



UNIVERSITY OF NAIROBI

SCHOOL OF COMPUTING AND INFORMATICS

PROJECT PROPOSAL TITLE:

**Factors affecting the adoption of e-governance in a public institution in Kenya, a case of
NEMA-Kenya**

BY

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Submitted in partial fulfillment of the MSc in Information Systems Degree

DECLARATION

This research proposal is my original work and has not been presented to any other institution for the award of academic certificate.

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DEDICATION

I dedicate this research project to my loving wife Diane who has been a great source of inspiration and joy throughout my daily endeavours to attain my full potential and to my wonderful family members for their unconditional love, patience and support throughout the course of this project.

ABSTRACT

The aim of the study is to determine factors affecting the adoption of e-governance in a public institution in Kenya, a case of NEMA-Kenya. E-government has been identified and adopted as one of the most efficient vehicles for appropriate, transparent and inclusive / participatory decision making in many countries. Kenya has shown a higher propensity to indigenous knowledge systems which are full of inefficiencies, a lot of red tape in public service delivery, and prone to corrupt and inefficient practices. Descriptive design was suited for this study because the sample size is small and also structured questionnaires were used. Data was collected from a total of 180 respondents. A sample size of 200 out of 400 officers charged with the responsibility of overseeing that checks and controls are in place in the core areas of the institution charged with the role of e-governance. The adoption of e-Governance promises a sharp paradigm shift where public institutions will be more responsive and transparent, promote efficient Public Private Partnerships (PPP), and empower citizens by making knowledge and other resources more directly accessible. Our study sought to determine the factors affecting adoption of e-governance in public institutions by looking at variables trust, Resistance to Change, client access and systems rights and security from officers charged with the responsibility of overseeing that checks and controls are in place in the core areas of NEMA like Accounts, Internal Audit and EIA (Environmental Impact Assessment) all of whom are charged with the role of e-governance. The results show that all the four factors tested in this study had an effect in adoption of e-governance in the public sector.

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CHAPTER ONE

1.0 INTRODUCTION

The importance of e-governance as seen in audit automation and utilization of IT in modern audits has grown significantly in recent years due to both technological developments and changing regulatory environment (Janvrin et al., 2008). The passage of Sarbanes-Oxley Act of 2002 (SOX), particularly, the requirements of its Section 404 greatly expanding the internal control work performed by management, has resulted in a strong increase in demand for qualified personnel, leading to personnel shortages and increase in overheads. This creates an opportunity for adopting e-governance processes to further increase their efficiency (Alles et al., 2006). While problems facing public institutions such as cost and availability of qualified personnel have received much attention in the professional press, the budgetary pressure on departments charged with the responsibility of e-governance post-SOX is probably even more severe. Thus it comes as no surprise that many managers are now at the forefront of deploying such modern automation technologies in systems and services provided to the public through e-governance.

The word 'electronic' in the term e-Governance implies technology driven governance. E-governance is the application of Information & Communication Technology (ICT) for delivering government services, exchange of information communication transactions, integration of various stand-alone systems and services between Government-to-Citizen (G2C), Government-to-Business (G2B), Government-to-Government (G2G) as well as back office processes and interactions within the entire government framework. Through e-governance the government services will be made available to citizens in a convenient, efficient and transparent manner. The three main target groups that can be distinguished in governance concepts are Government, Citizens and Business groups.

In contrast, E-government is the use of ICTs in public administration-combined with organizational change and new skills to improve public services and democratic processes and to strengthen public support to the public.

The problem in this definition, is that there is no provision for governance of ICTs. E-government is one-way communication protocol whereas E-governance is two-way communication protocol. The essence of e-governance is to reach the beneficiary and ensure that the services intended to

reach the desired individual have been met with. There should be an auto response system to support the essence of e-governance whereby the government realizes efficacy of its governance.

1.1 Background of the Study

Half a century has passed since the original utilization of computers in business. What was in the beginning a limited scope deployment focused on carefully selected business areas (such as payroll processing and inventory control) and utilized primarily by large enterprises, has since become ubiquitous for most business entities, and is now inseparable from doing business. Most business processes today are automated to various degrees and businesses continue to invest in maintaining and expanding this automation through the acquisition of computer and telecommunication technologies and various enterprise systems, such as enterprise resource planning, data warehousing, supply chain management and customer relationship management.

The principle goal of developing countries worldwide is the adoption of e-governance systems which will require process change rather than process innovation. Process change is far less risky than process innovation and is a more appropriate approach because systems in most developing countries are relatively sound and thus provide a basis for improvement. The conventional off-the-shelf e-government reform is principally process innovation which exceeds the capacity of most public bureaucracies in developing countries.

In Kenya, four factors pose a risk to adoption of e-governance: trust, resistance to change, digital divide and privacy & security. The availability of concessionary aid means there is a hard budget constraint to automation and there is little discipline with schedule and scope. The virtual absence of a financial and social cost benefit of these large and questionable investments is a serious failing in the adoption of e-governance in public institutions.

1.2 Problem Statement

A study by Janet Kaaya (2004) showed that in East Africa, the patterns of adoption of e-governance were more gradual for Tanzania and Uganda than those of Kenya, whose rate of adoption was slow, with a sharp increase occurring in 2003, and associated with the establishment of a new government. Although early adopters were mostly embassies, their subsequent adoption patterns showed very low rates (only 3 compared to 16 for government ministries per year) in five years. Possible reasons for this trend include resource constraints, lack of pressure from governments,

and lack of demand from potential users. This study is important in that it can help both researchers and policy makers to predict the extent and pattern of adoption so that they can assess points that require policy interventions to enhance effective adoption and implementation of e-governance in public institutions.

Establishing the identity of the end beneficiary is a true challenge in all citizen-centric services. Therefore, there is the need to determine the factors affecting the adoption of e-governance in public institutions.

1.3 Objectives of the Study

The purpose of this research is to determine the factors affecting adoption of e-governance in public institutions such as:

Trust - how confidence in the system affects the adoption of e-governance.

Resistance to Change – determine to what extent hesitation of constituents affects the adoption of e-governance.

Digital Divide – identify what role access to information technology plays in the adoption of e-governance.

Privacy & Security–evaluate the effect of protection of personal information on adoption of e-governance in public institutions.

It is worth noting that the list is not exhaustive and as such, there are other extraneous variables which will be held constant for the purposes of this research.

1.3.1 General Objectives

To find out what factors affect adoption of e-governance in public institutions.

1.3.2 Specific Objectives

To establish the factors affecting adoption of e-governance in NEMA-Kenya.

1.4 Research Questions

This research identifies trust, resistance to change, digital divide and system rights & security as dependent variables and adoption of e-governance as the independent variable whose extent will be determined by the dependent variables. It is worth noting that the list is not exhaustive and as such, there are other extraneous variables which will be held constant for the purposes of this research. The following are the questions this research will attempt to answer:

1. How does trust affect the adoption of e-governance?
2. To what extent does resistance to change affect the adoption of e-governance?
3. What role does access to information technology play in the adoption of e-governance?
4. To what extent does privacy and security (system rights & security) affect the adoption of e-governance?

The research questions highlighted above will attempt to identify how trust, resistance to change, digital divide and system rights & security affect the adoption of e-governance in NEMA-Kenya.

1.5 Hypothesis of the Study

- i. There is a significant relationship between trust in the system and adoption of e-governance
- ii. There is a significant relationship between resistance to change and adoption of e-governance
- iii. There is a significant relationship between digital divide and adoption of e-governance
- iv. There is a significant relationship between system rights & security and adoption of e-governance

1.6 Significance of the Study

The purpose of the study is to determine ways of enhancing the adoption of e-governance in NEMA-Kenya through automation. The main beneficiaries will be citizens, employees, businesses and government stakeholders like donors. The following benefits will accrue from this research:

Citizens will benefit through value added services which results in better quality of life.

Employees will be more efficient in discharging their duties and by so doing will increase their output.

Businesses will benefit from equal opportunities as a result of level playing field in the areas of procurement.

Donors will gain value for money granted to the public institutions through better accountability of funds.

1.7 Scope of the Study

There are other factors that affect the adoption of e-governance:

E-Governance global trends- Governments around the globe are awakening to adapt the Internet technology for e-government; some countries show more interest in adapting the technology and some are slow in the process. United Kingdom launched UK online in September 2000, with an aspiration of becoming the world's leading knowledge economies. As a major initiative, a network of almost 6,000 UK online centers is established to allow the people to access and familiarize with the online services. Australia (particularly the state of Victoria) and Singapore are the early adapters of e-governance. Canada's e-governance approach is on par with the U.S. Canada's approach to e-governance is different from that of the U.S. For online services, U.S. focuses more on the business client at the federal level whereas Canada focuses on key services for both citizens and individuals in a more decentralized way. Now the pressure is mounting on the government to reduce the operating cost. The citizen at the same time expects faster, reliable and secure performance. Internet is now commonly available for millions of people round the globe. The common man's skill in digital technology is growing day by day. Internet technology is available in more than 150 countries on the earth. This makes the citizen believe that "anything is possible". The monopoly of the government and the big corporate world is threatened. This is reducing the boundaries between and within the government branches.



Figure 1.1: Conceptual view of e-governance

Illustrating how the people and government are interconnected through Internet technology, for improved citizen services. The instantaneous flow of data in a constant state of movement prepares the reports for the government decision-makers and problem solvers.

Issues in the e-governance implementation

i. Technology Issues

In technology there are three basic elements. These are infrastructure layer, application layer and integration technology. The technologies and services for networking in e-governance is the infrastructure layer which is about hardware and software required to generate a web site, as well as it is about the equipment's location and who looks after it. Application layer is made up of software and services that either extend the site's performance or make it easier to manage. The integration layer is to use the Internet to tie together practically all the traditional disciplines associated with various services provided by the web site. Application software is the software that performs the functions of a web based information system.

ii. Infrastructure layer

It is made up of various core technologies which is explained below:

Carrier: The basic element by which site is connected to the internet. Internet service providers (ISP) provide internet connection and bandwidth required for the sites.

Hosting centre: Like big corporate world make specially designed rooms for equipment. E-governance also looking for such specially designed rooms which are cost effective and efficient. Three more layers of infrastructure are needed for the better performance of the web sites load balancing, security layer, and caching. Load balancing regulates the traffic generated by the incoming requests to the servers. Load balancing software handles information requests with the most available capacity in order to avoid "server busy" messages. Security layer controls which information to be given and to whom. This layer is used to prevent the hacking and making online transaction safe. When web server jumps up against its performance limits, especially when the server has to extract too much information during the peak traffic, the cache gives a helping hand by storing frequently requested information.

iii. Basic Application Layer

The core technologies in the basic applications layer are content management system, personalization, transaction engines, site analysis, campaign management, and customer support. Content management system makes it easy to create and organize web content especially with thousands of pages and lots of interchangeable words and images. Other features of content management system are server caching and analysis of web site traffic. Personalization system stores the visitor/ citizen profile while they visit the site. The system prompts the visitor to give their profile on voluntary basis. Also it tracks the visitor's visits. Transaction engine allows the visitor to configure his/her request and facilitates to pay by credit card or other means. Also it manages the service and visitor information, and it facilitates to have a real time link with a third party such as a credit card company or a bank. As web can reveal more about its visitor behaviour than any other medium, most servers collect and store enormous amounts of information about how many page views they serve. Besides, site analysis system stores information such as how many visitors came in every month, how long they stayed on the site, and what they looked at. Campaign management system goes beyond the site analysis and helps to launch certain marketing efforts, such as automated email that responds instantly. Customer support system gives a helping hand to a visitor who has trouble using a site. The system gives automated help with the human touch.

iv. Integration technology

The core technologies in integration are application integration, sales integration, and financials. Application integration enables the user to talk with the "legacy" system, which is a non-Internet system. For example, a website gives the front-end interface to access to various services. To complete the request the back-end systems are to be integrated. This kind of integration is provided by available "Enterprise Application Integration" software. The integration technology bolts together those non-Internet systems and Web operations. Sales integration collects all sales data in various government centres in real time and provides remarkable opportunities to forecast and track the visitors. Once the transactions are completed over the web, the transaction details are to be plugged into an accounting system. This is facilitated by financials system.

v. Application software

The visitor interacts with the application software when entering input into an application program and receiving output from the program. The three step method is proposed for the application software plan to interact with the user. These are:

- Where are we
- Where we want to go
- How do we get there

Where are we: the present status of application in the government organization. Analysing the functional area in every government organization. Identifying the systems for which the application software is not yet developed is also a primary task.

Where we want to go: what kind of governance is required by the next generation? It is trying to utilize internet technology to shape the way of living for the next generation.

How do we get there: Innovative Internet business models are to be created in e-governance context to intertwine the relationship between people and their government. Implementation can be done in progressive stages such as getting online with web sites, providing electronic distribution, implementing financial transaction such as tax or license payments.

vi. Management of Change related Issues

It is important to investigate how the business of government and the nature of governance itself change in the digital networking economy. Questioning the policy formulation processes in view of e-citizen expectations is a major initiative in e-governance. Ultimately the objective of the process reengineering is to rethink the value propositions of the government and how they function in serving the citizens. The major goal is to change the behaviour of governments with the changing needs.

vii. Funding issues

Around the world, governments provided funding for the select pilot projects on government online, including projects such as public works, government services, and human resources. The real challenge for the government is to go about funding the full range of initiatives in order to achieve the objective of “Government Online”. One suggestion is that the concerned department has to come up with adequate fund by themselves. Other issue is utilizing the available resources both in

the plan sector and outside it. For example, in Andhra Pradesh, India, a grand plan for IT infrastructure envisaging to connect every Mandalortaluka headquarters with broadband fibre optic or wireless links to a state wide network called AP State Wide Area Network (APSWAN). A fibre optic backbone with 2 Mbps capacity has already been inducted, free of charge from BSNL (1999) to link 25 district headquarters with the state secretariat in Hyderabad. Within another three years, the state government is going to network 1200 Mandal headquarters and the network will be used for voice, email, and video communication for effective and efficient administration in health care and education. In the next stage every village will be connected via wireless and dial up access. Accordingly, each state government is expected to strengthen the infrastructure in this manner for the project of “Government Online”

Despite the factors outlined above, emphasis will be drawn to the five main factors affecting adoption of e-governance in NEMA-Kenya, i.e. trust, resistance to change, digital divide, cost and privacy & security. This process will take between 6 months to 1 year in the period 2013/2014.

1.8 Limitation of the Study

The expansion of the mandate of NEMA may be a challenge as can be seen by the entity’s recently increased operations at county level together with the increased role of monitoring and controlling environmental activities on a nationwide scope. This task used to be handled at the municipal and county council level in the not too distant past. In light of meeting the demands of their new mandate, management may be overwhelmed in offering assistance to this study.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

The concept of e-government started with the advent of government websites in the early 1990s. The system of government is fixed, static hierarchical regulated, whereas web is dynamic, flat and unregulated. Government's function is mammoth, where one hand does not know what the right hand is doing. With the development of Information Technology and increased dependence on the internet as a transaction medium and the development of adequate infrastructure and regulations, government websites soon developed into a highly potential channel for supporting front end and back end applications. Besides fast delivery of services, internet technology brings more transparency to the governance and many benefits to the e-governance community. With the advent of Internet and related technology, the government services can be extended to all geographical segments in the country round the clock, all days in a year. In addition to better and fast monitoring of government tasks, e-governance generates more revenue through online delivery of services. India is ranked 54th in the global e-government readiness ranking of 2009. This indicates significant room for improvement. This research will be helpful to all people who are interested in developing E-governance projects like civil servants in government agency, businesses houses developing e-governance projects, etc.

In identifying factors that affect adoption of e-governance in NEMA-Kenya, there is need to address the challenges in e-governance.

2.2 Major Issues

The need for automation of the audit systems can be seen where the increased scope of NEMA's mandate requires safeguarding of systems at a national level. This can only be achieved if there is a swift transition from the presently manual system to the desired automated audit system. Hence we need to determine the factors affecting adoption of e-governance in NEMA-Kenya.

2.2.1 The effect of trust on adoption of e-governance

Trust can be identified along two dimensions: an assessment of a current situation, or as an innate personality trait or disposition. The implementation of public administration function via e-governance requires the presence of two levels of trust. The first is that the user must be confident

and comfortable with the tool or technology that they will interact with. The second dimension pertains to the trust of the government. There has to be a balance between ensuring that a system prevents fraudulent transactions and the burden that extensive checks can take place on people who are honest. Recently, confidential information on military veterans was compromised when a computer containing their personal information was lost. This type of incident can erode trust and user confidence in government systems. Trust, along with financial security, are two critical factors limiting the adoption of e-government services (Gilbert, D. et al 2004)

2.2.2 The effect of resistance to change on the adoption of e-governance

The innovation diffusion theory states that over time an innovation will diffuse through a population and the rate of adoption will vary between those who adopt early (early adopters) and those who adopt the innovation much later (laggards). Resistance to change phenomenon can explain much of the hesitation that occurs on the part of constituents in moving from paper to a Web-based system for interacting with public institutions. Citizens, employees and businesses can all have their biases with respect to how transactions should be processed. However, government entities and public policy administrators cannot ignore the changes that occur as a result of the implementation of information and communication technology (ICT). In the early 1990s Freeman C. identified the important role that ICT would have in shaping public policy, and cautioned both rich and poor governments about neglecting its significance. Education about the value of the new systems is one step toward reducing some of the existing resistance. It can also be particularly useful for a leader or manager, to buy into the new system at an early stage in the adoption process (Rhoda C. Joseph et al 1993)

2.2.3 The effect of digital divide on the adoption of e-governance

The digital divide refers to the separation that exists between individuals, communities, and businesses that have access to information technology and those that do not have such access. Social, economic, infrastructural and ethno-linguistic indicators provide explanations for the presence of the digital divide. Economic poverty is closely related to limited information technology resources. An individual living below the poverty line cannot afford a computer to harness the benefits of e-government and other online services. As the digital divide narrows,

broader adoption of e-government in the public domain becomes possible. Economic poverty is not the only cause of digital divide. It can also be caused by the lack of awareness among the people. Even some of the economic stable people don't know about the scope of e-governance. Awareness can only help to bring users to that service delivery channel once. It cannot guarantee sustained use of the system unless the system is also designed in such a way as to deliver satisfactory outcome. Procedures need to be simplified to deliver concrete benefits and clear guidelines provided to encourage their use by the actual end users and reduce users' dependence on middlemen/intermediaries (Subhash Bhatnagar 2008).

2.2.4 The effect of privacy and security on the adoption of e-governance

There will be three basic levels of access exists for e-government stakeholders: no access to a Web service; limited access to a Web-service or full-access to a Web service, however when personal sensitive data exists the formation of the security access policy is a much more complex process with legal consideration . With the implementation of e-government projects, effective measures must be taken to protect sensitive personal information. A lack of clear security standards and protocols can limit the development of projects that contain sensitive information such as income, medical history. (Wong K. F., et al 2006).

2.3 Conceptual Framework

The conceptual framework is based on the factors affecting adoption of e-governance in the NEMA-Kenya. The factors are the independent variables which influence adoption of e-

governance in the NEMA-Kenya. These factors include: trust, resistance to change, digital divide and privacy and security.

Citizens, employees, businesses and government stakeholders like donors play an important role towards the adoption and successful implementation of e-governance in NEMA-Kenya. Their cooperation and attitudes to cultural inclinations on adoption of e-governance are useful in realizing the successful implementation of e-governance in the institution. For purposes of this study employees will be used to assess successful implementation of e-governance in NEMA-Kenya.

The dependent variable of the study is the adoption of e-governance. Successful adoption of e-governance can be measured in terms of extent of implementation which can be used to predict the extent and pattern of adoption so that they can assess points that require policy interventions to enhance effective adoption and implementation of e-governance in public institutions.

2.3.1 Conceptual Framework Figure

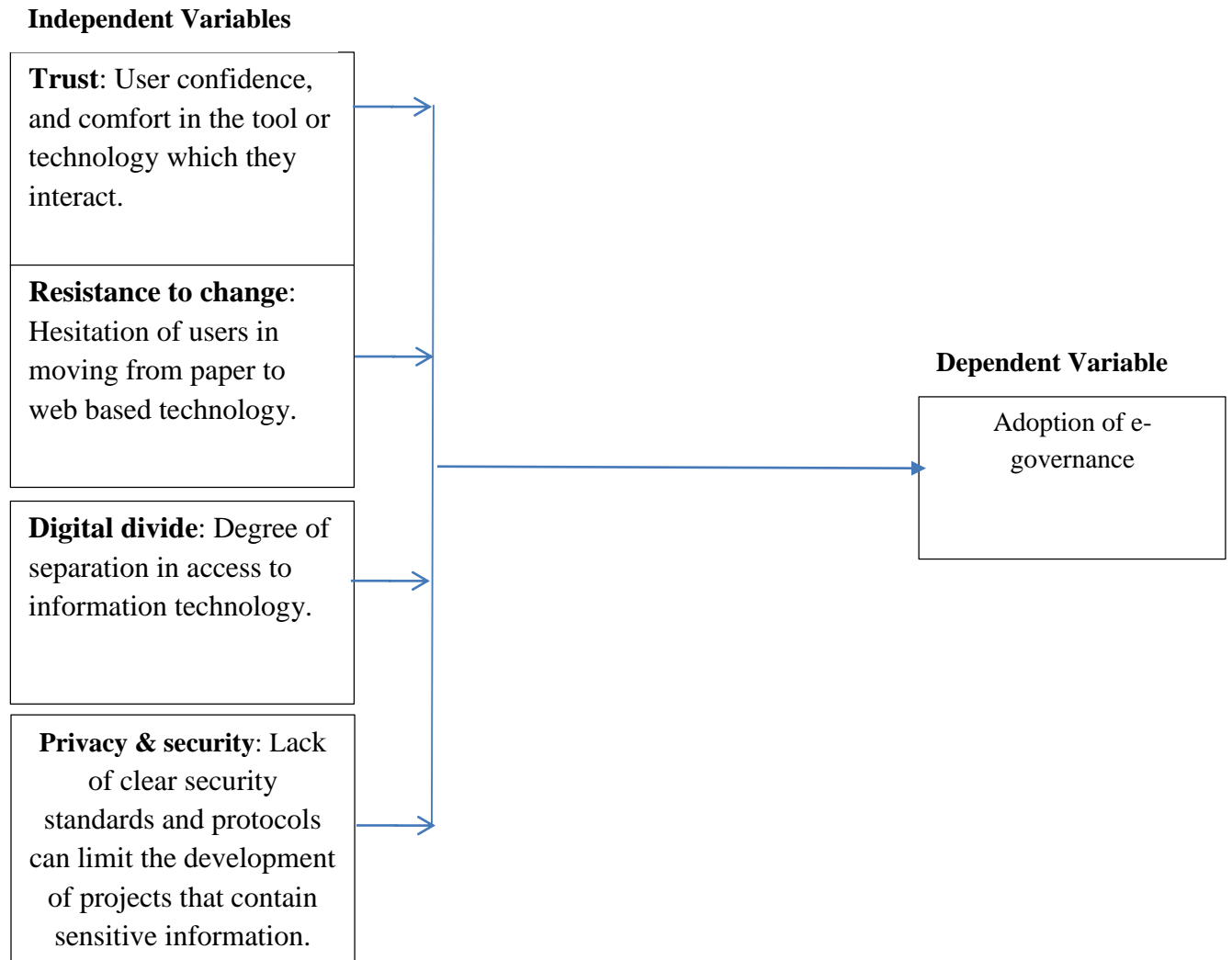


Figure 1.2: Conceptual Framework

2.4 Summary of Theoretical Frameworks

MODELS	TAM (Technology Acceptance Model)	UTAUT (Unified Theory of Acceptance And Use of Technology)	Roger's Technology Acceptance Model
ATTRIBUTES	<ul style="list-style-type: none"> • Attitude • Behavioural Intention • Perceived ease of use • Usage behaviour 	<ul style="list-style-type: none"> • Performance Expectancy • Effort expectancy • Facilitating conditions • Social Influence 	<ul style="list-style-type: none"> • Knowledge • Persuasion • Decision • Implementation • Confirmation
STRENGTHS	<ul style="list-style-type: none"> • Combines the above aspects and compares each one separately • Results are measurable 	<ul style="list-style-type: none"> • Measures performance expectancy • Measures effort expectancy • Measures facilitating conditions 	<ul style="list-style-type: none"> • Innovation Adoption Lifecycle widely used • Compatible-Can be mapped onto different government modules
WEAKNESSES	<ul style="list-style-type: none"> • Questionable Heuristics • Limited explanatory and predictive power • Triviality • Lack of any practical value (Chuttur 2009) 	<ul style="list-style-type: none"> • Has 41 independent variables for predicting intentions and at least 8 dependent variables for predicting behaviour (Bagozzi 2007) • Takes social influence as non-significant 	<ul style="list-style-type: none"> • Much of the evidence comes from agricultural methods and medical practice • The communication process is a one-way flow of information. (Rogers 2003)

SCOPE OF COVERAGE	Mostly used theoretically	Mostly used in the private sector	Widely used in the public sector
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2.5 Operationalization of Variables

VARIABLE	MEASUREMENT
Trust	<ul style="list-style-type: none"> • The number of officers who are comfortable with the level of technology at present. • The number of officers who are confident that the system can prevent fraud and manipulation. • The number who think that checks within the system are too many. • How many officers perceive the system keeps sensitive and confidential information safe
Resistance to change	<ul style="list-style-type: none"> • The number who think there have been many system changes • The number who think the recent system change was implemented early, gradually and was modulated (done in stages) • The number who think the recent system change was drastic and the change-over was immediate • The number who think the recent system change had system admin help and documentation
Digital Divide	<ul style="list-style-type: none"> • The number who think the client's financial ability to acquire and utilize e-governance tools like internet and mobile computing determined whether they communicated issues affecting them • The number who think that the client's awareness about the availability of e-governance tools influenced how they communicated issues affecting them

	<ul style="list-style-type: none"> • The number who think the client’s technical capability in accessing relevant information using e-governance tools determined how they communicated issues affecting them • The number who think that lack of proper technological support impeded how clients utilized solutions provided by e-governance tools at their disposal
System Rights & Security	<ul style="list-style-type: none"> • The number who thought the current system has excessive levels of access (rights) which affected efficient discharge duty • The number who thought the current system had adequate levels of access (rights) which enhanced efficient discharge duty • The number who thought the current system has no levels of access (rights) which affected accountability in efficiently discharging their duty • The number who thought the current system’s security standards and protocols are clearly communicated and understood
Adoption of E-Governance	<ul style="list-style-type: none"> • The number who perceive e-governance to be working within the organization • The number who think e-governance has no effect on their day to day activities • The number who think e-governance can increase their output in terms of service delivery • The number who are not aware of the role e-governance plays in the organization

2.6 Summary of the Literature Review

The chapter on Literature Review is generally based on exploring the various factors that affect e-governance. The chapter delves in detail, the factors that affect implementation of e-governance in public institutions.

The chapter also covers the thoughts of several authors regarding e-governance, emergence of e-governance in East Africa, ICT infrastructure and e-governance in Kenya.

The conceptual framework concludes the chapter of the literature review showing how the researcher hopes to investigate the influence of the four factors that affect adoption of e-government in NEMA-Kenya.

2.7 Knowledge Gap

E-governance is not widely recognized in public institutions. This is compounded by the fact that e-governance is in its infancy in Kenya and only recently has there been provision for governance of ICTs. E-governance is two-way communication protocol hence it is not possible to know whether the benefits of successful adoption of e-governance have reached the end user. The essence of e-governance is to reach the beneficiary and ensure that the services intended to reach the desired individual have been met with. There should be an auto response system to support the essence of e-governance whereby the government realizes efficiency of its governance.

This study is important in that it can help both researchers and policy makers to predict the extent and pattern of adoption so that they can assess points that require policy interventions to enhance effective adoption and implementation of e-governance in public institutions. The researcher endeavors to investigate the influence of these factors on the adoption of e-governance in NEMA-Kenya.

CHAPTER THREE

3.0 RESEARCH DESIGN & METHODOLOGY

3.1 Introduction

This chapter deals with the aspects involved in collecting data that the researcher used as the basis for his research findings, conclusions and the relevant recommendations that have been submitted at the end of this study.

In general, the chapter on research methodology entails: the research design, the study area, the target population, the sample and the sampling technique, the instruments used for collecting data, the validity of the research instruments, the reliability of the research instruments for collecting the data, the data collection procedure, the operationalization of the variables and the data analysis technique that the researcher used.

3.2 Design of the Study

Kothari (1990) defines survey research as the one concerned with describing, recording, analyzing and interpreting conditions that either exist or existed. In this case, the researcher does not manipulate variables or arrange for events to happen. The researcher used descriptive survey design. This design entails the process of investigating populations by selecting samples so as to analyze and discover occurrences. The survey technique provides a description and an explanation of a sample of the officers who are charged with the responsibility of implementing e-governance in NEMA-Kenya.

The main purpose of this study was to investigate the influence that trust, resistance to change, digital divide, and privacy & security have on the adoption of e-governance in NEMA-Kenya. Descriptive design was suited for this study because the sample size is small and also structured questionnaires were used. When this design is used, inferences can be used in this study. The researcher sought to obtain information that describes the existing phenomena and he did this by

asking the respondents (NEMA officers) about their perceptions, opinions and attitudes towards the adoption of e-governance strategies used within NEMA.

The respondents were expected to fill the questionnaires which were both quantitative and qualitative in nature. The quantitative section of the questionnaire enabled the researcher to get responses of the same questions from a number of respondents so that the responses can be quantified for the purposes of drawing the conclusions from them (Bell, 1993). The qualitative section of the questionnaires on the other hand was meant to enable the researcher to collect data in the actual context so that findings and conclusions about the study are made based on the situation on the ground.

The research design would then help the researcher to explore the existing status of the four independent variables and also enabled him to collect data for the purpose of describing a population which is relatively big and cannot be observed directly but required some form of sampling technique.

3.3 Target Population and Study Area

Target population is defined as all numbers in a real or hypothetical set of people, events or objects to which the researcher wishes to generalize the results of his research (Borg and Gall 1977). The target population will be 400 officers charged with the responsibility of overseeing that checks and controls are in place in the institution all of whom are charged with the role of e-governance.

The study area was based on departments and divisions located at NEMA headquarters in Nairobi. It is important to note that, the proximity of these departments helps to give a bigger variation of the respondents than it would be in other branches found in the other parts of the country. The researcher also selected the headquarters in Nairobi due to the fact that NEMA's operations are centralized and dissipate countrywide from Nairobi.

3.4 Sampling & Sampling Technique

Cluster sampling was used as a basis of selecting the departments. According to Mugenda and Mugenda (2003), this method involves the selection of an intact group where all the members of the group are to be included and act as a unit of observation. Various departments were selected using purposive sampling so that their responses would be used to represent the general view regarding the adoption of e-governance in NEMA-Kenya. This is in line with Mugenda (2003)

assertions that, there are times when the target population is so small such that selecting a sample would be meaningless and that taking the whole population in such cases would be advisable.

To get the sample size of 200 out of 400 officers charged with the responsibility of overseeing that checks and controls are in place, the formula below was used; For this study, the sample was obtained by calculating the sample size from the target population by applying Cooper and Schindler, (2003).

$$n = \frac{N}{1 + N(e)^2}$$

Where: n= Sample size, N= Population size e= Level of Precision.

At 95% level of confidence and P=5

$$n = 378 / 1 + 400 (0.05)^2$$

$$n = 200$$

3.5 Research Instruments

The main research instrument in this study was the questionnaire. This instrument was specifically prepared for NEMA staff. The main purpose of the instrument was to seek the experience, knowledge and skills that the officers in these departments have concerning implementation of e-governance strategies.

The questionnaires further sought to find the opinions of the officers with regard to trust, resistance to change, digital divide, cost and privacy & security to assess their performance. The questionnaires' design was based on the understanding that the officers have the necessary training to handle the demands of e-governance implementation.

The questionnaire had three sections.

Section one sought to establish the profile of the officers in their respective departments.

Section two sought to determine the extent to which the objectives of the study influence the adoption of e-governance as far as implementation was concerned. The extent was rated using the following scores: Very high (5), High (4), Moderate (3), Low (2) and Very low (1).

Section three was made up of open ended questions that sought to give the officers freedom to express their personal views on factor affecting adoption of e-governance in their respective departments.

It is worth noting that these questionnaires which are both open ended and close ended helped the researcher to obtain the desired responses. The researcher therefore hoped to get comprehensive information regarding the adoption of e-governance in NEMA-Kenya.

3.6 Validity and Reliability of Research Instruments

Validity can be defined as the degree to which results obtained from the analysis of data actually represent the phenomena under study (Mugenda, 2003). The instrument of a questionnaire has been adopted in Kenya from the foreign sources and therefore its validity needs to be tested. Codican (1996) said that an instrument takes a valid measurement if the measurement does what it is intended to do in the study.

A pilot study will be conducted to check if the questionnaire was clear and well understood using officers in three departments: accounts, internal audit and EIA (environmental impact assessment) and will be articulated in chapter four of this study. Bell (1993) states that, the purpose of a pilot exercise is to get the defects out of the instrument so that the respondents do not experience difficulties in completing it and so that one can carry out a preliminary analysis to see whether the format of the question is in order for accurate data analysis.

Seamus and Hegarty (1982) states that the reliability of a research instrument has to be tested so as to find out if it will bring out the required information especially if it was designed in an area foreign from where the study is being conducted.

To test the reliability of the questionnaire, a pilot study was carried out using one officer in each of the departments earlier mentioned. The pilot study was aimed at achieving the expected reliability of the questionnaire. The three selected officers will be required to fill the questionnaires

so as to establish the reliability of the questionnaire. The three officers will then be omitted from the data collection process of the main study so as to uphold the required ethics of the research. The researcher will personally administer the questionnaires to the selected officers with a view of identifying areas that needed changing in the wording of the items in the questionnaire. The researcher will then collect the filled questionnaires so as carry out a reliability test.

3.7 Research Design

Objectives	Hypothesis	Independent Variables.	Indicators	Measurement	Measuring Scale	Type of Analysis	Tools of Analysis
1. Trust: Establish how confidence in the system affects the adoption of e-governance	To determine whether there is a significant relationship between trust in the system and adoption of e-governance	User confidence, and comfort in the tool or technology which they interact.	Number comfortable with level of technology	Instances	5 point Likert scale - Ordinal	Descriptive	SPSS
			Number confident that system will prevent fraud				
			Number who think checks are too many				
			Number who have experienced leakages of confidential information				
2. Resistance to change: Establish the extent hesitation of users in the adoption of e-governance.	To determine whether there is a significant relationship between	Hesitation of users in moving from paper to web based technology.	How quickly the users adapt in the case of rolling	No. of errors	Nominal	Descriptive	SPSS

	resistance to change and adoption of e-governance		out new software				
3. Digital divide: Identify what role access to information technology plays in the adoption of e-governance.	To determine whether there is a significant relationship between digital divide and adoption of e-governance	Ability to gain access to information technology.	How accessible are the tools of Information technology	Scale	Nominal	Descriptive	SPSS
4. System rights & Security: Establish the effect of protection of personal information on adoption of e-governance in public institutions.	To determine whether there is a significant relationship between system rights & security and adoption of e-governance	Lack of clear security standards and protocols can limit the development of projects that contain sensitive information.	How secure is information of a sensitive nature	Scale	Nominal	Descriptive	SPSS

3.8 Data Collection Procedures

The researcher will seek permission to carry out the study in the various departments Director General of NEMA-Kenya. This will be done through a formal letter and by calling with an aim of getting the officers in the respective departments to fill the questionnaires. Valid questionnaires will then be administered to the officers in the respective departments. The heads of the respective departments will be requested to coordinate the exercise of filling the questionnaires. The exercise will take approximately three weeks after which the researcher will personally pick them from the respondents in readiness for data analysis.

3.9 Data Analysis Techniques

The data will be analyzed using the quantitative and qualitative methods. According to Semakula (2000), quantitative data analysis entails numbers about a situation which are selected by choosing specific aspects of the situation under study.

The questionnaire administered to the officers in the selected departments will contain both quantitative and qualitative data. The quantitative data from sections one and two of the questionnaire will be analyzed by tabulation using simple descriptive statistical measures like frequency tables, means and percentages and then relevant implication of these values was noted. Higher levels of these measures would indicate a relatively great influence of the mentioned variable(s) on the adoption of e-governance in NEMA-Kenya.

According to Gay (1976), frequency tables, simple statistical measures like means and percentages are used when the researcher has an intention of communicating research findings to the stakeholders in an easy manner.

Section three responses will be analyzed qualitatively with an aim of gauging the influence that each of the five listed independent variables had on the performance score and reduction in errors in the assessment of the level of adoption of e-governance.

The general trend of the results and research findings of the various items in the study instrument would then provide the clues to the research questions that the study seeks answers. Fully analyzed data would form the basis for the research findings, conclusions and the relevant recommendations as will be articulated in chapter five of this study. A multivariate regression model was applied to

determine the relative importance of each of the four variables with respect to the Adoption of e-governance respective organization.

The regression model was as follows:

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

Where:

Y=Employee promotion

X1= Trust

X2= Resistance to change

X3= Digital divide

X4= Privacy & security

β_0 = constant (y intercept)

β = coefficient

ε = error term

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter provides an analysis of data collected from the field. The analysis was done by analyzing questionnaires collected from officers charged with the responsibility of overseeing that checks and controls are in place in the core areas of NEMA charged with the role of e-governance. A total of 200 questionnaires were distributed and only 180 were collected having been filled completely. This constituted a response rate of 90% which according to Mugenda Mugenda (2003) a response rate of more than 80% is sufficient for a study. Data collected from the field was sorted and later analyzed using statistical package for social sciences (SPSS) software. The results are presented in tables and figures to highlight the major findings. They are also presented sequentially according to the research questions of the study. Mean scores and standard deviations analysis and regression analysis was used to analyze the data collected. The raw data was coded, evaluated and tabulated to depict clearly the results on factors that affect adoption of e-governance in public institutions.

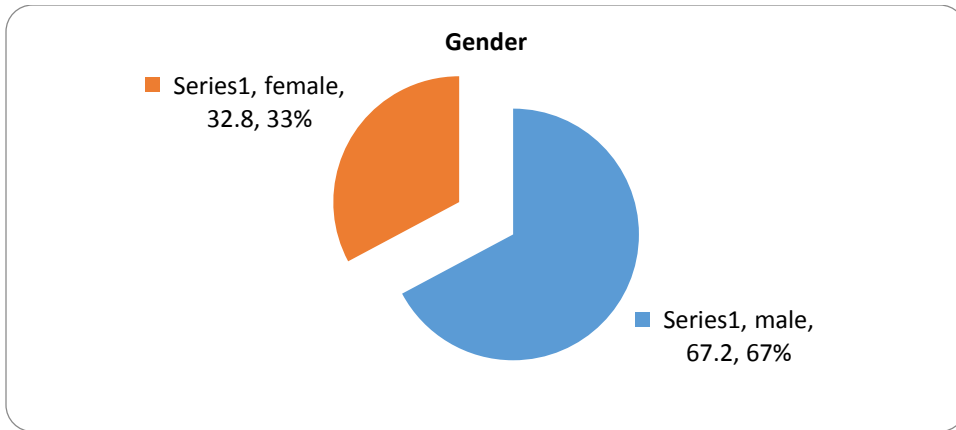
4.2 Demographic Characteristics

The study sought to establish the information on the respondents employed in the study with regards to the gender, level of education. This bio data points at the respondents' appropriateness in responding to the study questions required for the study to be complete.

4.2.1 Gender of the respondents.

Figure 1.3: Gender

The respondents were asked to indicate their gender, this was expected to guide the researcher on the conclusions regarding the degree of congruence of responses with the gender characteristics in employment in NEMA.



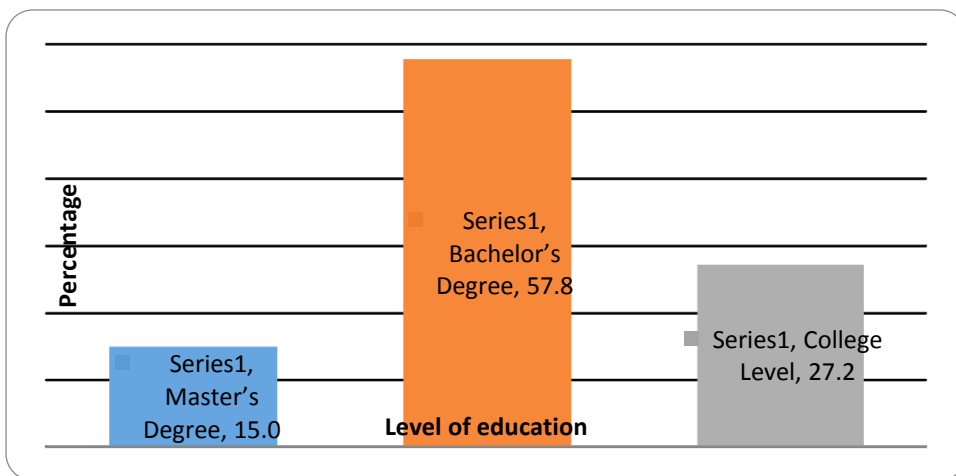
Source Researcher (2014)

The results as shown in the figure 4.1 show that majority of the respondent were male at 67% while female were 33%. The results from NEMA indicates that majority of the respondents were men compared to women.

4.2.2 Educational level

Figure 1.4: Educational level

The respondents were asked to indicate their level of education, this was expected to guide the researcher on the conclusions regarding the degree of congruence of responses with the respondent's education levels.



Source Researcher (2014)

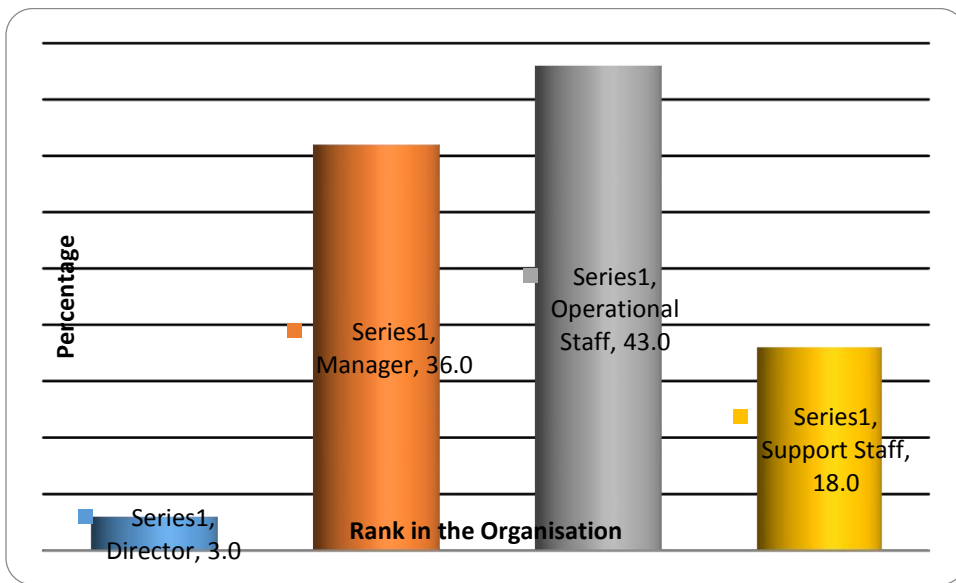
The figure above shows results of the level of education of the respondents. The results indicate that majority 57.8% of the respondents had attained their Bachelor's Degree; this was followed by

27.2% who had attained education up to College Level while 15% had attained their Master's Degree.

4.2.3 Rank in the Organization

Figure 1.5: Rank in the Organization

The respondents were then asked to indicate their rank, this was expected to guide the researcher on the conclusions regarding the degree of congruence of responses with officer's rank in NEMA.



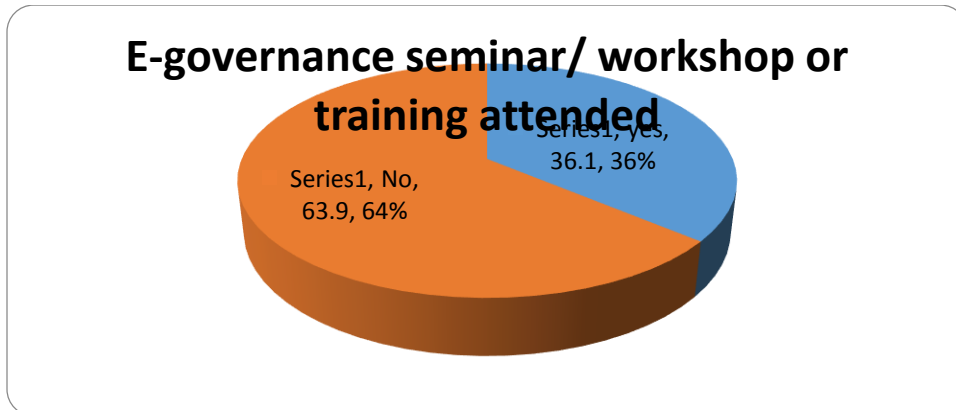
Source Researcher (2014)

The respondents were asked to indicate their rank in the organizations and the results above show that majority 43% of the respondents were operational staffs, this was followed by those who were managers 36%, and support staff were 18% while directors were 3%.

E-governance service seminar/ workshop or training attended

This measure sought to find out how many of the respondents thought that seminars & training workshops we being used to educate officers about e-governance.

Figure 1.6: E-governance service seminar/ workshop or training attended



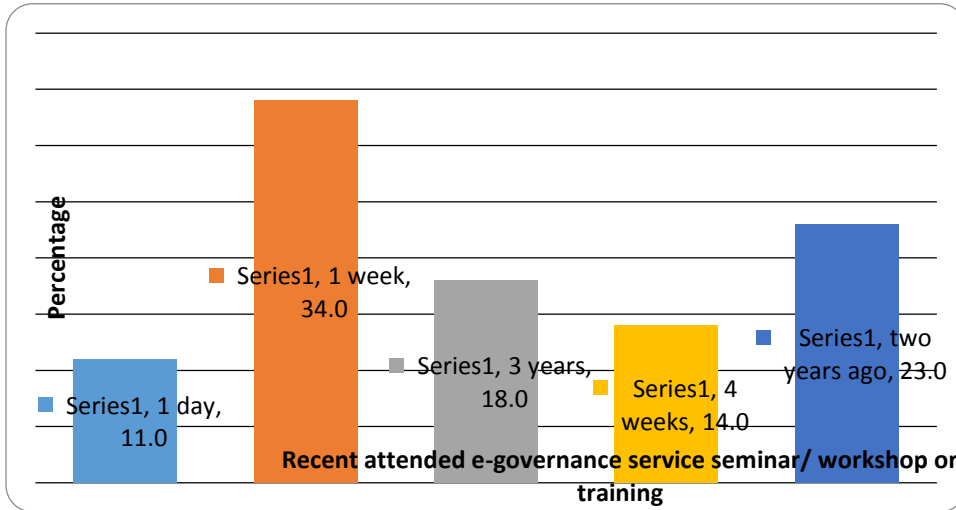
Source Researcher (2014)

The respondents were asked to indicate whether they had attended an E-governance service seminar/ workshop or training. The results in the figure above show that majority 64% had not attended while 36% of the respondents had attended an E-governance service seminar/ workshop or training.

4.2.4 Recent attended e-governance service seminar/ workshop or training

This measure sought to find out how many of the respondents recently attended seminars & training workshops about e-governance.

Figure 1.7: Recently attended e-governance service seminar



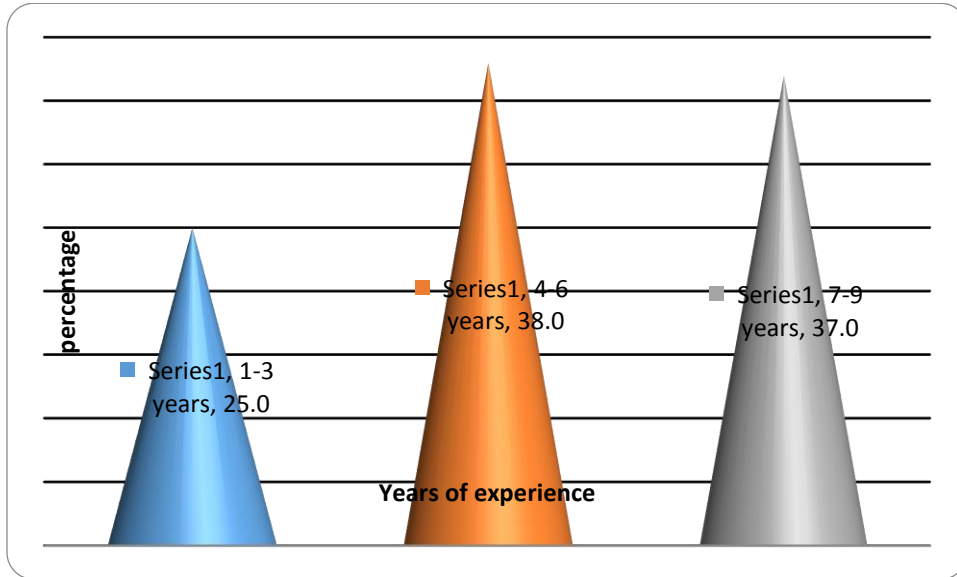
Source Researcher (2014)

The respondents were asked to indicate the recent training on e-governance attended and the results indicate that majority of the respondents indicated they had attended a week ago, 23% had attended two years ago, 18% had attended 3 years ago, 14% had attended 4 weeks ago while 11% had attended a day ago.

4.2.5 Years of experience

This measure sought to find out how many years of experience the respondents had worked.

Figure 1.8: Years of experience



Source Researcher (2014)

The respondents were asked to indicate the number of years they had worked in their current position. The results show that majority 38% of the respondents had worked for 4-6 years, followed by 37% who had worked for 7-9 years while 25% had worked for 1-3 years.

4.3 Factors affecting the adoption of e-governance

4.3.1 Trust in the current system within their department

The respondents were asked to rate the following statement on trust in the current system within their department. The results are shown in the table below.

Table 4.1: Trust in the current system

Trust in the current system within their department	N	Mean	Standard deviation
In our department we are comfortable with the level of technology we have at our disposal	180	4.2000	.88058

In our department we are confident that the system we use prevents fraud and manipulation.	180	4.1056	.68092
In our department the number of checks within the system we use are too many	180	3.7222	.77716
In our department the system keeps sensitive and confidential information safe	180	3.9944	.80846

Source Researcher (2014)

The results show that majority of the respondents agreed to a high extent on all the statements that were indicated. the statements were rated with different means the results is that in their department they were comfortable with the level of technology they have at their disposal m=4.2000, In their department they are confident that the system they use prevents fraud and manipulation m=4.1056, In their department the system keeps sensitive and confidential information safe m=3.9944 and in their department the number of checks within the system they use are too many m=3.7222. The findings indicates that the respondents had trust in the current system within their department.

4.3.2 Resistance to Change

The respondents were asked to rate the following statement on resistance to change within their department. The results are shown in the table below.

Table 4.2: Change from previous to current system

Change from previous to current system	N	Mean	Standard deviation
In our department there have been many system changes	180	3.8778	.77428
In the event of a system change in our department, the transition was implemented early, gradually and was modulated (done in stages)	180	3.9389	.6317
In the event of a system change in our department, implementation was instant and the change-over was immediate	180	3.1889	.9259

In the event of a system change in our department, the transition was accompanied with system admin help and documentation	180	4.1111	.98530
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Source; Researcher (2014)

The table above shows that the respondents indicated that they agreed to a high extent that In the event of a system change in our department, the transition was accompanied with system admin help and documentation $m=4.1111$, In the event of a system change in our department, the transition was implemented early, gradually and was modulated (done in stages) $m=3.9389$ and In our department there have been many system changes $m=3.8778$ the respondents agreed to a moderate extent that In the event of a system change in our department, implementation was instant and the change-over was immediate $m= 3.1889$.

4.3.3 Client Access to e-governance tools

The respondents were asked to rate the following statement on client access to the current system within their department. The results are shown in the table below.

Table 4.3: Client Access to e-governance tools

Client Access to e-governance tools	N	Mean	Standard deviation
In our department our clients have the financial ability to acquire and utilize e-governance tools like internet and mobile computing when they communicate issues affecting them	180	3.7444	.99227
In our department our clients lack awareness about the availability of e-governance tools like internet and mobile computing as a means of communicating issues affecting them	180	4.0667	.68177
In our department our clients lack the technical capability to access relevant information using e-governance tools	180	4.0000	.76953

like internet and mobile banking to communicate issues affecting them			
In our department our clients lack the proper technological support to harness solutions provided by e-governance tools at their disposal	180	3.2389	.80753

Source; Researcher (2014)

The results shows that majority of the respondents agreed to a high extent that In our department our clients lack awareness about the availability of e-governance tools like internet and mobile computing as a means of communicating issues affecting them $m=4.0667$, In our department our clients lack the technical capability to access relevant information using e-governance tools like internet and mobile banking to communicate issues affecting them $m=4.0000$ and In our department our clients have the financial ability to acquire and utilize e-governance tools like internet and mobile computing when they communicate issues affecting them $m=3.7444$. The respondents agreed to a moderate extent that in their department clients lacked the proper technological support to harness solutions provided by e-governance tools at their disposal $m=3.2389$.

4.3.4 System Rights & Security

The respondents were asked to rate the following statement on client access to the current system within their department. The results are shown in the table below.

Table 4.4: System Rights & Security

System Rights & Security	N	Mean	Standard deviation
In our department the current system has excessive levels of access (rights) which affects efficient discharge duty	180	4.3500	.5637
In our department the current system has adequate levels of access (rights) which enhance efficient discharge duty	180	3.7403	.4561

In our department the current system has no levels of access (rights) which affects accountability in efficiently discharging our duty	180	4.2944	.5763
In our department current system's security standards and protocols are clearly communicated and understood	180	3.8056	.5839

Source Researcher (2014)

The results in the table above shows that majority of the respondents indicated that they agreed to a high extent that in their department the current system had excessive levels of access (rights) which affects efficient discharge duty $m=4.3500$; that in their department the current system had no levels of access (rights) which affected accountability in efficiently discharging their duty $m=4.2944$; that in their department the current system's security standards and protocols were clearly communicated and understood $m=3.8056$ and in their department the current system had adequate levels of access (rights) which enhance efficient discharge duty $m=3.7403$.

Table 4.5: Adoption of e-governance

Adoption of e-governance	N	Mean	Standard deviation
Government officials and elected leaders have increasingly come to realize that public agencies must utilize ICT in order to enhance the procurement processes in the public sector.	180	3.8778	.77428
Public authorities are expected to provide excellent service to their constituents in an effective and transparent manner	180	3.311	.6317
In order to meet today's operating challenges, regional and local government are turning to ICT to enhance services by lowering cost and increasing productivity	180	3.1889	.9259
Public authorities are implementing a scalable communication infrastructure to promote economic development	180	2.644	.98530
Kenya is lagging severely in ICT adoption despite the ICT benefits enjoyed by other African countries	180	3.044	.98530

On the effects of ICT adoption on procurement of supplies in the public sector, the study revealed that the respondents strongly agreed that in order to meet today's operating challenges, regional and local governments are turning to ICT to enhance the services by lowering costs and increasing productivity. This was shown by a mean of 3.778; the respondents also agreed that public authorities are expected to provide excellent service to their constituents in an effective and transparent manner as indicated by a mean of 3.311. The study also revealed that African nations are lagging severely in ICT adoptions despite the benefits from ICT experienced by others as indicated by a mean of 3.044. the respondents agreed that government officials and elected leaders have increasingly come to realize that public agencies must utilize ICT in order to enhance the procurement processes in the public sector and that public authorities are implementing scalable communication infrastructures to promote economic development as indicated by a mean of 2.733 and 2.644 respectively.

4.4 Influence of the adoption of e-governance your department

4.4.1 Level of confidence and comfort while using the current system

Some of the respondents indicated that the comfort was adequate but not sufficient; others were mildly confident & satisfactory. Others indicated that it served the purpose it was supposed to and the current system is effectively modelled and well understood, others indicated that it works fine but can be improved.

4.4.2 Your experience during change-over from previous to current system

The results shows that the experience during change-over from previous to current system was not very smooth as it delayed reports; it was hectic, inconveniencing and stressful. Though some were happy with the system since it increased efficiency and the planning was well done and therefore the challenges encountered were anticipated. The experience is also good since it has reduced the manual tasks that were involved and therefore it reduces waste of time. The experience has been good since the system facilitates access to information, freedom of expression, greater equity, efficiency, productivity, growth and social inclusion.

4.4.3 Level of client's access to e-governance tools affect your service delivery

The respondents indicated the Level of client's access to e-governance tools affect your service delivery since it improves communication and interactions with clients. Both Web sites and e-mail

systems create new opportunities for interaction with officials that are convenient and quick, potentially enhancing responsiveness. By making available information and services that clients want and improving the speed and ease of interactions, e-government may be an antidote to the decrease in external efficacy that has paralleled the declines in trust.

4.4.4 Current system has adequate rights and security settings

The respondents indicated that the current system has adequate rights and security settings. Others indicated that security of infrastructure is still one of the most crucial and least understood issues associated with internet-based communication and applications others indicated that Security is an ongoing risk associates with most of IT projects and in term of e-government, the degree of risk is escalating as the use of public networks increases together with databases that hold citizens profiles and government information. While others indicated that the system has inadequate rights and security settings.

4.5 Inferential Statistics

4.5.1 Correlation analysis

Two predictor variables are said to be correlated if their coefficient of correlation is greater than 0.5. In such a situation one of the variables must be dropped from the analysis. As shown in table 4.6, none of the predictor variables had coefficient of correlation between themselves less than 0.5 hence all of them were included in the model. The matrix also indicated high correlation between the response and predictor variables, that is Trust, Resistance to change, Digital divide Privacy & security

Table 4.6: Pearson's Correlation

	Adoption of e-governance	Trust	Resistance to change	Digital divide	Privacy & security
Adoption of e-governance	1.000				
Trust	.536	1.000			
Resistance to change	.752	.618	1.000		
Digital divide	.667	.628	.747	1.000	
Privacy & security	.807	.611	.654	.580	1.000

Source Researcher (2014)

The diagram above also shows close linkage between the dependent variables and the independent variables with figures tending towards 1.000.

A multivariate regression model was applied to determine the relative importance of each of the four variables with respect to the Adoption of e-governance respective organization.

The regression model was as follows:

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

Where:

Y= Adoption of e-governance

X1= Trust

X2= Resistance to change

X3= Digital divide

X4= Privacy & security

β_0 = constant (y intercept)

β = coefficient

ε = error term

4.5.2 Regression Analysis

Analysis in table 4.7 below shows that the coefficient of determination (the percentage variation in the dependent variable being explained by the changes in the independent variables) R² equals 0.843, meaning Trust, Resistance to change, Digital divide & Privacy & Security are well explained leaving only 15.7 percent unexplained. The P- value of 0.000 (Less than 0.05) implies that the model of Adoption of e-governance is significant at the 5 percent significance

Table 4.7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.918(a)	.843	.805	.51038	.843	1.242	4	176	.000

Predictors: (Constant), Trust, Resistance to change, Digital divide, Privacy & security

Dependent Variable: Adoption of e-governance

Source Researcher (2014)

Table 4.8: Coefficients of regression equation

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
(Constant)		.260	.460		0.565	.231
Trust	X ₁	.512	.048	.254	2.729	.001
Resistance to change	X ₂	.170	.045	-.300	3.778	.000
Digital divide	X ₃	.051	.023	.113	2.217	.002
Privacy & security	X ₄	.048	.022	.093	2.182	.000

Dependent Variable: Adoption of e-governance

Source Researcher (2014)

The established multiple linear regression equation becomes:

$$Y = 0.260 + 0.512X_1 + 0.170X_2 + 0.051X_3 + 0.048X_4$$

Where

Constant = 0.260, shows that if Trust, Resistance to change, Digital divide Privacy & security all rated as zero, Adoption of e-governance would be 0.260

$X_1 = 0.512$, shows that one unit change in Trust results in 0.512 units increase in Adoption of e-governance

$X_2 = 0.170$, shows that one unit change in Resistance to change results in 0.170 units increase in Adoption of e-governance

$X_3 = 0.051$, shows that one unit change in Digital divide results in 0.051 units increase in Adoption of e-governance

$X_4 = 0.048$, shows that one unit change in Privacy & security results in 0.048 units increase in Adoption of e-governance

4.6 Test of hypothesis

The study findings in table 4.8 show the probability (P) values for the hypotheses in the study.

Table 4.9 Hypothesis testing

Hypothesis	P-Values	Conclusion
<p>H₀: There is no significant relationship between trust in the system and adoption of e-governance</p> <p>H₁: There is a significant relationship between trust in the system and adoption of e-governance</p>	P=0.001<=0.05	Accept H₁. Reject H₀
<p>H₀: There is no significant relationship between resistance to change and adoption of e-governance</p> <p>H₁: There is a significant relationship between resistance to change and adoption of e-governance</p>	P=0.000<=0.05	Accept H₁. Reject H₀
<p>H₀: There is no significant relationship between digital divide and adoption of e-governance</p> <p>H₁: There is a significant relationship between digital divide and adoption of e-governance</p>	P=0.002<=0.05	Accept H₁. Reject H₀
<p>H₀: There is no significant relationship between system rights & security and adoption of e-governance</p> <p>H₁: There is a significant relationship between system rights & security and adoption of e-governance</p>	P=0.000<=0.05	Accept H₁. Reject H₀

Source Researcher (2014)

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of findings as discussed in chapter four and interpretations of the data analysis, conclusions and recommendations based on the findings.

5.2 Summary of findings

The respondents were comfortable with the level of technology at their disposal. They were confident that the system they use prevents fraud and manipulation. The system keeps sensitive and confidential information safe and the numbers of checks within the system they use were too many. This is an indication that the users had confidence and were comfortable with the tool or technology that they were interacting with. Trust is also the product of psychological dispositions that are beyond the short-term control of any government. These psychological dispositions deal with a life-long socialized tendency to believe in social entities and to believe that better results will occur if one trusts others. Although government cannot readily manipulate these beliefs, it can take advantage of opportunities afforded by different cultural segments in the population, and aim at those segments that are more inclined to trust.

It was noted that in the event of a system change in the department, the transition was accompanied with system admin help and documentation. Also in the event of a system change in the department, the transition was implemented early, gradually and was modulated (done in stages) and in the department there have been many system changes. Implementation of system change was instant and the change-over was immediate. Resistance to change phenomenon can explain much of the hesitation that occurs on the part of constituents in moving from paper to a Web-based system for interacting with public institutions. Citizens, employees and businesses can all have their biases with respect to how transactions should be processed. However, government entities and public policy administrators cannot ignore the changes that occur as a result of the implementation of information and communication technology (ICT).

The clients lack awareness about the availability of e-governance tools like internet and mobile computing as a means of communicating issues affecting them. The clients also lack the technical

capability to access relevant information using e-governance tools like internet and mobile banking to communicate issues affecting them and clients have the financial ability to acquire and utilize e-governance tools like internet and mobile computing when they communicate issues affecting them. The clients lack the proper technological support to harness solutions provided by e-governance tools at their disposal.

The current system has excessive levels of access (rights) which affects efficient discharge duty, it has no levels of access (rights) which affects accountability in efficiently discharging our duty. The current system's security standards and protocols are clearly communicated and understood and the system has adequate levels of access (rights) which enhance efficient discharge duty.

5.3 Conclusions

The role of trust, resistance to change, client access and system rights and security is fundamental to the adoption process. Government officers who provide services to the public directly or indirectly must be aware of the role of the proposed variables play in the online environment, and must take in account the prospective findings of this research in their technical and organizational plans.

The adoption of e-Government processes is a critical component in the creation of an efficient and responsive Public Management. With widespread adoption of electronic interactions throughout national and county government agencies, a process of reengineering can transform the current practices to more robust services that provide much more value to citizens. Since Kenya is developing it should turn to e-government for economic diversification and service delivery. The benefits of e-government go beyond cost-quality ration, if adopted well it can transform the government. E-Government is a channel through which the ruling class interacts with its citizens (e-Citizens and e-Services), improves public service delivery and processes (e-Administration), and builds external interactions (e-Society). This creates a win-win relationship where the work of the government is made easier by providing a public service at the disposal of a citizen.

One of the most significant challenges for implementing e-government initiatives is computer security. Related to computer security, privacy also presents a challenge to the implementation and acceptance of e-governance initiatives. The challenges identified in this study include system

having excessive levels of access (rights) which affects efficient discharge duty and the current system has no levels of access (rights) which affects accountability in efficiently discharging our duty.

5.4 Recommendation

The Government should play a leading role in developing the ICT infrastructure as this is a requirement for successful implementation of e-governance processes. This can further be solidified by making sure that the nation's internet backbone and the International Gateway is managed responsibly. Thirdly, the government should encourage developing of fibre-optic network for efficient broadband communication, reducing the rates for internet access through Internet Service Providers. The government should create an enabling environment for the adoption of ICT in everyday lives of its citizens as this is the start-point of e-government.

Much of the resistance faced by officers can be avoided if effective change management is applied on the project from the very beginning. While resistance is the normal human reaction in times of change, good change management can mitigate much of this resistance. Change management is not just a tool for managing resistance when it occurs, it is most effective as a tool for activating and engaging employees during change. Capturing and leveraging the passion and positive emotion surrounding a change can many times prevent resistance from occurring - this is the power of utilizing structured change management from the initiation of a project.

Low literacy rate is a serious impediment for the adoption of E-Government in Kenya as it hinders the accessibility of e-governance services. For citizens to fully enjoy the benefits of E-Government, they should not only know how to read and write but also possess basic ICT literacy. Clients should be trained.

There is need to implement an Information Security Management System (ISMS) to provide e-Government services with different levels of confidentiality, integrity and availability required for different users regardless of their literacy in electronic information technology. A lot of work has been done but more is needed to successful adoption of e-governance.

5.5 Suggestion for Further Studies

Further studies need to focus on the factors that affect citizen adoption of e-government systems.

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APPENDICES

Appendix 1: Introductory Letter to the Department Heads

Dear Respondent,

I am a post-graduate student at the University of Nairobi pursuing a Masters Degree in Information Systems.

My study is based on the Factors affecting the adoption of e-governance in public institutions in Kenya. E-governance in this case is defined as the use of information technologies (such as Wide Area Networks, the internet and mobile computing) that have the ability to transform relations with citizens, businesses and other arms of government.

I kindly request you to facilitate the filling of these questionnaires by the staff in your department.

The information provided will be treated with strict confidentiality and it will only be used for the intended purpose of this study. As such, the respondents should not write their names or any other personal identification on the questionnaire.

Your cooperation in this regard will be highly appreciated.

Thanking you in advance.

Yours sincerely,

James K. Mugai

Appendix 2: Questionnaire for Departmental Staff

The information sought in this questionnaire is meant for research only. The sources will be kept confidential. Do not write your name anywhere on this questionnaire.

The questionnaire has three sections. Please respond to all sections appropriately.

SECTION 1: BACKGROUND INFORMATION

Please tick appropriately using (✓) in the boxes provided:

1. What is your gender? Male Female

2. What is your highest level of education?

Master's Degree Bachelor's Degree College Level

3. Have you attended any e-governance service seminar/ workshop or training course on e-governance?

Yes

No

4. If your answer to Q3 is yes, how long ago was your most recent training?

5. How many years of experience do you have in your current position?

(i) 1-3 years

(ii) 4-6 years

(iii) 7-9 years

(iv) Over 10 years

SECTION TWO:

Indicate how you rate the effect of the listed items on adoption of e-governance in your department.

Rating	Very High	High	Moderate	Low	Very Low	None
Score	5	4	3	2	1	0

Indicate by circling the appropriate answer e.g. (3) for moderate

	Item						
A.	Trust in the current system within your department						
1.	In our department we are comfortable with the level of technology we have at our disposal.	5	4	3	2	1	0
2.	In our department we are confident that the system we use prevents fraud and manipulation.	5	4	3	2	1	0
3.	In our department the number of checks within the system we use are too many	5	4	3	2	1	0
4.	In our department the system keeps sensitive and confidential information safe	5	4	3	2	1	0
5.	No log-in problem while browsing the website	5	4	3	2	1	0
6.	Website is regularly maintained and updated	5	4	3	2	1	0
7.	Officials conducting procurement need to be able to demonstrate that their decisions are fair and equitable, and made in accordance with the law, agency rules and guidelines, and conditions of contract	5	4	3	2	1	0
B.	Change from previous to current system						

1.	In our department there have been many system changes	5	4	3	2	1	0
2.	In the event of a system change in our department, the transition was implemented early, gradually and was modulated (done in stages)	5	4	3	2	1	0
3.	In the event of a system change in our department, implementation was instant and the change-over was immediate	5	4	3	2	1	0
4.	In the event of a system change in our department, the transition was accompanied with system admin help and documentation	5	4	3	2	1	0
5.	E-services have helped to save time from bureaucratic proceedings	5	4	3	2	1	0
6.	E-services have helped to reduce the cost of getting services	5	4	3	2	1	0
C.	Client Access to e-governance tools						
1.	In our department our clients have the financial ability to acquire and utilize e-governance tools like internet and mobile computing when they communicate issues affecting them	5	4	3	2	1	0
2.	In our department our clients lack awareness about the availability of e-governance tools like internet and mobile computing as a means of communicating issues affecting them	5	4	3	2	1	0
3.	In our department our clients lack the technical capability to access relevant information using e-governance tools like internet and mobile banking to communicate issues affecting them	5	4	3	2	1	0
4.	In our department our clients lack proper the proper technological support to harness solutions provided by e-governance tools at their disposal	5	4	3	2	1	0
5.	E-services have helped to ensure procedural fairness in the system	5	4	3	2	1	0

6.	E-services have helped to reduce personal favor while seeking services.	5	4	3	2	1	0
D.	System Rights & Security						
1.	In our department the current system has excessive levels of access (rights) which affects efficient discharge duty	5	4	3	2	1	0
2.	In our department the current system has adequate levels of access (rights) which enhance efficient discharge duty	5	4	3	2	1	0
3.	In our department the current system has no levels of access (rights) which affects accountability in efficiently discharging our duty	5	4	3	2	1	0
4.	In our department current system's security standards and protocols are clearly communicated and understood	5	4	3	2	1	0
5.	Professional and job-related responsibilities are placed before personal gain and individual interest	5	4	3	2	1	0
6.	Value for money is the core principle underpinning public institutions, incorporating ethical behavior and the ethical use of e-governance resources.	5	4	3	2	1	0

ADOPTION OF E-GOVERNANCE

I. Does training enhance effectiveness in meeting goals and producing the types of services that the public wants and needs?

Yes

No

II. Does accountability in e-governance provide motivation to individuals as a result confidence in the system?

Yes No

III. Do officers use discretion while processing confidential information and further use it for intended purposes?

Yes No

IV. Does expectation in the outcome of e-governance system resources provided influence the adoption of e-governance?

Yes No

V. What is your level of agreement with the following statements that relate to the effect of ICT adoption on procurement of supplies in the public sector? Use a scale of 1-5 where 1= strongly agree and 5= strongly disagree

Factors Under Consideration	1	2	3	4	5
Government officials and elected leaders have increasingly come to realize that public agencies must utilize ICT in order to enhance the procurement processes in the public sector.					
Public authorities are expected to provide excellent service to their constituents in an effective and transparent manner					
In order to meet today's operating challenges, regional and local government are turning to ICT to enhance services by lowering cost and increasing productivity					
Public authorities are implementing a scalable communication infrastructure to promote economic development					
Kenya is lagging severely in ICT adoption despite the ICT benefits enjoyed by other African countries					

SECTION THREE:

Kindly comment briefly on how the following items may influence the adoption of e-governance your department.

1. Level of **confidence** and **comfort** while using the current system.
2. Your experience during **change-over** from previous to current system.
3. Does the level of your client's **access** to e-governance tools affect your service delivery?
4. Does the current system have adequate **rights** and **security** adequate?

Thanking you.

Appendix 3: Research Schedule

Task	Week 1-2	Week 3-4	Week 3-4	Week 4-5	Week 5	Week 6-7	Week 8	Week 9	Week 10	Week 11-12	Week 13	Week 14
Introduction & Background												
Literature Review												
Methodology Refinement												
Conceptual Framework Development												
Data Collection												
Data Analysis												
Data Presentation												

