, for this research, both the questionnaire instruments were a reliable measure of; e-government strategy pillars, e-government platform as well as public sector performance.

3.10 Data Collection Procedure

The study collected primary data using both an interview guide and a semi structured questionnaire. The closed ended questions were considered appropriate since they conserve time and they were easy to fill as well as easy to analyze as they were in an immediate usable form. Open ended questions were used as they encouraged the respondent to give in-depth response without feeling held back. To enhance quality of data obtained, Likert type questions were included. The questionnaire was chosen as an instrument for the study due to its practicability and applicability to the research problem and the size of the population. The interview guide was administered to the directors while there were two

sets of questionnaires for the staff as well as for the members of the public herein referred to as users.

To ensure effective collection of necessary data, the researcher involved services of research assistants. These research assistants were identified and trained to equip them with the necessary skills prior to the actual data collection. The main purpose of training research assistants was to ensure that ethical research considerations were strictly observed. Specifically, research assistants ensured that enough copies of questionnaires and covering letters were prepared and also contacted the respondents by mail or telephone requesting them to take part in the study. After preparing enough copies and familiarizing with the locations, the researcher assigned the research assistants specific duties for the respective units in Nairobi County which helped the public visiting the ministries customer care desks to fill them.

Primary data was gathered in the field after obtaining the Research Permit, developing the work plan, pre-testing the instruments through a pilot study, and preparing enough copies of the instruments (questionnaires) ready for distribution. The researcher personally visited all the ministries and administered the questionnaires to the ministry staff. The researcher visited the Ministry Directors of Administration's and explained the purpose of the study and assured them that the respondents' identity was kept confidential. The members of the public were approached at the customer service desks where they were sensitized on the purpose of the study and on consenting, they were given time to respond to the questions. Where assistance was needed for clarification purposes the research assistants assisted them. This ensured high response rates. The staff working with the ministries was given enough time to fill the questionnaires and after one week, the questionnaires as well as the interview guides were collected. Cooper (1984) asserts that one of the ways to maximize questionnaire response as well as the return rate is by sending a preliminary notification about the questionnaires, and writing passionate requests for cooperation by the respondents. To this end the researcher made passionate appeals for all respondents to cooperate by filling the questionnaires and alert the researcher for collection.

The operationalization of variables was as shown in Table 3.4 below;

Table 3.4: Operationalization of Variables

Variables	Statement of oparationalization	Indicators	Measure in the questionnaire
Public sector performance	Measure of government overall rate of service delivery to its citizen which can also be used to compare the public sectors in aggregation	• E-procurement services • Service delivery • Operational efficiency • User satisfaction	Section VII Questions 10 (a) – 10 (b)
Infrastructure (Service oriented architecture)	The physical structures and facilities needed for the operation of e-government services electronically	• Development of guiding principles • Establishment of federated enterprise architecture • Development of e-government standards • Information security	Section II Questions 6 (a) – 6 (e)
E-level applications (software interface)	An application is a program, or group of programs, that is designed for the end user. Systems software consists of low-level programs that interact with the computer at a very basic level.	• Networked processes • Independent database interface for users • Interlinked communication • Direct point-to-point data connection	Section III Questions 7 (a) – 7 (d)
E-government institutional framework	The administration, rules, regulations and frameworks set out to carry out service delivery and to co-ordinate, communicate and integrate processes within e-government	• Effective interagency coordination • Accountable e-Government authorities • Regular access of e-government authorities to political leaders	Section III Questions 8 (a) – 8 (d)
E-government legal framework	These are the set policies through legislation that ensure that laws are updated to	• Procedures of use • Laws governing the process • Applicability of the	Section IV Questions 9 (a) – 9 (d)

	recognize electronic documents and transactions	framework	
Data management capability	These are the required to establish, enable and sustain a mature information regulation discipline	• Effective governance • Online transactions • Information security • Public-Private-Partnerships	Section II Questions 4 (a) – 4 (c)
Information security	is the practice of defending information from unauthorized access, use, disclosure, disruption, modification, perusal, inspection, recording or destruction	• Managing sessions between applications • Reliable delivery of packets between points on a network • A reliable direct point-to-point data connection	Section IV Questions 6 (a) – 6 (d)
Program compatibility	The mode in Windows software that consider users relevance, language and usability	• Computing services • Storage services • Communication links • Accessible services • Ministry Mission and vision • User expectations	Section III Questions 5 (a) – 5 (e)

Source: Researcher (2015)

3.11 Data Analysis

Data analysis was done using both descriptive and inferential statistical techniques. Data collected was sorted, classified and coded then tabulated for ease of analysis. Qualitative data was summarized and categorized according to common themes. The SPSS (version 17) computer software aided the analysis, as it was more user friendly and most appropriate for analysis of management related attitudinal responses (Newton &Jeonghun, 2010).

Descriptive statistics was employed to analyze the data. Tables and other graphical presentations as appropriate were used to present the data collected for ease of understanding and analysis. Tables were used to summarize responses for further analysis which facilitated comparison. This generated quantitative reports through tabulations, percentages, and measure of central tendency. Cooper and Schindler (2003) note that the use of percentages is important for two reasons; first they simplify data by reducing all the numbers to range between 0 and 100. Second, they translate the data into standard form with a base of 100 for relative comparisons.

The mean score for each attribute were calculated and the standard deviation used to interpret the respondents deviation from the mean. The results were presented on frequency distribution tables, pie charts and bar charts. Here the interest focused on frequency of occurrence across attributes of measures. Qualitative data was analyzed using content analysis by first summarizing the information gathered, followed by categorization, coding into emerging themes, and presented in a narrative form.

In addition advanced statistical techniques (inferential statistics) were used. Regression analysis was used to determine the relationship between the dependent and independent variables. The test of mediation was done using regression analysis. Analysis was done on dependent variable, between the dependent variable and the mediating variables then another regression analysis was done using all mediating variables.

Both dependent and independent factors were subjected to normality test to check if the data was normally distributed or not. The testing for normality in this study was conducted using Kolmogorov Smirnov test and Shapiro Wilk test. These tests were used to confirm the residuals of regression coefficients in a linear model to confirm the models normality. The test was done such that given H_0 and H_1, with α=0.05, the rule of thumb according to Nachmias and Nachmias (2008) is that reject H_0 if p-value is less than α or else fail to reject H_0:

Where, H_0: The data is normally distributed

H_1: The data is not normally distributed

Multicollinearity was checked by running diagnostic tests before the actual analysis of the clean data. Gujarati (1995) states that the rule of thumb for checking the problem of multicollinearity is that no correlation between independent variables is greater than 0.78. Multicollinearity can also be detected by examining the regression coefficients, to see the changes when other variable are included or excluded from the model; large changes in the regression coefficients indicate that the particular variable causes multicollinearity and should be excluded from the model (Cooper & Schindler, 2008). This process can be repeated until the model regression coefficients do not change significantly by further addition or removal of explanatory variables in the model multicollinearity also result in large standard errors of the regression coefficients and reduction in standard errors for the coefficients indicates reduction in multicollinearity.

3.12 Test of Hypotheses

From the conceptual framework adopted in chapter two on literature review, the key empirical models that were established and tested in this study are presented herein in Table 3.5 (hypothesis testing and interpretation) following, in the order of the research objectives.

The analytical model used was as shown in Table 3.5

Table 3.5: Hypotheses Testing and Interpretation

Objective	Hypothesis	Analysis method	Interpretation of Results
i. To establish the relationship between ICT infrastructure and public sector performance in Kenya	Hypothesis 1: ICT infrastructure has no relationship with public sector performance in Kenya	Multiple Regression model of the form: $Y = \beta_0 + \beta_1 \chi_1 + \beta_2 \chi_2 + \beta_3 \chi_3 + \beta_4 \chi_4 + \epsilon$, where: Y is e-government performance β_0 = Constant terms β_1- β_4 = coefficients of the independent variables X_1 = ICT infrastructure X_2 = E-level applications X_3 = E-government institutional framework X_4 = E-government legal framework ϵ_1 = Error term (Composite of other types of individual differences not explicitly identified in the model) Regression model	Values of R^2 as: 0.7 above strong relationship 0.5 – 0.6 moderate 0 – 0.4 weak Bvalues –ve (negative association) +ve (positive association) $P > 0.05$ accept H_o $P < 0.05$ accept H_A
ii. To determine the relationship between e-level applications and public sector performance in Kenya	Hypothesis 2: E-level applications have no relationship with public sector performance in Kenya		
iii. To examine the relationship between e-government institutional framework and public sector performance in Kenya	Hypothesis 3: E-government institutional framework does not influence public sector performance in Kenya		
iv. To establish the relationship between e-government legal framework and public sector performance in Kenya	Hypothesis 4: E-government legal framework does not relate to public sector performance in Kenya		
v. To establish the mediating influence of e-government platform on the relationship between e-government strategy pillars and the public sector performance in Kenya	Hypothesis 5: E-government platform does not influence the relationship between e-government strategy pillars and the public sector performance in Kenya	3 regression models used are as follows; Model 1: $Y = \beta_0 + \beta_1 \chi_1 + \beta_2 \chi_2 + \beta_3 \chi_3 + \beta_4 \chi_4 + \epsilon$ (dependent)	Note the value of R^2, β and F change for regression model 1 and 2 Note the change between R^2_1 and R^2_2

		Model 2: $Y = \alpha + \beta_m \chi_m$ (Independent and dependent when mediating variable is present)	$B_2 - \beta_1 < 0$ If $p < 0.05$ for both models and $\beta_2 - \beta_1 < 0$, Accept Ho_5 If $p > 0.05$ for either model, fail to Accept Ho_5

Source: Researcher (2015)

3.14 Ethical Considerations

In the context of this study, as per McDaniel and Gates (1996), "... *morals allude to the suitability of your conduct in connection to the privileges of the individuals who tend to be the focus of your work, or are influenced by it*". The study considered and addressed moral issues to guarantee free and unbiased respondent contribution in the study. Patent infringement was considered where every single real work and explanations in the study were directly referred to with the source clearly shown, inside the content and appropriately referenced. Informed consent was ensured by making sure that the respondents were completely educated about the motivation behind the exploration and their agreement to take part requested through a letter. Privacy was guaranteed as the data given through the study would not be made accessible to any individual who did not take part in the study. Secrecy permitted respondents not to distinguish themselves all through the study and avoided the fear of being mistreated for giving the required information. The following strategies were followed to guarantee agreement with expected study code of morals; the analyst got a study license from University toward the start of the field work, similarly from the National Council for Science and Technology and further acquired the essential clearance from the Huduma Center Headquarter

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results and analysis of the findings of the study in relations to the objectives. The presentation of the results is based on thee-government strategy implementation and performance of the public sector in Kenya. The data was collected entirely using questionnaire and interview guide as the research tools. The tools were designed in line with the aims of the study. The study first analyzed the customer care questionnaire as well as the ICT departmental heads interview guide responses and then analyzed the users (members of the public) responses as gathered from the field.

4.1.1 Response Rate

This section displays the response rate of the study and the findings are shown in Table 4.1 below;

Table 4.1: Breakdown Response Rate

	Directors of Administration		ICT Departmental Heads		Customer care supervisors		Users (members of the public)		Total	
Response	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**	**F**	**%**
Responded	7	39	11	61	15	83	300	91	333	87
Not responded	11	61	7	39	3	17	30	9	51	13
Total	**18**	**100**	**18**	**100**	**18**	**100**	**330**	**100**	**384**	**100**

Source: Survey Data (2015)

The study targeted 384 respondents in the process of data collection. 333 out of 384 respondents filled in and returned the questionnaire, which represented a response rate of 87%. This response rate was commendable and was made real after the research assistants took the initiative of reminding the respondents to fill the questionnaires and return them

back. The results acquired from the responses are therefore acceptable. This is reinforced by Nachmias and Nachmias (2008) who clarified that adequate response rate of at least 60% is acceptable. This study realized a response rate of more than 60% which is the acceptable minimum. This is further reinforced by Rhodes and Weller (2013) state that response rates of around 60% for a variety of research should be the aim of researchers. Mugenda and Mugenda (2003) also perceived that a response rate of 50% is satisfactory, 60% good while 70% rated very good.

Customer care supervisors had the highest response rate at 83%, followed by members of the public (91%) and ICT departmental heads (61%) while the Directors of Administration (key informants) had the lowest response rate at 39%. The reason behind the customer care supervisors high response rate was because they were easily accessible since they were based at the Huduma Centers in Nairobi while the low response rate for the ICT heads was because majority were located in their respective ministries hence the challenge of accessing them and getting back the questionnaires.

4.2 Respondents Bio Data

4.2.1 Gender of the Respondents

Respondents were requested to indicate their gender and the results are represented in Table 4.2

Table 4.2: Gender of the Respondents

Gender	Staff		Users	
	Frequency	**Percent**	**Frequency**	**Percent**
Female	14	54	72	24
Male	12	46	228	76
Total	**26**	**100**	**300**	**100**

Source: Survey Data (2015)

The outcomes of the study indicated that 54% of the ministry staff were female while 46% were male. For the users or the members of the public, 76% who were the majority were

malewhereas 24% were female as indicated in Table 4.2. The findings indicate that both gender types were considered in the study; however the female gender dominated the ministry staff while for the users the male gender was higher due to family responsibilities.

4.2.2 Respondents Age

Respondents were requested to indicate their age category and the results are as shown in Table 4.3 below

Table 4.3: Respondents Age

Age	Staff		Users	
	Frequency	**Percent**	**Frequency**	**Percent**
21 – 30 years	8	31	195	65
31 – 40 years	10	38	72	24
41 – 50 years	6	23	19	6
Over 50 years	2	8	14	5
Total	**26**	**100**	**300**	**100**

Source: Survey Data (2015)

In relation to the findings; 38% who were the majority for the staff were between the ages of 31-40 years, 31% were between the ages of 21-30 years, 23% were between the ages of 41-50 years while 8% were over 50 years of age. For the users; 65% who were the majority were between the ages of 21-30 years, 24% were between the age of 31-40 years, 6% were between the age of 41 to 50 years, 5% were over 50 years of age. These findings are shown in Table 4.3 above. The results confirm that majority of the respondents were in their youthful stage of life as indicated in the Kenyan Constitution (2010). This result depicts that users of e-government services are generally lively between the ages of 21 - 40. The results agrees with the findings by Hofstede (2012) who upheld that there exist two natural age brackets correlated with users of e-government services, namely the late 20s and mid-40s.

4.2.3 Length of Continuous Service with the Ministry

This section aimed at evaluating the staff continuous service with the ministries in terms of years. The findings are as shown Figure 9.

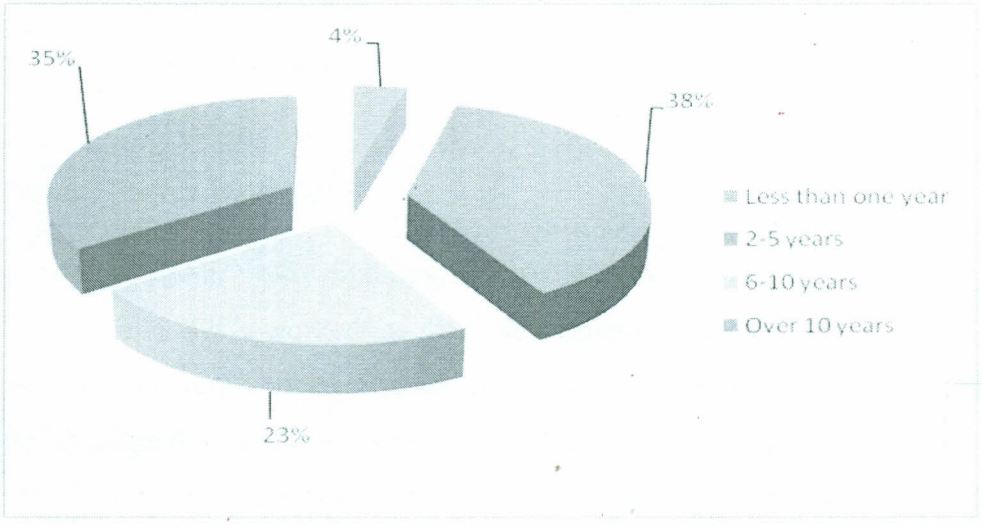


Figure 9: Length of Continuous Service with the Ministry

Source: Survey Data (2015)

The study found that 38% who were the majority had worked with the ministries for 2 to 5 years, 35% had worked with the ministries for over 10 years, and 23% had worked with the ministries for 6 to 10 years while 4% had worked with the ministries for less than one year. This infers that the respondents had vast knowledge on the operations of the Ministries in terms of e-government. This result is in agreement with earlier empirical researches on the duration of service of employees in Rwanda by Heeks (2011) which stipulate that thirty five percent (35%) of ministry staff surveyed had operated between two and ten years.

4.2.4 Respondents Department

Respondents were requested to show the department they worked under in the ministries and the results are as represented in Table 4.4.

Table 4.4: Respondents Department

Department	Frequency	Percent
ICT departmental heads	11	42
Customer care supervisors	15	58
Total	**26**	**100**

Source: Survey Data (2015)

According to the study findings; 58% who were the majority worked as customer care heads while 42% worked as ICT departmental heads. This shows that the targeted departments were well represented in the research study with over 40%response rate. The findings can also confirm Guba and Lincoln (2013) findings in that e-government engages mostly two job categories; that is ICT departmental heads and customer care supervisors who are at the service points with the users/ members of the public and are the ones who receive complaints and compliments.

4.2.5 Respondents Job Position

This section aimed at evaluating the staff job positions in the ministries and the findings are as shown in Figure 10.

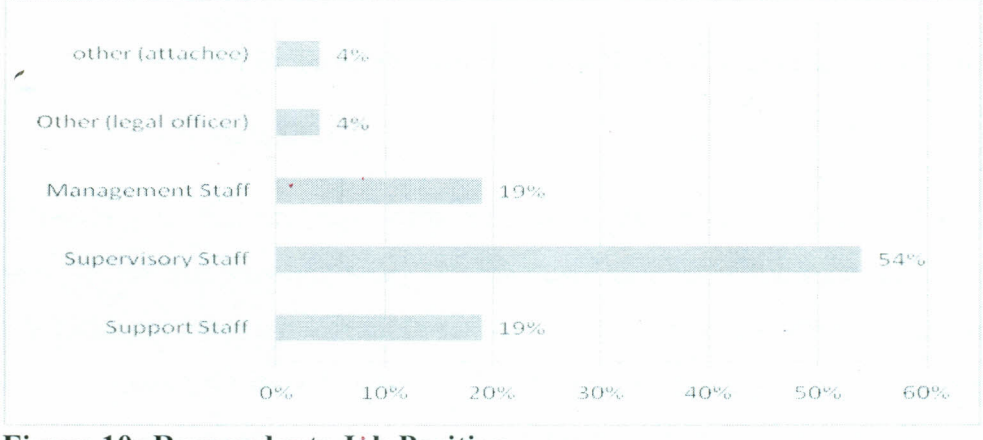


Figure 10: Respondents Job Position

Source: Survey Data (2015)

According to the findings; 54% who were majority were supervisory staff, 19% were support staff, 19% were management staff, 4% were legal officers while a similar percentage (4%) were categorized as attachees. The findings show that the study targeted all cadres of staff who were also well represented in the study. According to Drucker (2010) this might be as a result of the fact that e-government entails various general skills.

4.2.6 Length of Time Members of Public had Used Government Online Services

Members of the public were asked to indicate how long they had used government online services. The findings are as shown in Figure 11 below.

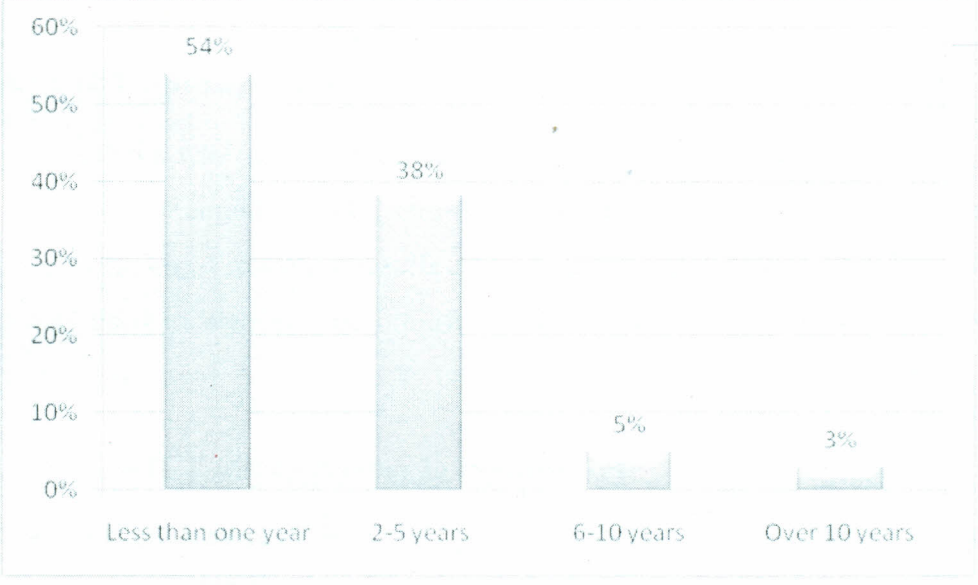


Figure 11: Period of Time Members of Public Used Government Online Services

Source: Survey Data (2015)

According to the findings; 54% who were the majority had used government online services for less than one year, 38% had used government online services for 2 to 5 years, 5% had used government online services for 6 to 10 years while 3% had used government online services for over 10 years. According to the findings the increase on utilization of e-government was as a result of the centralized service provision points at the Huduma Centers that were introduced in 2014. The findings were similar to those of Waema (2012) who asserts that e-government saves the time citizens take to access government offices and allow timely access to government facilities which make them turn up in large

numbers to be served via the internet. He further shows that there have been admirable progress that has been made on applications through the e-government, capacity building and development of infrastructure by many governments worldwide.

4.3 Descriptive Analysis

Under this section, descriptive statistics analysis for the variables of the study that is ICT Infrastructure, e-level applications, e-government institutional framework, e-government legal framework, data management capabilities, program compatibility, information security and public sector performance is discussed. The descriptive statistics summarize the main characteristics of the variables.

4.3.1 ICT Infrastructure

Respondents who were the ministry staff (n= 26) were requested to give a rating on their level of agreement on ICT Infrastructure in their ministries. The variable had five indicators. The descriptive results are summarized and presented in Table 4.5. A scale of 1-5 was used to measure the indicators where 1 represented low extent and 5 represented very great extent.

Table 4.5: ICT Infrastructure in the Ministry

State of E-government Pillars	N	Mean	Std. Deviation
• Development of guiding principles on the use of ICT software and hardware	26	3.77	1.142
• Ensuring adequate technical support	26	3.50	1.030
• Customization of e-government system	26	3.58	1.238
• Established e-government systems and standards	26	3.31	1.087
• Data capture and security	26	3.65	1.231
Aggregate		**3.56**	**1.146**

Source: Survey Data (2015)

The scores "very great extent" and "great extent" were represented by mean score equal to 3.6-5.0 on the continuous Likert scale (3.6<very great extent< 5.0). The scores of 'Neither

agree nor disagree' were equal to 2.6 to 3.5 on the Likert scale (2.6 < neither agree nor disagree <3.5). The score of "Very low extent" and "No extent" were equivalent to 1.0-2.5 on the Likert Scale (1.0 <low extent< 2.5). A mean score was then computed for the five variables.

According to the respondents the government had developed guiding principles on the use of ICT software and hardware connectivity in the ministry/departments to a great extent (mean score=3.77), data captured was well stored and this ensured data security in the ministries to a great extent (mean score=3.65), the e-government system was customized to suit the unique operations of each office to a great extent (mean score=3.58) while the ministries had ensured there was adequate technical support for using the system to a moderate extent (mean score=3.5), as well as there were well established e-government policies and standards in the ministries to a moderate extent (mean score=3.31). The study findings show that the government should put more focus on strengthening te chnical support in order to ensure ICT infrastructure is effective in the ministries. For e-government strategy to be effective it requires effective technical policies at all levels as a key pillar for implementation.

The aggregate results show that ICT Infrastructure impacts performance of the ministries to a great extent (μ= 3.56). As shown by the data on respondent's job position, the findings imply that the efforts by the government can be attested by the high number of supervisors (54%) in the ministries who ensure effective data capture and security of e-government system. The aggregate standard deviation was 1.146, from the findings it is worth noting that for some indicators like customization of e-government system (σ =1.238), data capture and security (σ =1.231) were higher as compared to the composite variable (σ =1.146) suggesting moderate inconsistency in the indicators. However, ensuring adequate technical support (σ =1.030) had the least standard deviation, suggesting better ability for seizing to predict the main variable than any of the other four indicators. The findings were in line with Drucker (2010) as well as Van Maanen and Berghout (2010) in that e-government advancement through ICT infrastructure ensures reduced cost of business operations and increases efficiency throughout an organization. The achievement or failure

of an organization is dependent on how they reorganize the movement of information amongst their departments and worldwide by investing in ICT infrastructure.

According to the key informants who were the Directors of Administration (n= 7) the ICT infrastructure in the ministries was basically designed to ensure service delivery effectiveness both to the members of staff and the general public. The ICT department has structures and administrators who receive compliments and complaints from the members of the public who are the handlers of e-government services. Based on the received comments, ICT infrastructure is adjusted to meet their needs to their satisfaction.

4.3.2 E-level Applications

Drucker (2010) asserts that this is where e-government takes effect as it deals with application of technology in a bid to make the flow of information to be automatic in an organization's information system.

The respondents who were staff (n= 26) indicated the extent of e-level applications in use at their ministries. The variable had four indicators. The descriptive results are summarized and presented in Table 4.6. A scale of 1-5 was used to measure the indicators where 1 represented low extent and 5 represented a very great extent.

Table 4.6: E-level Applications in the Ministry

State of E-government pillars	N	Mean	Std. Deviation
• Networked operations with other ministries	26	3.46	1.303
• Efficient data access	26	3.19	1.415
• Independent 24 hour information database	26	3.15	1.287
• Customers information access on a 24 hour basis	26	3.15	1.347
Aggregate		**3.24**	**1.338**

Source: Survey Data (2015)

A mean score of 1 to 2.5 represented low extent, 2.6 to 3.5 represented moderate extent while 3.6 to 5 represented great extent.

According to the findings, the operations of the ministries were well networked with those of other ministries to a moderate extent (mean score=3.46), there was efficient data access between the ministries and user departments to a moderate extent (mean score=3.19), the ministries have an independent 24 hour information database to a moderate extent (mean score=3.15), while the ministries customers accessed ministries information on a 24 hour basis to a moderate extent (mean score=3.15).The policy makers should address the customers information access on a 24 hour basis which was moderate (μ= 3.15) to improve the users satisfaction level to a higher extent. The findings as tabulated in Table 4.6 show that e-level applications use in the ministries by the aggregate score (μ= 3.24) was moderate. These findings are associated with the high number of e-government users over the last 5 years as shown by the period of time members of public used government online services. With the majority (54%) using government online services for less than one year implying an indication of an upward trend in the utilization of e-government services in a duration the previous 5 years.

The aggregate standard deviation for e-level applications was 1.338 suggesting moderate inconsistency in the indicators. This infers that efficient data access had the highest response dispersion (σ =1.415) while independent 24 hour information database shows a closer response (σ =1.287), signifying a better ability for seizing to predict the main variable than any of the other three indicators.The findings are in line with those of Sivamohan and Clark (2015), who asserts that institutions develop a chain of e-level applications, where the initial applications are constructed through combination of resources, while higher-order abilities are created through bundles of lower-order applications.

According to the key informants who were the Directors of Administration (n= 7), the ministries ensured fast and timely delivery of services by ensuring operations of the ministrieswere networked well through the support of the other ministries. Half of the key informants also indicated that they ensured fast and timely delivery of services by ensuring there was efficient data access between the ministries and user departments. According to the interviewees, efficiency was also enhanced through provision of online tendering and procurement services. These finding aresimilar to those of Straub (2014) who asserts that

the true locus of competitive advantage and superior firm performance lies in the changing e-level application that again reveal the capability to construct higher-order IT applications, mainly in reply to varying business environments and strategic prospects.

4.3.3 E-government Institutional Framework

The study aimed at establishing the extent of e-government institutional framework in the ministries using the ministry staff as the target respondents. The variable had five indicators. The descriptive results are summarized and presented in Table 4.7. A scale of 1-5 was used to measure the indicators where 1 represented low extent and 5 represented very great extent.

Table 4.7: E-government Institutional Framework in the Ministry

State of E-government pillars	N	Mean	Std. Deviation
• Effective inter- agency coordination	26	3.31	1.289
• Accountability procedures for ICT staff	26	3.54	1.334
• Staff technical capacity to handle e-government duties	26	3.65	1.263
• Ministry support from e-government institutions	26	3.19	1.201
• System compatibility with strategic objectives	26	3.62	1.098
Aggregate		**3.46**	**1.237**

A mean score of 1 to 2.5 represented low extent, 2.6 to 3.5 represented moderate extent while 3.6 to 5 represented great extent. According to the findings as deduced from the ministerial staff (n= 26); every ICT staff had the technical capacity to handle ICT duties assigned to them to a great extent (mean score=3.65), the e-government system was compatible with the strategic objectives of the ministries to a great extent (mean score of 3.62), there were existing accountability procedures for all ICT staff in the ministry/department to a moderate extent (mean score=3.54), there was effective inter-agency coordination between e-government institutions and the ministry/departments to a moderate extent (mean score=3.31) while the ministry/departments enjoyed support from the relevant e-government institutions to a moderate extent (mean score=3.19). This concludes that policy intervention is required in order to ensure ministry support from e-

government institutions (μ= 3.19) is enhanced to a higher extent. The findings as shown in Table 4.7 show that e-government institutional framework in the ministries was in place to a moderate extent (μ= 3.46). As per the respondents job position in the ministries, the institutional framework has also ensured effective staff expertise distribution which includes; (54%) supervisory staff, (19%) support staff, (19%) management staff and (4%) legal officers who were incorporated in the e-government procedure.

The aggregate standard deviation for e-government institutional framework was 1.237, hence from the findings it is worth noting that some indicators like accountability procedures for ICT staff (σ =1.334), effective inter- agency coordination (σ =1.289) as well as staff technical capacity to handle e-government duties (σ =1.263) were slightly higher as compared to the composite variable (σ =1.237) suggesting moderate inconsistency in the indicators. However, system compatibility with ministry strategic objectives (σ =1.098) has the least standard deviation, suggesting better ability for seizing to predict the main variable than any of the other four indicators. The findings in Table 4.7 support those of Al- Fountain (2013) in that citizen who are e-savvy and make use of the internet frequently to connect and complete dealings are keen to intermingle with the government using a well strategized e-government institutional framework. The degree to which innovation meets e-government institutional framework is another perspective of the compatibility of an invention.

Key informants who were the Directors of Administration (n= 7) were asked to indicate which government policies regulated e-government. According to the interviewees there were no elaborate e-government policies that were domesticated within the specific ministries. This was controlled by 2006 Telecommunications/ICT Sector Policy which gives general policy guidelines. According to Republic of Kenya (2008b), significant part of the responsibility for delivering the e-government enabled development objectives lies with the ICT Board, which was brought into practice in 2007 to promote Kenya as a target for business process outsourcing, build e-government capacity within the country, and manage other ICT-enabled development interventions. E-government is also a prominent feature of government policy, first described in the e-government strategy of 2004.

4.3.4 E-government Legal Framework

Respondents were asked to rate e-government legal framework in the ministries. The variable had four indicators. The descriptive results are summarized and presented in Table 4.8. A scale of 1-5 was used to measure the indicators where 1 represented low extent and 5 represented very great extent.

Table 4.8: E-government Legal Framework in the Ministry

State of E-government pillars	N	Mean	Std. Deviation
• Existing law regulating e-government operations	26	3.62	1.098
• Established procedures safeguarding security of information	26	3.31	2.118
• Developed policies on issuance of passwords to staff	26	3.38	1.416
• Developed policies guiding confidentiality of information	26	3.73	1.041
Aggregate		**3.51**	**2.918**

Source: Survey Data (2015)

A mean score of 1 to 2.5 represented low extent, 2.6 to 3.5 represented moderate extent while 3.6 to 5 represented great extent. According to the ministerial staff (n= 26) there were well developed policies guiding confidentiality of information to a great extent (mean score=3.73), there was an existing law used to regulate e-government operations to a great extent (mean score=3.62), there were well developed policies on issuance of passwords to ministry staff to a moderate extent (mean score=3.38) while the ministries had established procedures to safeguard security of information in online transactions to a moderate extent (mean score=3.31). The findings as shown in Table 4.8 show the aggregate e-government legal framework (μ= 3.51) to be moderate. According to the findings on length of continuous service with the ministry, the staff that was involved in e-government legal framework as well as the factors presented under Table 4.8 on e-government institutional framework is in the managerial position and had operated with the ministry for a duration of more than 10 years. The moderate composite under e-government legal framework may be attributed to the low mean of established procedures safeguarding security of information (μ= 3.31). The findings also support the need to gain the users confidence by

targeting the female gender who were lesser users of e-government services as shown by Table 4.2 on respondents gender. The findings show that policy makers should ensure security of data is guaranteed to the users.

The aggregate standard deviation for e-government legal framework was 2.918 while the measure of established procedures safeguarding security of information (σ =2.118) showing high dispersion of response as compared to the least dispersion of response which was under developed policies guiding confidentiality of information (σ =1.041), an indication of somewhat high contribution to the e-government legal framework factors. According Republic of Kenya (2008b), the policies are in line with the National ICT and National e-government Policy framework.

4.3.5 Data Management Capabilities

The respondents were requested to show the extent of data management capabilities in the ministries. The first mediating variable was data management capabilities and the variable had three indicators. The descriptive results are summarized and presented in Table 4.9. A scale of 1-5 was used to measure the indicators where 1 represented low extent and 5 represented very great extent.

Table 4.9: Data Management Capabilities in the Ministry

State of E-government platform	N	Mean	Std. Deviation
• Is quite user friendly	26	3.73	1.116
• Has made e-government services easily accessible	26	4.04	1.038
• Facilitates fast and timely delivery of services	26	4.00	2.783
Aggregate		**3.92**	**2.646**

Source: Survey Data (2015)

A mean score of 1 to 2.5 represented low extent, 2.6 to 3.5 represented moderate extent while 3.6 to 5 represented great extent. According to the staff (n= 26), the e-government platform in the ministries made e-government services easily accessible to a great extent (mean score=4.04), the e-government platform in the ministries facilitated fast and timely delivery of services to a great extent (mean score=4.00) while e-government platform in

the ministries was quite user friendly to a great extent (mean score=3.73). This infers that policy makers should maintain the data management capabilities standards by ensuring the data acess is more user friendly (μ= 3.73). The findings as shown in Table 4.9 show that data management capabilities were evident to a great extent as shown by the aggregate (μ= 3.92). This can be attributed to the high number of users who have adopted e- government as shown by the findings on staff length of continuous service with the ministry.

The aggregate standard deviation parameters for data management capabilities are 2.646 with the parameters ranging from 2.783 to 1.116, with the indicator that e-government facilitates fast and timely delivery of services having the most variability (σ =2.783) and data management capabilities making e-government services easily accessible having the least viability (σ =1.116). Data management capabilities making e-government services easily accessible is therefore expected to exert on average about the same influence across all the ministries while ensuring fast and timely delivery of services is expected to vary considerably across the ministries. The study findings are similar to those of Fair-weather and Rogerson (2012) who assert that e-government enabled public sector performances and data management capabilities are interrelated as they share the same aims and the same goals of performance. The utilization of e-government in the public arena influences the main features of the classical public management paradigm, in the same manner as data management capabilities practices do. E-government thus redesigns the creation, coordination, control, and direction processes that occur in government through enhanced data management capabilities within the public sector.

4.3.6 Program Compatibility

The respondents were expected to indicate the extent of e-government program compatibility in the ministries. The second mediating variable was program compatibility and the variable had three indicators. The descriptive results are given in summary and presented in Table 4.10.

Table 4.10: Program Compatibility in the Ministry

State of E-government platform	N	Mean	Std. Deviation
• Effective communication within the ministry	26	3.50	1.175
• Designed to address public needs	26	3.58	1.270
• Anchored to support the strategic mandate of the ministry	26	3.69	1.192
Aggregate		**3.59**	**1.212**

Source: Survey Data (2015)

A mean score of 1 to 2.5 represented low extent, 2.6 to 3.5 represented moderate extent while 3.6 to 5 represented great extent. The findings as shown in Table 4.10 show that program compatibility was evident to a moderate extent as shown by the aggregate (μ= 3.59).

According to the staff (n= 26), e-government platform was well anchored to support the strategic mandate of the ministries to a great extent (mean score=3.69), e-government platform was well designed to address public needs to a great extent (mean score=3.58) while e-government program enhanced effective communication within the ministries to a moderate extent (mean score=3.50). This was made a reality through ensuring there was experienced staff in the ministries as shown by the length of continuous service with the ministries where majority of staff (38%) had worked with the ministries for 2 to 5 years. The moderate rating for effective communication within the ministry at 3.50 can be enhanced by ensuring staff technical training and re-tooling of more supervisors in the necessary e-government skills as a prerequisite for ensuring realization of the benefits of digitization of services to e-government users.

The range between the program compatibility being anchored to support the strategic mandate of the ministry which had the most variability (σ =1.192) and effective communication within the ministry being the least variability (σ =1.175) as well as the aggregate measure (σ =1.212) having a very close variability is an indication that the response was almost unanimous. The findings are supported by Kumar *et al.*, (2007) who assert that the implementation of e- government has led to a significant leap in the provision of a cross-government customer focus and public sectors are keen to ensure

development of initiatives that bring together information and services for specific groups of customers. Similarly, Eisenhard (2014) points out that citizen's benefit from e-government services when they are designed to be compatible with their needs and can practice routine dealings with the government on basis of their needs without much hindrances.

4.3.7 Information Security

The respondents were required to indicate the extent of information security in the ministries. The third mediating variable was government information security and the variable had three indicators. The descriptive results are given in a summary and presented in Table 4.11.

Table 4.11: E-Government Information Security

State of E-government platform	N	Mean	Std. Deviation
• High level security of information	26	3.65	1.018
• Adequate information to all decision makers	26	3.35	1.129
• Free from any vulnerability to attack	26	3.65	1.129
Aggregate		**3.55**	**1.092**

Source: Survey Data (2015)

A mean score of 1 to 2.5 represented low extent, 2.6 to 3.5 represented moderate extent while 3.6 to 5 represented great extent. On assessing the extent to which e-government information security was viewed by the ministerial staff (n= 26), the study found that e-government platform ensured security of information to a great extent (mean score=3.65), e-government platform was free from any vulnerability to attack by unauthorized individuals to a great extent as shown (mean score=3.65) while e-government platform provides adequate information to all decision makers in the ministries to a moderate extent (mean score=3.35). The moderate scores in Table 4.11 can be attributed to the low number of support staff as shown by data on respondents' job position. The findings as shown in Table 4.11 show that information security was in place to a moderate extent as shown by the aggregate (μ= 3.55). The findings infer that policy makers should ensure adequate

information security guidelines by all decision makers in order to improve information security.

The aggregate standard deviation for e-government information security was 1.092, while measure of adequate information to all decision makers as well as the system being free from any vulnerability to attack shows high but moderate dispersion of response (σ =1.129) as compared to the least dispersion of response which was high level security of information (σ =1.018). This is an indication of somewhat high contribution to e-government information security. The findings are consistent with those of Brinkman, 2014) in that dealing with e-government in a wholesome view is a big test and quite a difficult task due to insecurity factors involved. With the aid of different security measures, the operability between different applications can be enhanced through set security standards. According to Try and Radnor (2007) several security generic models are readily accessible that address different matters of a multifaceted systems at various levels in order to ensure information and shared data is highly secured.

Key informants who were the Directors of Administration (n= 7) were asked to describe measures used to ensure information security in the ministries. According to the interviewees, use of passwords to access data, enhanced physical security of information, staff access rights for use of passwords to access data and logging out of computers when not in use were some of the measures used to ensure information security.

4.3.8 Public Sector Performance

The study also measured the performance indicators which were six in number by targeting the users of e-government services. A scale of 1-5 was used to measure the indicators where 1 represented low extent and 5 represented very great extent. The findings are as indicated in Table 4.12 below;

Table 4.12: E-government Platform on Public Sector Performance

State of E-government performance	N	Mean	Std. Deviation
• E-government has made staff more efficient in service delivery	300	3.75	2.026
• Government operations in the ministry are more transparent	300	3.54	3.175
• Corruption has significantly declined	300	3.06	1.274
• Accessibility of government services has improved	300	3.92	1.153
• Happier now dealing with the ministry	300	3.89	1.105
• Tendering system is more transparent and accountable	300	3.31	1.280
Aggregate		**3.58**	**1.669**

Source: Survey Data (2015)

A mean score of 1 to 2.5 represented low extent, 2.6 to 3.5 represented moderate extent while 3.6 to 5 represented great extent. The findings as shown in Table 4.12 show that public sector performance indicators were rated moderate as shown by the aggregate(μ= 3.58).

According to the users (n= 300) of e-government services who were members of the public; accessibility of government services improved service delivery to a great extent (mean score=3.92), the users were happier dealing with the ministries than they were before e-government to a great extent (mean score=3.89), since the ministries implemented e-government platform the staff had become more efficient in service delivery to a great extent (mean score=3.75), government operations in the ministries were more transparent to a moderate extent (mean score=3.54), the tendering system had become more transparent and accountable to a great extent (mean score=3.31) while corruption had significantly declined in the ministries service delivery to a moderate extent (mean score=3.06).This can as well be attributed to users adopting e-government for the last 5 years as shown by the findings on period of time members of public had used government online services. The dissatisfaction expressed by the users on the capacity of e-government to control corruption is as shown by the moderate decline (μ= 3.06) indicating that policy

interventions are required to ensure more focus in addressing the vice using the e-government platform.

The aggregate standard deviation parameters for e-government platform on public sector performance are 1.669 with the parameters ranging from 3.175 to 1.105. Government operations in the ministry are more transparent having the most variability (σ =3.175) and users being happier now dealing with the ministry having the least viability (σ =1.105). Users being happier now dealing with the ministry is therefore expected to wield on the average about the same impact across all the users while government operations in the ministry being more transparent is expected to vary considerable across the users.

This was in line with Dasgupta and Gupta (2015) who stated that there exists many functions of information systems in an organization, for example to increase operating efficiency, to process business dealings, to deliver decision support, monitoring and evaluation of employees' performance, and to safeguard documentation and communication channels. Information technology that is inclusive of hardware and software are significant components of e-government platform. Al- Al-Azzam, Ahmed and Hassan (2001) indicate that e-governance platform is a vital factor to ensure performance in strategic development of an organization.

Key informants who were the Directors of Administration (n= 7) were asked to describe how e-government impacts performance in the ministries. According to their responses e-government had ensured enhanced accountability as well as efficiency in service delivery. The levels of corruption had reduced drastically and the number of customers served per day had also increased. The ministries had become more effective and the number of physical complaints had reduced since members of the public could access services either from the comfort of their homes, cyber cafes or at the designated government service points at the Huduma Centers located at G.P.O head office, City Square and Makadara.

Key informants who were the Directors of Administration (n= 7) were asked to indicate the challenges they faced while ensuringe-government implementation in the ministries. According to majority of the interviewees there was inadequate budget support to

implement e-government initiatives in the ministries. While others indicated that there was lack of technical coordination of e-government programs across ministries.

When asked to suggest ways of ensuring successful e-government enactment in the ministries the interviewees who were the Directors of Administration (n= 7) indicated that; there should be stakeholder involvement including capacity building as well as sensitization on the usage and benefits of e-government. However others had the idea that there should be increased funding to ensure regular upgrade to modern programs as well as infrastructure.

4.4 Diagnostic Test

In order to test for the normal distribution of response data, a Kolmogorov – Smirnov, Normal QQ plot test for dependent and independent variables was conducted. This non parametric significance test was appropriate since the research situation called for comparison of an observed sample distribution with a theoretical distribution (Easton & Mcoll, 1997). The Kolmogorov-Smirnov test was designed to test the hypothesis that a given data set could have been drawn from a given distribution. Unlike the chi-square test, it is primarily intended for use with continuous distributions and is independent of arbitrary computational choices (Newton & Jeonghun, 2010).

Prior to running the logistic regression model, both the continuous and discrete explanatory variables were checked for the existence of multicollinearity problem. The problem arises when at least one of the independent variables is a linear combination of the others. The existence of multicollinearity might cause the estimated regression coefficients to have the wrong signs and smaller t-ratios that might lead to wrong conclusions. There are two measures that are often suggested to test the presence of multicollinearity. These are: Variance Inflation Factor (VIF) for association among the continuous explanatory variables and contingency coefficients for dummy variables (Nachmias & Nachmias, 2008). The technique of variance inflation factor (VIF) was employed to detect the problem of multi-collinearity among the continuous variables. The seven key constructs in the study were subjected to a normality test using Kolmogorov Smirnov test and Shapiro Wilk test as well as quantile-quantile (Q-Q) plots.

4.4.1 Normality Test

The testing for normality in this study was conducted using Kolmogorov Smirnov test and Shapiro Wilk test.

Table 4.13: Checking for Normality of E-government Performance

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
E-government performance	.784	299	.059	.782	299	.061
Infrastructure (Service oriented architecture)	.044	299	.200	.991	281	.093
E-level applications (software interface)	.094	299	.090	.980	125	.065
E-government institutional framework	.048	299	.087	.994	165	.755
E-government legal framework	.114	299	.054	.958	70	.060
Data management capability	.097	299	.067	.949	78	.013
Information security	.110	299	.072	.981	27	.080
Program compatibility	.104	299	.056	.960	70	.055

Thus, Table 4.13 indicates that using both tests of normality, that is Kolmogorov Smirnov test and Shapiro-Wilk tests, the p-value for both tests is greater than 0.05, thus the study failed to reject H_0 and a conclusion was made that data on both the dependent and the independent factors were normally distributed and as a result subsequent analysis was to be done.

The normality of the dependent and the independent variables was determined by use of a Quantile - Quantile (Q-Q) plot. The plot is useful in the early stages of analysis when exploring data before actually calculating a correlation coefficient or fitting regression curve. It helped to determine whether a linear regression model is appropriate (Easton &Mcoll, 1997). The results of the Q - Q Plot indicated that the dependent variable was normally distributed (Figure 12) so are the independent variables as shown in Appendix X.

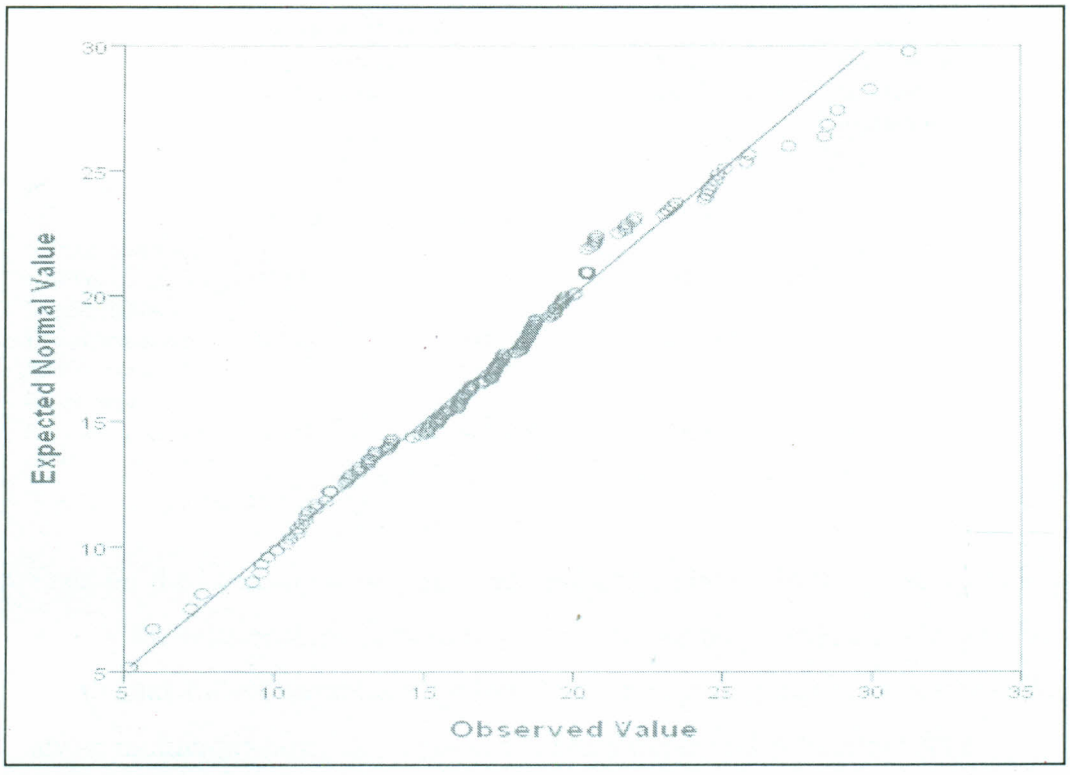


Figure 12 Normal Q-Q Plot of E-government Performance

From the findings, the normal Q-Q plot of e-government performance had most of its cases lying on the 45^0line, thus the observed values of government performance in the ministries are in agreement with the hypothetical distribution and hence normally distributed. Further, the Q-Q plots affirmed the normality of the data.

4.4.2 Test for Multicollinearity

The study utilized correlation matrix to find out whether the independent variables are adequately correlated to show a substantial causal correlation.

Table 4.14: Correlation Matrix

	E-government performance	ICT infrastructure	E-level applications	E-government institutional framework	E-government legal framework
E-government performance	1.00				
ICT infrastructure	-0.0241	1.000			
E-level applications	-0.0191	0.4973	1.000		
E-government institutional framework	0.1109	0.0297	-0.0298	1.000	
E-government legal framework	-0.0054	-0.0579	0.0542	-0.0931	1.000

Source: Study data (2015)

Tests on the correlation between independent variables in the present study showed that none of the relationships surpass this threshold. As presented in Table 4.14, the correlation coefficients for all variables were less than 0.8 implying that the study data did not exhibit severe multicollinearity as recommended by Cooper and Schindler (2008).

4.5 Test of Hypotheses

Regression analysis was utilized to examine the hypotheses in order to ascertain the nature of the relationship between the independent and dependent variables of the study.

The researcher conducted a multiple linear regression analysis to ascertain the relationship between e-government performance and the four independent factors namely: ICT infrastructure, e-level applications, e-government institutional framework and e-government legal framework.

Table 4.15: Regression Results for the Direct Relationship

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
	.838[a]	.702	.700	.07458

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11.72	9	1.302	44.231	.001(a)
	Residual	3.432	324	0.066		
	Total	15.152	333			

Coefficients Results

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.116	.186		0.623	.003
ICT infrastructure	0.577	.068	.559	8.478	.000
E-level applications	0.157	.043	.257	3.676	.001
E-government institutional framework	0.082	.042	. 301	2.252	.000
E-government legal framework	0.121	.002	.245	6.906	.001

Source: Study data (2015)

Predictors: (Constant), ICT infrastructure, E-level applications, E-government institutional framework, and E-government legal framework

Dependent Variable: E-government performance

The regression analysis indicates a strong linear relationship where R^2= 0.702 and Adjusted R^2 = 0.700 which indicates that 70% of the corresponding change in e-government performance can be explained by a unit adjustment in ICT infrastructure, e-level applications, e-government institutional framework and e-government legal framework. A further test on the beta coefficient of the resulting model, the constant α = 0.116 is significant (p = 0.000) less than p= 0.05. The coefficient β = 0.577, 0.157, 0.082

and 0.121 of the four independent variables were also significant at $p < 0.05$. This explains that if $\beta_1 X_1 \ldots \beta_4 X_4$ were held constant then e-government performance will be 0.116 (low) and therefore the gradient (β) and the e-government performance would be very low.

The ANOVA section in Table 4.15 show that the regression model is significant with F= 44.231 and a p-value of 0.001 and these results show that the model was significant.

4.5.1 Test of Hypothesis One

The first study hypothesis aimed at evaluating the relationship between ICT infrastructure and public sector performance in Kenya. ICT infrastructure had a beta value ($\beta_1 = 0.577$). The coefficient had a p-value of 0.000 thus the null hypothesis should be rejected. The study concluded that ICT infrastructure has a positive relationship with public sector performance in Kenya. This can be attributed to the findings on the period of time members of public had used online government services since over the last period of 5 years the government has increased the IT infrastructure countrywide thus increasing the user's embracing of e-government. This finding agreed with a study by Compeau *et al.*, (2014) in that technological advancement improves performance by drastically reducing the cost of operations of the businesses and increases the effectiveness all through an organization. This can also be a reason as to why developing countries in Africa are increasingly installinge-government to solve their development challenges by investing in it from their own resources as well as through funding from foreign institutions. Government institutions are not an exception in this trend as they are increasingly becoming reliant on e-government for the delivery of services to the members of the public.

The findings are in line with the Dawes and Pardo (2013) who assert that there are many functions of IT in an organization, through a well-structured infrastructure as portrayed in Management Information Systems Theory, to enhance an operation's efficiency, development of business dealings efficiently and also improve communication channels. Information technology infrastructure is a significant component in e-government and is instrumental in the strategic planning of an organization.

Mahmood and Mann (2011) study did not use inferential statistics but relied on descriptive results only; this study used regression analysis to test the hypotheses. The findings indicate that in designing an instrument for measuring e-government performance, the item composition might vary depending on the ICT Infrastructure and hence there is need to prescribe a universal instrument to all service situations. The study proposes adoption of universal service delivery instrument for similar or related services and use of contingent instruments in service sectors that are unrelated like the T-test. The research has thus brought new perspectives. Additionally, the current study adopted a positive view in the enactment o f technologies infrastructure. In short, the study concentrated on the ICT infrastructure effectiveness unlike the majority of cited studies, which tend to focus on ICT infrastructure implementation failures.

4.5.2 Test of Hypothesis Two

The study hypothesis aimed at determining whether e-level applications have a relationship with public sector performance in Kenya. E-level applications had a beta value (β_1 = 0.157). The coefficient had a p-value of 0.001 thus; the null hypothesis should not be accepted. The study concluded that e-level applications have a significant relationship with public sector performance in Kenya. The findings can be attributed also to the number of support staff as shown on respondent's job position that ensures effective e-government application use. This was in agreement with the results of Pallotti and Oreste (2015), Van Bavel, and Burgelman (2013), in that the true locus of competitive advantage and superior firm performance lies in dynamic e-level applications that again replicate the ability to realize higher-order IT applications, particularly in reaction to changing business environments and strategic opportunities. In agreement with these ideas, data systems management researchers have conceptualized applications of data management in e-government implementation as associated capability-building processes and defined them as managerial skills for the acquisition, management, and use of e-government in key business processes and strategies.

The findings are similar to those of Chau and Hu (2011) in the Management Information Systems Theory that the authorization process put specific emphasis on the engineering aspects of programmes, but focus has been broadened, so that it no longer puts such an

emphasis on the engineering features of programmes. It is this expansion in the application of information systems concepts that has partially encouraged the application of these concepts in extending dimensional knowledge space from e-government to informatics as a whole.

The study findings fill Siau and Long (2006) gap by conducting the study in a public sector. Siau and Long (2006) did not focus on the public sector but rather on a private firm whose study findings were then generalized. The findings prove that e-level applications as a variable of e-government strategy implementation can produce significant results and act as a parsimonious tool of measuring e-government performance. Future research will use the results of this study as a reference point.

4.5.3 Test of Hypothesis Three

The hypothesis aimed at establishing the relationship between e-government institutional framework and public sector performance in Kenya. E-government institutional framework reliability had a beta value ($\beta_1 = 0.082$). The coefficient had a p-value of 0.000 thus the null hypothesis was rejected. The study concluded that e-government institutional framework has a positive relationship with public sector performance in Kenya. This was also supported by findings on respondent's job position and institutional framework, which have also ensured effective staff expertise distribution in the ministries. These findings agree with those of Burns and Wholey (2013) who assert that e-government institutional framework ensures that its implementation is seen to be well matched with organizational values, experiences, beliefs, and needs of adopters. Citizens who are e-savvy and use the internet frequently to connect and execute functions are keen to interface with other people, organizations, businesses, and government using a well-structured e-government institutional framework.

According to the findings by Bose, (2014), e-government has high chances to be adopted when it is well matched with individuals' job responsibility and value system. E–government is therefore likely to be adopted not only if it is aligned with the institutional framework but also when it links well with user needs and expectations. The study findings contribute to the strategic management body of knowledge by establishing that

compatibility of e-government institutional framework within the Ministry strategic plans will speed up the rate of e-government adoption and ensure improved performance.

4.5.4 Test of Hypothesis Four

The fourth hypothesis of the study aimed at analyzing whether e-government legal framework relates to public sector performance in Kenya. E-government legal framework reliability had a beta value ($\beta_1 = 0.121$). The coefficient had a p-value of 0.001 thus the null hypothesis is rejected. The study concluded that e-government legal framework significantly relates to public sector performance in Kenya and this can be accredited to staff length of continuous service and job position within the ministry that show that those involved in articulating e-government legal framework are employees in the managerial position and had operated with the ministry for a duration of above 10 years. The findings were similar with the findings by Rhodes and Weller (2013) and Parent and Gemino (2013) who assert that e-government legal framework is one of the main factors for attaining an innovative phase of e-government for national development. Government policy and regulations, competitive pressure and external IS support are considered to be factors that influence institutions' willingness to adopt e-government.

The study acknowledges that e-government legal framework in particular has been ignored in Unified Theory of Acceptance and Use of Technology (UTAUT) before, but this study demonstrates that an appreciation of e-government legal framework has a significant and positive influence on e-government performance and its role in Management Information Systems theory cannot be ignored. The findings of the study contribute to the general body of knowledge in articulating the relationship between e-government legal framework and e-government performance and present a meaningful association between the two.

The study fills the study gap left by Christou and Simpson (2009) as their study did not consider ICT infrastructure, e-level applications, e-government institutional framework and e-government legal framework as the study variables. The study by Drucker (2010) notably did not consider e-government legal framework as a variable to e-government reengineering while this study has analysed e-government legal framework as a variable. The study findings confirm that e-government legal framework has a significant

connection with the execution of e-government strategy and performance of the public sector in Kenya.

4.5.5 Test of Hypothesis Five

The fifth hypothesis of the study aimed at establishing whether e-government platform mediates the relationship between e-government strategy implementation pillars and the public sector performance in Kenya. The study identified four components of e-government strategy implementation pillars which are; ICT infrastructure, e-level applications, e-government institutional framework and e-government legal framework to compute a composite index for e-government implementation pillars. The same procedure was followed for the mediating variables. The aggregated parameters for the independent variables, the mean scored was (μ=14.1538) and the standard deviation (σ =3.79149) while for the mediating variables was (μ=10.8846) and (σ =2.55072). To test the fifth hypothesis, the study used composite index for e-government performance as the dependent variable, which was regressed upon the composite index for e-government platform using two regression models.

In model 1, simple regression analysis was used, while multiple regression was used for model 2. In model 1, e-government performance was regressed on e-government strategy pillars. In model 2, e-government platform and the interaction term between e-government platform and e-government strategy pillars was added to the independent variable of e-government strategy implementation.

The interaction term consisted of the product of e-government strategy pillars and e-government platform. The interaction term was computed before being used in the regression model. The results of hypothesis five are summarized in Table 4.16 and Table 4.17 below, while the summary of the regression model is presented in Table 4.18.

Step 1

Table 4.16 Regression of performance and strategy pillars

Model	R	R Square	Adjusted R Square	Std. Error of the estimate	Change statistics				
					R squared change	F change	df1	df2	Sig. F change
1	.751(a)	.711	.668	.31207	.317	199.432	1	332	.000

Coefficients Results

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.281	0.604		.673	.214
E-government strategy pillars	.757	.110	.191	11.424	.000

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	44.235	4	1.059	10.871	0.000(a)
	Residual	32.824	329	.097		
	Total	87.059	333			

Source: Study data (2015)

Dependent Variable: E-government performance

Predictors: (Constant): E-government strategy pillars

The regression model for this test was;

E-government performance = .281 + .757 e-government strategy pillars + e…….. Model 1

Step 2

Table 4.17: Regression of performance and strategy pillars

Model	R	R Square	Adjusted R Square	Std. Error of the estimate	Change statistics				
					R squared change	F change	df1	df2	Sig. F change
1	.836 (a)	.752	.744	.33921	.452	51.322	3	330	.000

Coefficients Results

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% confidence interval for B		Collinearity statistics	
	B	Std. Error	Beta			Lower bound	Upper bond	Tolerance	VIF
(Constant)	-.153	.497		-.115	.439	.252	.187		
E-government strategy pillars	.685	.156	.215	66.226	.000	.473	.644	.561	1.021
E-government platform	.345	.113	.154	7.884	.001	.201	.532	.191	1.424
E-government strategy pillars * e-government platform	-.311	.088	-.117	-1.829	.002	-309	-.776	.717	1.946

ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	44.235	4	51.059	10.871	0.000(b)
	Residual	32.824	329	.097		
	Total	87.059	333			

Source: Study data (2015)

The regression model for this test was;

E-government performance$_i$= -.153+. 685 E-government strategy pillars$_i$ + .345 e-government platform$_i$ -.311 e-government strategy pillars$_i$x e-government platform$_i$ + e…….. Model 2

Table 4.18 below summarizes the R^2, F change and beta coefficients of the regression results of step 1 and 2 above, for test of Ho_5

Table 4.18: Summary of regression results for hypothesis 5

Item	Step 1	Step 2	Change
R^2	.711	.752	.041
F value	199.432*	51.322*	-148.11
β Constant	.281***	-.153***	-0.434
β E-government strategy pillars	.757	.685	-0.072
β E-government platform	-	.345**	.345
β e-government strategy pillars * e-government platform	-	-.311**	-.311

Decision Criteria for Mediation

Model 1	Model 2	Test	Conclusion
$\beta_1 = .757$ (p = .000) Significant at p<0.05	-	Necessary condition	There is overall relationship to mediate
$\beta_1 = .757$ (p = .000)	$B_{\text{e-government platform}} = .345$ (p = .001)	$\beta_{\text{e-government strategy pillars}} - \beta_{\text{e-government platform}} = .757 - .345 = .412$	There is partial mediation

Source: Study data (2015)

Dependent Variable: E-government performance

Predictors: (Constant): E-government strategy pillars

Mediating term = E-government strategy pillars * e-government platform

* Value significant at < 0.001, * * value significant at p < 0.05, * * * value not significant at p < 0.05

In step 1, the regression has coefficient of 0.751, which indicates a strong positive correlation between the dependent and independent variables. On the other hand, coefficient of determination (R^2) of 0.711 shows that 71.1% of the variation in e-

government performance) is explained by the change in e-government strategy pillars, leaving only 28.9% unexplained. The regression model obtained for this study can therefore be used to measure e-government performance adequately. The adjusted R square of 66.8% also shows that the model is a fair estimate of the relationship between the variables.

Step 2 shows that regression has a coefficient of 0.836 indicating a strong positive correlation between the dependent and independent variables. Accordingly, coefficient of determination (R^2) of 0.752 shows that 75.2% of the variation in the e-government performance is explained by the change in e government strategy pillars, e-government platform and e-government strategy pillars, leaving only 24.8% unexplained. The regression model obtained for this study can therefore be used to forecast e-government performance fairly. The adjusted R square of 74.4% also shows that the model is a fair estimate of the relationship between the variables.

The R^2 value for the models 1 and 2 were .711 and .752 respectively. The change in R^2 between the two models was .041. The F change in model 1 was $F(3, 330) = 199.432$, $p < 0.001$, suggesting that the model relationship was significant. In model 1, e-government strategy pillars individually explained 71.1% of the variation in e-government performance. The change in R^2 suggests that e-government platform explain additional 4.1% of the variation in e-government performance in model 2 indicating that the explanatory power increases. The beta coefficients for e-government strategy pillars in model 1 is .757 which changes to .685 in model 2, thereby suggesting that the influence of e-government strategy pillars on e-government performance decreases by 0.072 units with the introduction of e-government platform.

The beta coefficient for e-government platform in model 2 was significant at 0.345 and $p < 0.05$ which infers that e-government platform significantly affects the relationship between e-government strategy pillars and e-government performance. The beta coefficients for the iteraction term (e-government strategy pillars x e-government platform) was -.311 and was significant since the $p < 0.05$, indicating that e-government platform mediates the relationship between e-government strategy pillars and e-government performance. The F change for model 2 was $F(3, 330) = 51.322$, $p < 0.001$ was significant. This implies that

the model significantly predicts the outcome of the e-government performance from e-government strategy pillars and e-government platform.

Further test reveals that the total effect and the direct effect $\beta_1 - \beta_2$ (.757- .345 = .412) confirmed at 95% level of confidence were significant which shows e-government platform partially mediates the relationship between e-government strategy pillars and e-government performance. Therefore, this study concludes that e-government platform partially mediates the relationship between e-government strategy pillars and e-government performance.

With the interaction term in model 2 being significant as shown by the beta coefficient 0.311, $p < 0.05$ suggesting that the null hypothesis Ho_5: e-government platform does not mediate the relationship between e-government strategy pillars and the public sector performance in Kenya should be rejected. There being a strong positive correlation between the dependent and independent variables as drawn from Table 4.16 and Table 4.17 as well as the regression model obtained indicates a partial mediation as a result of fair estimate of the relationship between the variables. Thus the conclusion is that e-government platform mediates the relationship between e-government strategy pillars and public sector performance in Kenya.

The independent variables had a significant relationship on e-government performance, but this relationship was significantly mediated by e-government platform. This was in line with Humphreys and Humphreys (2013) who indicates that performance measures and indicators were influenced by the selection of methodologies, leadership and regulatory mechanisms of public sector. The findings also echo Murphy (2015) in that integration between business and information systems (IS) planning, rational-adaptation in IS planning, ICT managerial resources, and e-government implementation success are all factors likely to influence alignment of e-government strategy.

According to Mingers (2013) the objective of Stakeholder Theory is to theorize government system as a function whose primary goal is to balance myriad interests and present an outcome that is a function of that balance by use of the right e-government platform. The Stakeholder Theory shows that the short-term purpose of the information system is to distribute the right piece of information to the right actor in the right time. The

long-term purpose of the information system is to support the viability of the organization through providing a sound base for decision, information merging and organizational development. The results confirm the existence of a statistically significant relationship between the three variables and hence add to existing literature by uncovering the mediating effect of e-government platform on the relationship between e-government strategy implementation pillars and performance of the public sector in Kenya. The results indicate that the relationship between e-government strategy implementation and performance of the public sector is significant and positive and that this relationship can be enhanced through an effective e-government platform.

The study attempts to fill the study gap by McGowan and Klammer (2013) whose study only targeted the users and assumed the other stakeholders who are policy makers by including both the directors and technical support staff in the ministries. These findings contribute to the general body of knowledge on e-government strategy implementation by providing basis for linkage of the three isolated constructs, e-government platform, e-government strategy implementation and performance of the public sector, and also present a meaningful association between the three. In terms of its methodological contribution, the study has demonstrated the efficacy of a mixed method approach by using the descriptive and inferential statistics in helping to answer the research hypotheses. In terms of its practical contribution, the study can therefore be used as a blueprint by donors and e-government strategy managers and all other stakeholders who are in the process of implementing e-government based projects to improve performance in service delivery.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS FOR POLICY

5.1 Introduction

The chapter presents the summary of the study findings, the conclusions made and recommendations to improve e-government strategy implementation and performance of the public sector in Kenya. The chapter also outlines the restrictions of the study and suggested areas for more studies.

The general objective of the research was to investigate e-government strategy implementation and performance of public sector in Kenya. Specifically the study aimed; to establish the relationship between ICT infrastructure (service oriented architecture) and public sector performance in Kenya, to establish the relationship between e-level applications and public sector performance in Kenya, to examine the relationship among e-government institutional framework and public sector performance in Kenya, to establish the relationship between e-government legal framework and public sector performance in Kenya and to assess the mediating relationship between e-government platform and the public sector performance in Kenya.

The study attained a response ratio of three hundred and thirty-three respondents out of three hundred and eighty-four sampled respondents, representing a response rate of eighty-seven percent. Customer care supervisors had the highest response rate of eighty-three percent, followed by members of the public and ICT departmental heads while the directors of administration had the lowest response rate of thirty-nine percent.

5.2 Summary

On establishing the relationship between ICT infrastructure and public sector performance, the study findings show that the government ability to have the guiding principles on use of ICT software and hardware connectivity in the ministries/departments received the highest rating, followed by data captured being well stored thus ensuring data security in

the ministries and the e-government system being customized to handle unique operations of each office. The ministries having well established e-government policies and standards had the lowest rating among the policies. The findings additionally conclude that the ICT infrastructural factors scored well above the aggregate mean for all the variables. The study confirmed a strong and positive relationship between ICT infrastructure factors and performance of the public sector. The outcomes imply that ICT infrastructure factors had a significant effect on performance of the public sector in Kenya; thus the null hypothesis should not be accepted.

The study findings on the relationship between e-level applications and public sector performance show that the operations of the ministries were moderately well networked with those of other ministries and that there was efficient data access between the ministries and user departments. Other aspects of e-level applications that were moderately rooted included the ministries having an independent twenty-four-hour information database while the users were able to access ministries information on a twenty-four-hour basis. The results imply that e-level applications factors had a significant relationship with public sector presentation in Kenya; thus the null theory was not accepted.

The study findings on the relationship between e-government institutional framework and public division performance in Kenya indicated that e-government institutional framework scored consistently above the overall mean for all the variables and this was measured through; every ICT staff having the technical capacity to handle ICT duties assigned to them and the e-government system being compatible with the strategic objectives of the ministries. The ministries/departments enjoying support from the relevant e-government institutions received the lowest rating. The study revealed an affirmative relationship among e-government institutional framework factors and performance of the public sector. The results implied that e-government institutional framework factors had a significant relationship with e-government plan application and performance of the public division in Kenya; thus null hypothesis was not accepted.

The study established the relationship between e-government legal framework and public sector performance and concludes that there were well developed policies guiding confidentiality of information and that there was an existing law used to regulate e-

government operations in the ministries. The study also found that there were well developed policies on issuance of passwords to ministry staff and the ministries had well established procedures to safeguard security of information in online transactions. The study revealed a positive relationship between e-government legal framework aspects and public sector performance. The results imply that e-government legal framework aspects had a significant influence on e-government plan implementation and performance of the public sector in Kenya; thus null hypothesis was not accepted. The study revealed a significant relationship amid the four independent variables and the reliant or dependent variable.

The coefficient for e-government platform was significant which infers that e-government platform significantly impacts the relationship between e-government strategy implementation pillars and e-government performance. The beta coefficient for the iteration term (e-government strategy pillars x e-government platform) was significant, signifying that e-government platform mediates the relationship between e-government strategy pillars with e-government performance. This implies that the model significantly predicts the outcome of e-government performance from e-government strategy pillars and e-government platform. With the interaction being significant, thus the conclusion is that the e-government platform mediates the relationship between e-government strategy pillars and e-government performance in Kenya.

5.3 Conclusions

The study concluded that ICT infrastructure has a positive relationship with public sector performance. It was also concluded that e-level applications have a significant relationship with public sector performance. The study concluded that e-government institutional framework has a positive relationship with public sector performance while e-government legal framework significantly relates to public sector performance. The study findings thus conclude that all the independent variables had a positive relationship with e-government performance.

The findings conclude that there is a significant relationship between e-government performance with all the mediating variables. This meant that a unit change in e-

government pillars would result in an increase in e-government performance if e-government platform was to remain unchanged. A unit change in e-government platform would result in an increase in e-government performance if e-government pillars were to continue being the same. Thus the study concludes that the e-government platform mediates the relationship between e-government strategy pillars and e-government performance in Kenya.

The results show that all the five research null hypotheses were not accepted and hence there is a confirmed relationship between the researched variables. The independent variables had a significant influence on e-government performance, but this influence was significantly mediated by the e-government platform.

The study therefore becomes a reference point for future strategic management scholars for it offers additional perspectives by bridging the knowledge gaps in e-government plan execution and public sector performance.

5.4 Contributions of the Study to Knowledge

This study investigated the relationship between e-government strategy implementation and Public sector performance in Kenya. Most of the empirical studies reviewed primarily focused on the private sector with a few identifying a number of possible factors that influence the adoption of e-government within the public sector. In addition most of these studies tended to adopt rather narrow definitions and conceptualizations of e-government.in particular it is important that more case studies be conducted in this area so that the issue of causality can be more explicitly addressed.

This study adds to the existing body of empirical literature by extending the conceptualization of the linkage between the three isolated constructs; e-government platform, e-government strategy implementation and performance of the public sector, and also presents the association between them. This integrated model has significant implications for policy towards enhancement of service delivery performance in the public sector.

The study also contributes to theoretical literature by providing the basis for empirical testing of the research hypotheses. The study supports the postulates of MIS and RBV theories in using IT capabilities to enhance service delivery performance in public sector. The study further confirms that e-government platform significantly mediates the relationship between implementation pillars and public sector performance and articulates policy interventions required to enhance performance.

5.5 Recommendations for Policy

As per the study variables which include ICT Infrastructure, e-level Applications, e-government Institutional framework and e-government legal framework, the findings of the study are of importance to various stakeholders, if proposed policy recommendations are put in place. The study recommends that e-government policy should be re-evaluated to enhance the effectiveness of the current e-government institutional framework and align it with the technological changes and needs of the users. The study further recommends that it should be the responsibility of government to evolve a comprehensive e-government legal framework on which ministries can anchor e-government implementation policies in line with their strategic objectives. It should also be the priority of the government to provide the necessary legal and policy framework to support the development of information and communication infrastructure within the ministries. The study finally recommends that the ministries should design strategic policies that are flexible enough to cope with technological changes. The ministries should have clearly defined service delivery charters that are anchored on e-government platform. This could contribute to improvement of e-government strategy implementation towards achieving enhanced service delivery and overall public sector performance.

5.6 Limitations of the study

The research used regression method to determine the relationship between the dependent and independent variables as well as in the test for mediation. Analysis was done on dependent variable, also among the dependent variable together with the mediating variables. Further regression analysis was done using all the mediating variables. A replication of this study should be carried out but this time using a larger sample, hence

more time should be allocated for the research. The study was restricted to the use of interview guide and questionnaire as tools of primary data collection. The investigative nature of this study also sparked misplaced doubt. Respondents feared that the research intended to involve individuals in a negative manner. To this end, this doubt caused resistance and lack of cooperation. The researcher excluded this paranoia by clarifying the aims of the research. The study was also limited by lack of prior locally based studies in the topical area and hence inadequacy of the relevant empirical literature to regulate it. This was overcome by exploration of studies carried in related areas in different parts of the globe. The study was also hindered by the expansive geographical area under its jurisdiction. The study overcame this by proper planning that subsequently enabled the researcher to cover the entire Ministries. The study also used the centralized service centers known as the Huduma Centers where citizens go to enquire for services. The study was also limited by its nature as it touched mainly on a sensitive e-government area but this was overcome by determination and resilience of the researcher.

5.7 Suggested Areas for Further Research

The study did not use cross tabulation to compare the findings with respondent's biographic characteristics. The study recommends that future research can be conducted using non-parametric techniques and specifically chi-square. Other mediating variables besides the e-government platform need to be included in future studies. Since this study was limited to interview schedule and questionnaire as data collection instruments more methods such as focus group discussions should be used in future studies to help counter check on the information provided. This study should be extended to confirm and further define the findings, not only for Kenya government ministries, but also for other developing countries in the East African region. Research can also be done using different countries' experiences and also between different ministries' e-government strategy implementation efforts and experiences. Further studies should include user experience study to explore different impacts of e-government among the users. Upcoming repetitions of this study should take into consideration the government's willingness to implement policy changes for each ministry that expand access to e-government services by assessing current information policies, public readiness and demand for access to information. This

information could be used to regulate the potential influence of government policies to the application stage of e-government initiatives. The study also recommends further research on processes of e-government strategy implementation and performance in the non-governmental sector in Kenya.

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APPENDICES

Appendix (I): Interview Guide for Directors

1. Kindly describe the state of ICT infrastructure in the ministry?
2. How does e-government impact on performance of the ministry?
3. Briefly describe government polices regulating e-government?
4. How does the ministry ensure fast and timely delivery of services?
5. Briefly describe the measures used to ensure information security in the ministry?
6. Which are the challenges facing e-government implementation in the ministry?
7. Kindly suggest ways of ensuring successful e-government implementation in the ministry?

Appendix (II): Questionnaire for the Ministry Staff

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

Section I: General Information

1. Gender (tick as appropriate)

   Female ( ) b) Male ( )

2. What is your age bracket? (tick as appropriate)

   Under 20 years [ ] 21 – 30 years [ ] 31 – 40 years [ ] 41 – 50 years [ ]

   Over 50 years [ ]

3. Length of continuous service with the Ministry? (tick as appropriate)

   Less than one year [ ] 2-5 years [ ] 6-10 years [ ] Over 10 years [ ]

Department .....

4. Which of the following best describes your position?

   Support Staff [ ] Supervisory Staff [ ] Management Staff [ ]

   Other (Please State) _____

Section II: ICT Infrastructure

5. To what extent do you agree with the following statement in regards to ICT Infrastructure in your ministry? Use a scale of 1-5 where; 5 Great extent, 4 Moderate extent, 3 Neutral, 2 Low extent and 1 Very low extent.

Statement	1	2	3	4	5
The government has developed guiding principles on the use of ICT software and hardware connectivity in my ministry/department					
The ministry has ensured there is adequate technical support for using the					

system					
The e-government system is customized to the unique operations of each office					
There are well established e-government policies and standards in my ministry					
Data captured is well stored and this ensures data security in my ministry					

Section III: E-level applications

6. To what extent do you agree with the following statement in regards to E-level applications in your ministry in the given statements? Use a scale of 1-5 where; 5 Great extent, 4 Moderate extent, 3 Neutral, 2 Low extent and 1 Very low extent.

Statement	1	2	3	4	5
The operations of this ministry are networked well with those of other ministries					
There is an efficient data access between the ministry and user departments					
The ministry has an independent 24 hour information database					
Our customers can access ministry information on a 24 hour basis					

Section IV: E-government institutional framework

7. To what extent do you agree with the following statement in regards to E-government institutional framework in your ministry? Use a scale of 1-5 where; 5 Great extent, 4 Moderate extent, 3 Neutral, 2 Low extent and 1 Very low extent.

Statement	1	2	3	4	5
There is effective inter- agency coordination between e-government institutions and my ministry/department					
There are existing accountability procedures for all ICT staff in the ministry/department					
Every ICT staff have the technical capacity to handle ICT duties assigned to them					
The ministry/department enjoys support from the relevant e-government institutions					
The e-government system is compatible with the strategic objectives of the Ministry					

Section V: E-government legal framework

8. To what extent do you agree with the following statement in regards to E-government legal framework in your ministry? Use a scale of 1-5 where; 5 Great extent, 4 Moderate extent, 3 Neutral, 2 Low extent and 1 Very low extent.

Statement	1	2	3	4	5
There is an existing law to regulate e-government operations					
The ministry has established procedures to safeguard security of information in online transactions					
There are well developed policies on issuance of passwords to ministry staff					
There are well developed policies guiding confidentiality of information					

Section VI: Data management capabilities

9. Use a scale of 1-5 where; 5 Great extent, 4 Moderate extent, 3 Neutral, 2 Low extent and 1 Very low extent.

In my view the e-government platform in the ministry:	1	2	3	4	5
Is quite user friendly					
Has made e-government services easily accessible					
Facilitates fast and timely delivery of services					

Section VII: Program Compatibility

10. Use a scale of 1-5 where; 5 Great extent, 4 Moderate extent, 3 Neutral, 2 Low extent and 1 Very low extent.

In my view the e-government platform in this Ministry:	1	2	3	4	5
Enhances effective communication within the ministry					
Is well designed to address public needs					
Is anchored to support the strategic mandate of the ministry					

Section VIII: Information Security

11. Use a scale of 1-5 where; 5 Great extent, 4 Moderate extent, 3 Neutral, 2 Low extent and 1 Very low extent.

In my view the e-government platform:	1	2	3	4	5
Ensures high level security of information					

Provides adequate information to all decision makers in the ministry					
Is free from any vulnerability to attack by unauthorized individuals					

THANK YOU FOR YOUR PARTICIPATION

Appendix (III): Questionnaire for Users (Members of Public)

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

Section I: General Information

1. Gender? (tick as appropriate)

   a) Female ( ) b) Male ( )

2. What is your age bracket? (Tick as applicable)

   Under 20 years [ ] 21 – 30 years [ ] 31 – 40 years [ ]

   41 – 50 years [ ] Over 50 years [ ]

3. For how long have you been using government online services? (Tick as applicable)

   Less than one year [ ] 2-5 years [ ] 6-10 years [ ]

   Over 10 years [ ]

   Other (Please State) _____

Section II: Performance

4. To what extent do you agree with the given statements? Use a scale of 1-5 where; 5 Great extent, 4 Moderate extent, 3 Neutral, 2 Low extent and 1 Very low extent.

	1	2	3	4	5
Since the ministry implemented e-government platform the staff have become more efficient in service delivery					
Government operations in the ministry are more transparent					
Corruption has significantly declined in the ministry service delivery					

Accessibility of government services has improved					
I am happier now dealing with the ministry than I was before e-government					
The tendering system has become more transparent and accountable					

THANK YOU FOR YOUR PARTICIPATION

Appendix (IV): List of Kenyan Ministries

1. Ministry of Interior and Coordination of National Government
2. Ministry of Devolution and Planning
3. Ministry of Defense
4. Ministry of Foreign Affairs
5. Ministry of Education
6. Ministry of The National Treasury
7. Ministry of Health
8. Ministry of Transport and Infrastructure
9. Ministry of Environment, Water and Natural Resource
10. Ministry of Land, Housing and Urban Development
11. Ministry of Information, Communication and Technology (ICT)
12. Ministry of Sports, Culture and the Arts
13. Ministry of Labour, Social Security and Services
14. Ministry of Energy and Petroleum
15. Ministry of Agriculture, Livestock and Fisheries
16. Industrialization and Enterprise Development
17. Ministry of Commerce and Tourism
18. Ministry of Mining

Appendix (V): Kenyatta University Research Authorization Letter

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 020-8704150

Our Ref: D86/CTY/21715/2010

Date: 16th December, 2014

The Principal Secretary,
Higher Education, Science & Technology,
P.O. Box 30040,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION
MR. ALFRED NGUGI MUNGAI - REG. NO. D86/CTY/21715/2010

I write to introduce Mr. Alfred Ngugi Mungai who is a Postgraduate Student of this University. He is registered for a Ph.D degree programme in the Department of Business Administration in the School of Business.

Mr. Mungai intends to conduct research for a thesis entitled, "E-Government Strategy Implementation and Performance of the Public Sector in Kenya."

Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL

LNM/ewm

Kenyatta University ... ISO 9001: 2008 Certified

Appendix (VI): NACOSTI Authorization Letter

NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:

22nd January, 2015

NACOSTI/P/15/9038/4581

Alfred Ngugi Mungai
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"E-Government strategy implementation and performance of the public sector in Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for a period ending **30th June, 2015.**

You are advised to report **the Principal Secretaries of selected Ministries, the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

On completion of the research, you are required to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. S. K. LANGAT, OGW
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The Principal Secretaries
Selected Ministries.

The County Commissioner
Nairobi County.

COUNTY COMMISSIONER
NAIROBI COUNTY

COUNTY DIRECTOR OF EDUCATION
NAIROBI

National Commission for Science, Technology and Innovation is ISO 9001: 2008 Certified

Appendix (VII): Requisition Letter to Huduma Centre

OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND
CO-ORDINATION OF NATIONAL GOVERNMENT
BETTING CONTROL AND LICENSING BOARD
Kenya Charity Sweepstake House, 3rd & 8th floor, Mama Ngina Street

Telephone: 316471/2220186/343578/9
Fax: 2227127

P. O. Box 43977 – 00100
NAIROBI

18th December, 2014

The Chief Executive Officer
Huduma Kenya
NAIROBI

RE: RESEARCH AUTHORIZATION - MR. ALFRED NGUGI MUNGAI – REG.NO.D86/CTY/21715/2010

I wish to request for the above authorization to undertake data collection for my PhD Program at the school of Business, Kenyatta University. The study entails e-government strategy implementation and performance of Public Sector in Kenya. The staff and users of government services at the Huduma Centre will be asked to respond to a few questions in the respective questionnaires. The exercise is expected to take 3 working days.

Your approval will be appreciated.

A.N. Mungai
For: DIRECTOR, BCLB

Authority Granted to Collect data in GPO, Makadara and City Square Huduma Centres.
K. Mwangi
C.O.O
f Secretary
19/12/2014.

THE PRESIDENCY
MINISTRY OF DEVOLUTION AND PLANNING
HUDUMA KENYA SECRETARIAT
P.O. Box 30050 - 00100, NAIROBI

Appendix (v): Huduma Research Authorization Letter

REPUBLIC OF KENYA

THE PRESIDENCY
MINISTRY OF DEVOLUTION AND PLANNING
HUDUMA KENYA SECRETARIAT

Telegraphic address: "Personnel", Nairobi
Telephone: Nairobi 227411
Telex: 23125
Fax: 2243620
When Replying please quote

P.O. BOX 30050-00100
NAIROBI
KENYA

Ref. No. MDP/HUDUM.21/25

23rd December, 2014

Director
Betting Control and Licensing Board
NAIROBI

ATTN: Alfred Ngugi Mungai

RE: RESEARCH AUTHORIZATION – MR. ALFRED NGUGI MUNGAI – REG.NO.D86/CTY/21715/2010

Reference is made to your letter requesting authorization to undertake data collection in Huduma Centers on your research on e-government strategy implementation and performance of Public Sector in Kenya.

In this regard, this is to inform you that your request has been approved subject to you sharing your university approved research proposal with us.

All the best and kindly ensure you also share with us your final research report.

Dennis Mutuku
Secretary

Appendix (VIII): Research Clearance Permit

CONDITIONS

1. You must report to the County Commissioner and the County Education Officer of the area before embarking on your research. Failure to do that may lead to the cancellation of your permit
2. Government Officers will not be interviewed without prior appointment.
3. No questionnaire will be used unless it has been approved.
4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.
5. You are required to submit at least two(2) hard copies and one(1) soft copy of your final report.
6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice

REPUBLIC OF KENYA

NACOSTI

National Commission for Science, Technology and Innovation

RESEARCH CLEARANCE PERMIT

Serial No. A 1056

CONDITIONS: see back page

THIS IS TO CERTIFY THAT:
MR. ALFRED NGUGI MUNGAI
of KENYATTA UNIVERSITY, 0-300 NAIROBI ,has been permitted to conduct research in *Nairobi County*

on the topic: *E-GOVERNMENT STRATEGY IMPLEMENTATION AND PERFORMANCE OF THE PUBLIC SECTOR IN KENYA*

for the period ending:
30th June,2015

Permit No : NACOSTI/P/15/9038/4581
Date Of Issue : 22nd January,2015
Fee Recieved :Ksh 2,000

.....
Applicant's Signature

.....
Secretary
National Commission for Science, Technology & Innovation

Appendix (IX): Reliability Analysis (Cronbach's Alpha Reliability Coefficients)

Item – total statistics is presented below;

E-GOVERNMENT STRATEGY PILLARS

ICT Infrastructure (Service Oriented Architecture)

Summary for scale: Mean = 11.9433 Std.Dev. = 3.20944 Valid N:10 {CT infrastructure (Service Oriented Architecture)data} Cronbach's alpha: .747080 Standardized alpha: .742656 Average inter-item corr.: .427036					
Q 6	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Q i	9.160098	5.646782	2.376296	0.590903	0.660343
Qii	8.901478	6.369603	2.523807	0.577675	0.670573
Q iii	8.871922	5.535319	2.352726	0.650715	0.722079
Q iv	8.896552	7.516392	2.741604	0.362459	0.775405

E-level Applications

Summary for scale: Mean = 11.8775 Std.Dev. = 3.15156 Valid N:10 (E-level applications data) Cronbach's alpha: .686741 Standardized alpha: .707421 Average inter-item corr.: .379344					
Q 7	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Q i	9.125000	5.099375	2.258180	0.430101	0.685683
Q ii	8.917500	5.920694	2.433248	0.580178	0.753443

Q iii	8.660000	7.199400	2.683170	0.409097	0.660474
Q iv	8.930000	6.400100	2.529842	0.530801	0.790677

E-government Institutional Framework

Summary for scale: Mean = 11.8870 Std.Dev. = 3.03623 Valid N:10 (E-government institutional framework data) Cronbach's alpha: .762428 Standardized alpha: .767801 Average inter-item corr.: .455100					
Q 8	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Q i	9.019656	5.503300	2.345911	0.534439	0.721985
Q ii	8.793612	5.549541	2.355747	0.631281	0.671100
Q iii	9.149878	5.414883	2.326990	0.515948	0.735168
Q iv	8.697788	5.861986	2.421154	0.580963	0.698921

E-government Legal Framework

Summary for scale: Mean = 11.3860 Std.Dev. = 3.06732 Valid N:10 (E-government legal framework data) Cronbach's alpha: .726524 Standardized alpha: .727313 Average inter-item corr.: .407909					
Q 9	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Q i	8.456141	6.573891	2.563960	0.409257	0.722179

Q ii	8.596491	5.980038	2.445412	0.430421	0.716780
Q iii	8.491228	5.553182	2.356519	0.643381	0.795150
Q iv	8.614035	4.933738	2.221202	0.605425	0.708540

E-GOVERNMENT PLATFORM

Data Management Capability

Summary for scale: Mean = 11.2506 Std.Dev. = 3.53673 Valid N:10 (Data Management Capability data) Cronbach's alpha: .718303 Standardized alpha: .719192 Average inter-item corr.: .397711					
Q 10	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Q i	8.628993	7.614196	2.759383	0.512394	0.652552
Q ii	8.326781	7.758080	2.785333	0.460054	0.684852
Q iii	8.469288	7.634807	2.763115	0.525091	0.645092

Program Compatibility

Summary for scale: Mean = 12.3180 Std.Dev. = 3.36482 Valid N:10 (Program Compatibility data) Cronbach's alpha: .789243 Standardized alpha: .789524 Average inter-item corr.: .486448					
Q 11	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Q i	9.262136	7.076916	2.660247	0.518395	0.777102
Q ii	9.235436	6.777093	2.603285	0.625831	0.723351
Q iii	9.322816	6.373946	2.524668	0.664236	0.702101

Information Security

Summary for scale: Mean = 9.94444 Std.Dev. = 3.72293 Valid N:10 (Information security data) Cronbach's alpha: .703047 Standardized alpha: .703125 Average inter-item corr.: .374301					
Q 12	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Q i	7.232323	9.658147	3.107756	0.379833	0.700381
Q ii	7.368687	8.298414	2.880697	0.570061	0.590150
Q iii	7.540404	7.854429	2.802575	0.502608	0.632579

PUBLIC SECTOR PERFORMANCE

E-procurement Services

Summary for scale: Mean = 34.6180 Std.Dev. = 6.69165 Valid N:4 (E-procurement services data) Cronbach's alpha: .923409 Standardized alpha: .923720 Average inter-item corr.: .673864					
Q 4	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Q vi	28.76156	33.76310	5.810602	0.690453	0.920752

Service Delivery

Summary for scale: Mean = 35.1732 Std.Dev. = 5.91230 Valid N:4 (Service delivery data) Cronbach's alpha: .873186 Standardized alpha: .875456 Average inter-item corr.: .545263					
	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Q i	29.68781	24.11717	4.910923	0.657877	0.855430

Operational Efficiency

Summary for scale: Mean = 34.3300 Std.Dev. = 5.93269 Valid N:4 (Operational efficiency data) Cronbach's alpha: .871992 Standardized alpha: .872835 Average inter-item corr.: .543630

	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Q ii	28.64020	25.40156	5.039996	0.594977	0.864225

User Satisfaction

Summary for scale: Mean = 41.1926 Std.Dev. = 7.35402 Valid N: 4 (User satisfaction data) Cronbach's alpha: .933527 Standardized alpha: .933750 Average inter-item corr.:.671533					
	Mean if	Var. if	StDv. if	Itm-Totl	Alpha if
Q v	35.36296	40.19666	6.340083	0.753754	0.926314

Cronbach's Alpha Reliability Coefficient Scores for the Staff Questionnaire

Cronbach's alpha reliability coefficients were calculated to estimate the reliability of the staff questionnaire instrument. The Cronbach's alpha reliability coefficients for the four E-government strategy pillars and E-government platform respectively are given in Table 2 below. The Cronbach's alpha reliability coefficient for the staff questionnaire instrument is 0.73334, which is acceptable.

Cronbach's Alpha Reliability Coefficients for E-government strategy Pillars and E-government platform

Factors	Variables	Mean	Standard Deviation	Cronbach's Alpha Reliability Coefficients	Evaluation based on Sekaran (2000)
E-government strategy Pillars	ICT infrastructure (Service Oriented Architecture)	11.9433	3.20944	0.747080	Good
	E-level applications	11.8775	3.15156	0.686741	Acceptable
	E-government institutional framework	11.8870	3.03623	0.762428	Acceptable
	E-government legal framework	11.3860	3.06732	0.726524	Acceptable
E-government platform	Data Management Capability	11.2506	3.53673	0.718303	Acceptable
	Program Compatibility	12.3180	3.36482	0.789243	Acceptable
	Information security	9.94444	3.72293	0.703047	Acceptable

The results above indicate that the staff questionnaire factors generally are reliable. Item – total statistics can be found in Appendix A. Therefore, for this research, the staff questionnaire instrument is a reliable measure of both government strategy pillars and E-government platform.

Cronbach's Alpha Reliability Coefficient Scores for the Users questionnaire

Cronbach's alpha reliability coefficients were calculated to estimate the reliability of the user's instrument. The Cronbach's alpha reliability coefficients for the four public sector performance factors are given below. The average Cronbach's alpha reliability coefficient for the users' instrument is 0.88726 which is good.

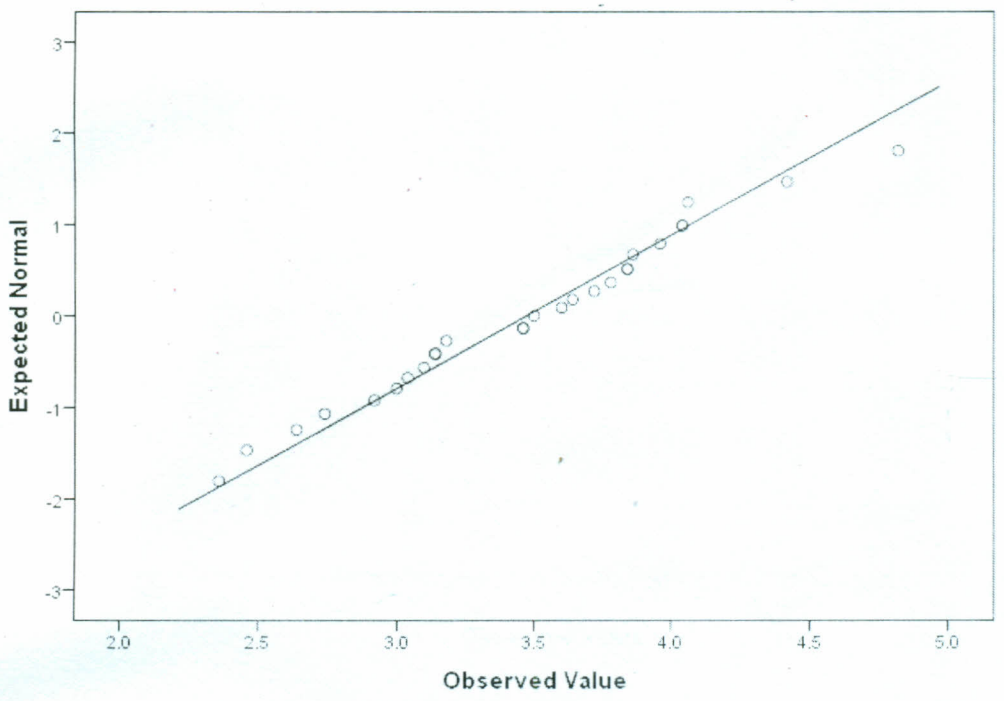
Cronbach's Alpha Reliability Coefficients for Users questionnaire Factors

Public sector performance	Mean	Standard Deviation	Cronbach's Alpha Reliability Coefficients	Evaluation based on Sekaran (2000)
E-procurement services	34.6180	6.69165	0.923409	Good
Service delivery	35.1732	5.91230	0.873186	Good
Operational efficiency	34.3300	5.93269	0.871992	Good
User satisfaction	36.0000	5.32283	0.880453	Good

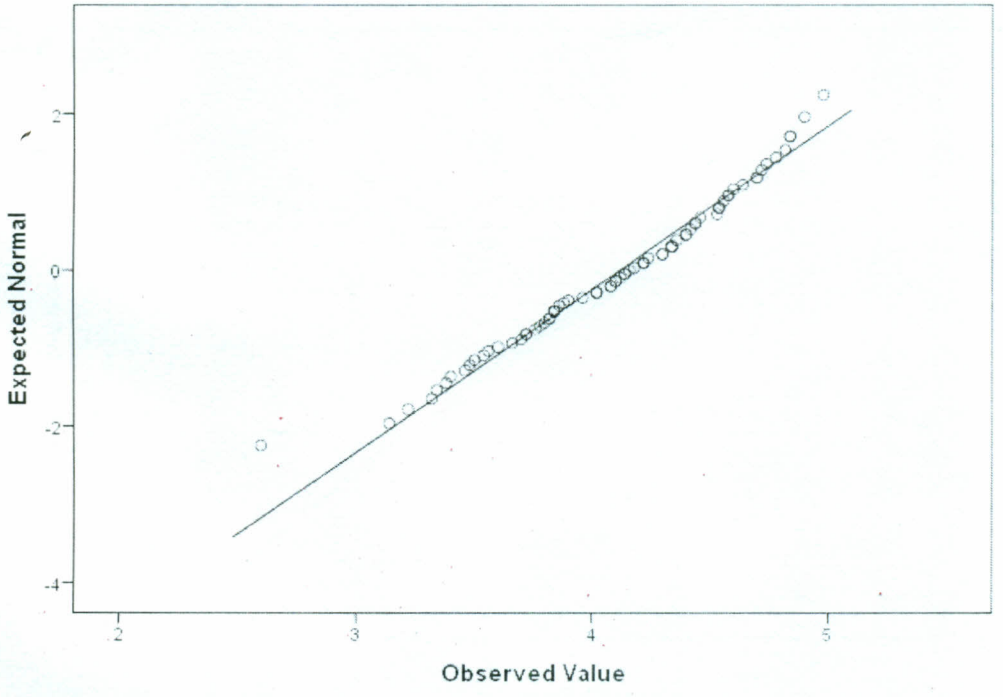
The results above indicate that the user's questionnaire factors were reliable. Therefore, for this research, the user's questionnaire instrument was a reliable measure for public sector performance.

Appendix (X): Normality Test Using Q-Q Plots

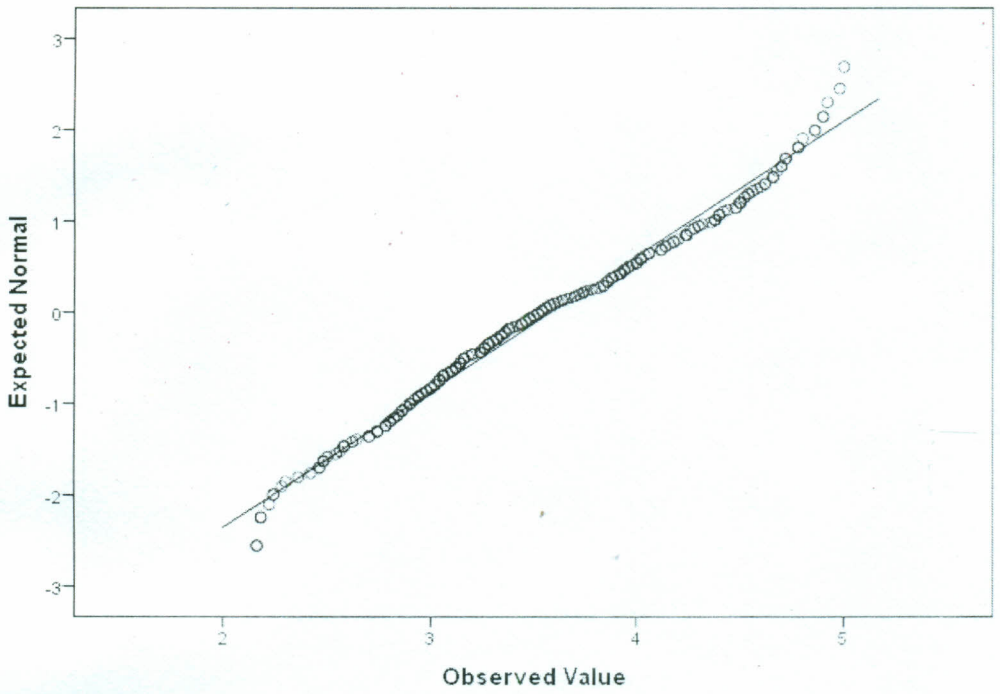
Q-Q plot for infrastructure (Service oriented architecture)



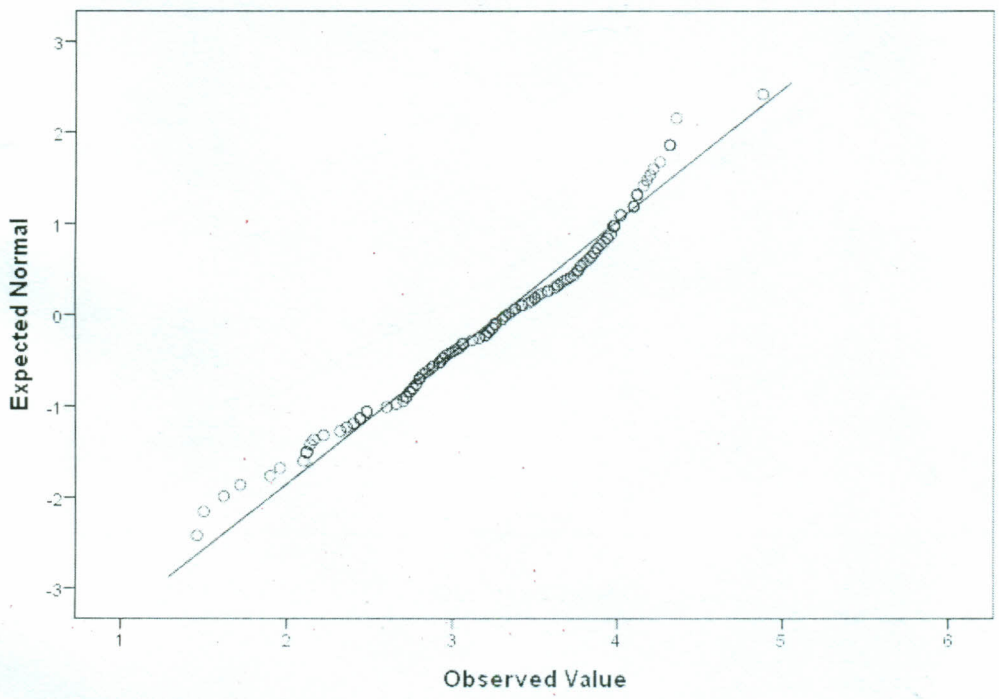
Q-Q plot for e-level applications (software interface)



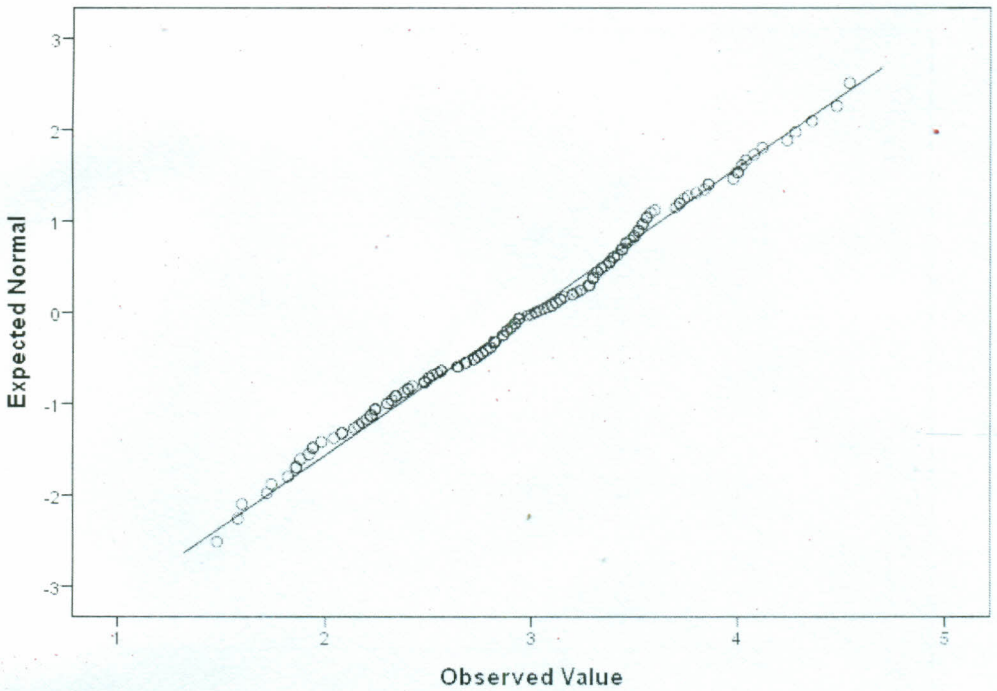
Q-Q plot for e-government institutional framework



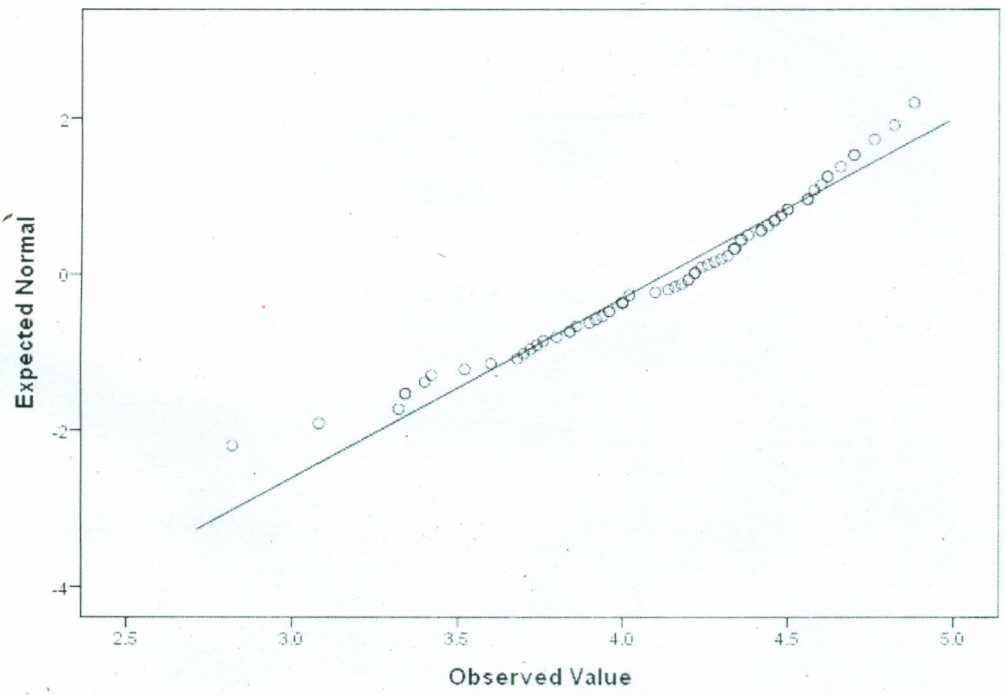
Q-Q plot for e-government legal framework



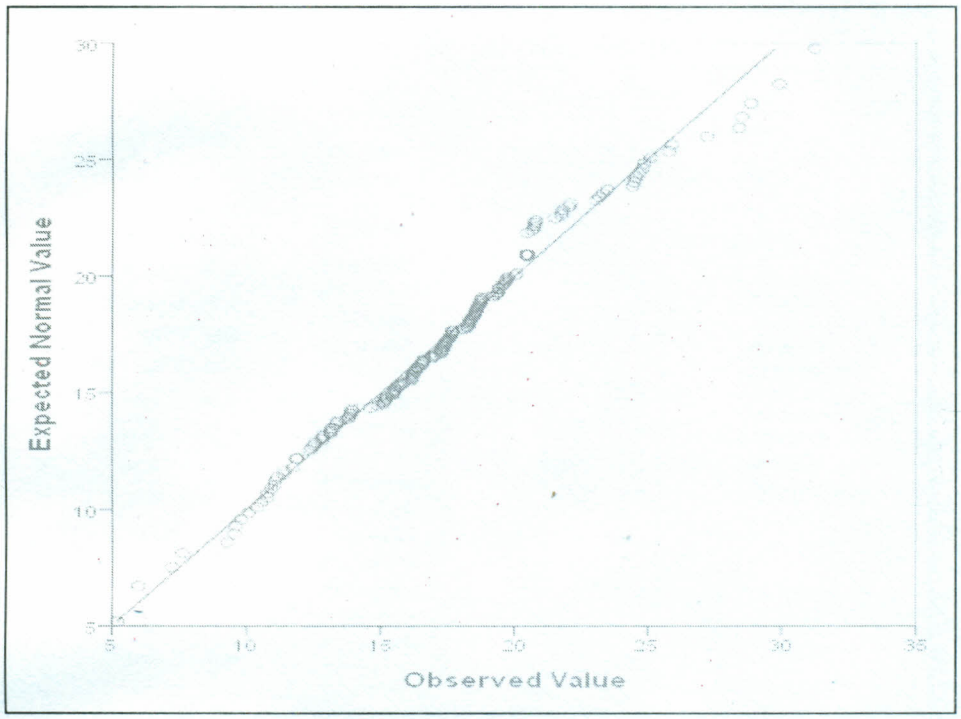
Q-Q plot for data management capability



Q-Q plot for information security

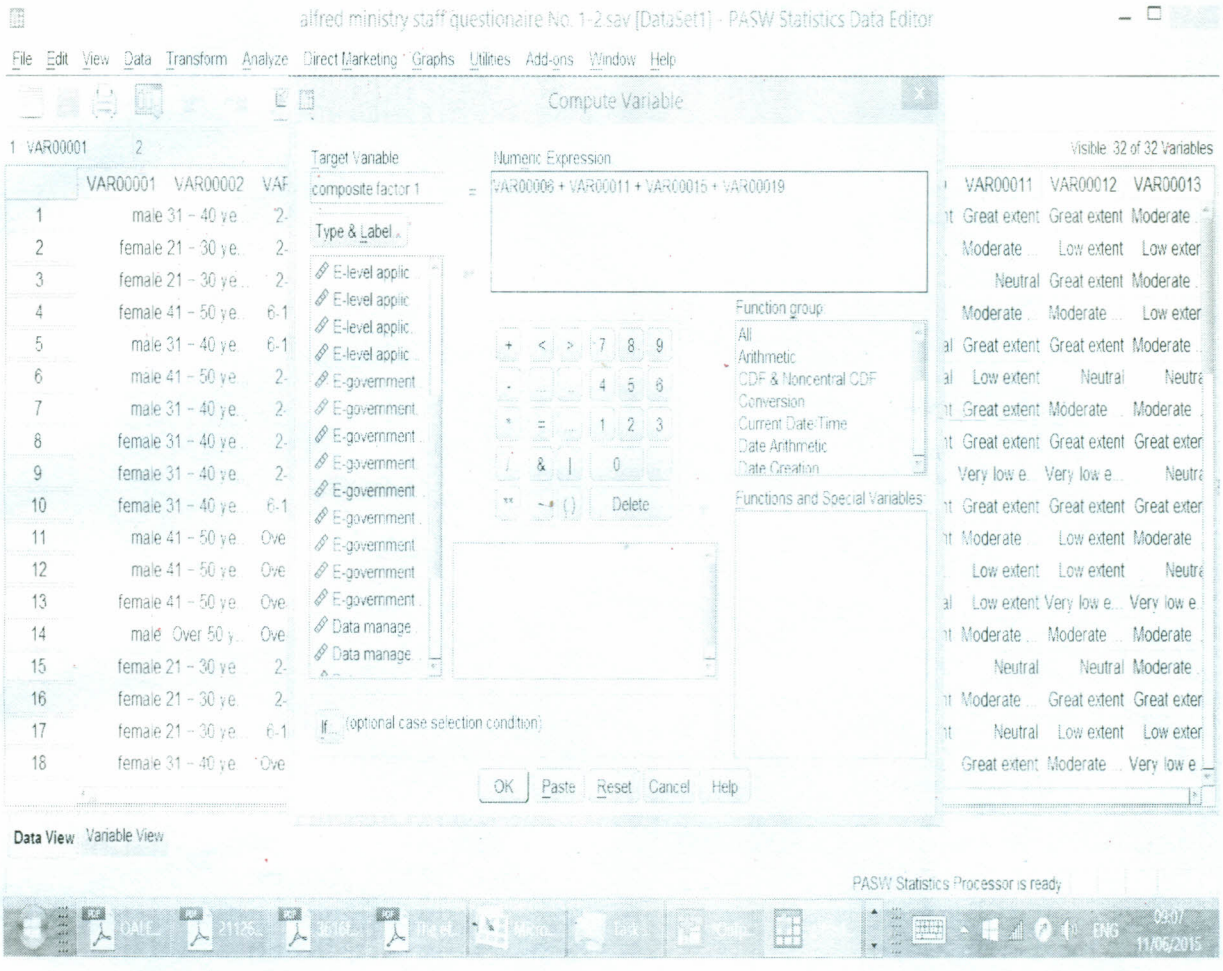


Q-Q plot for program compatibility



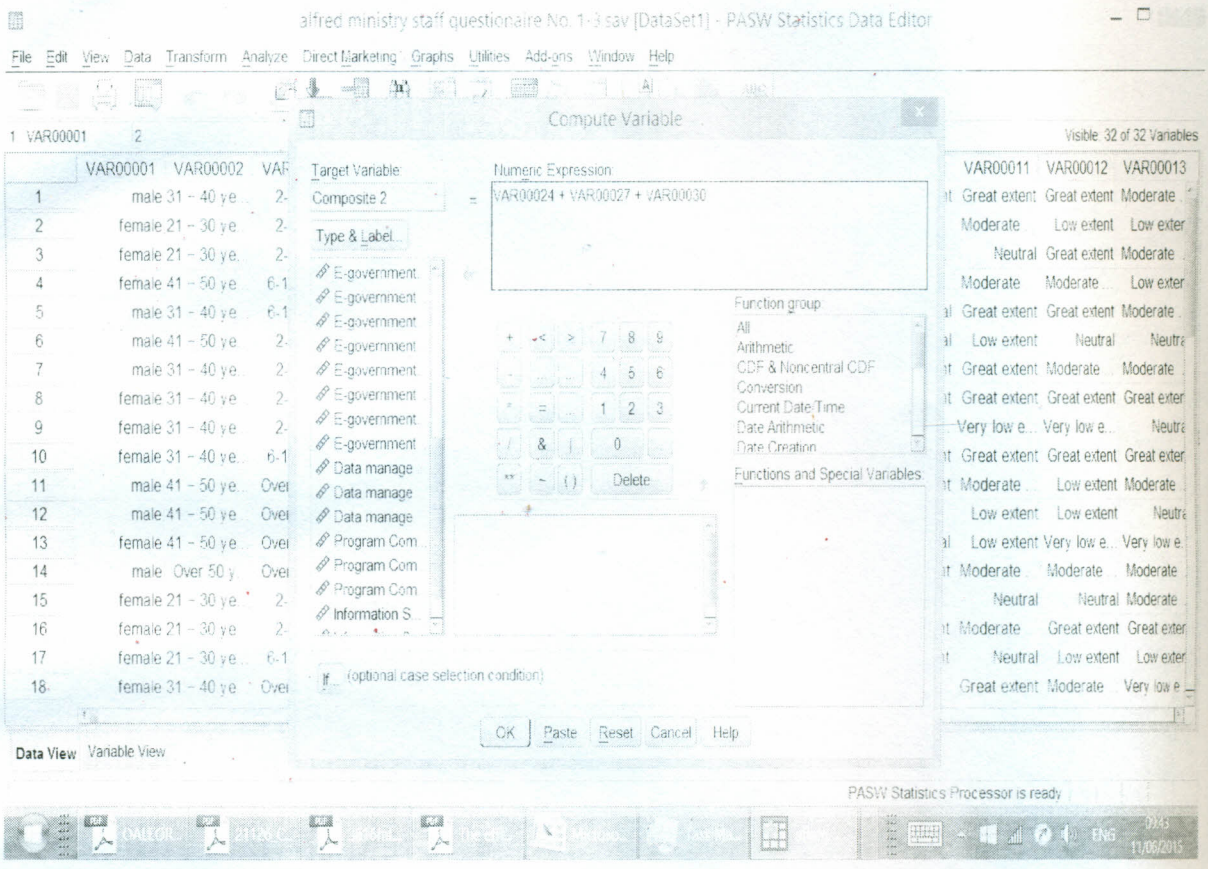
Appendix (XI): Composite Factor

A) Independent Variable



Independent variable			
	N	Mean	Std. Deviation
Composite	26	14.1538	3.79149
Valid N (listwise)	26		

B) Mediating variables



Mediating variable			
	N	Mean	Std. Deviation
Composite	26	10.8846	2.55072
Valid N (listwise)	26		