UNIVERSITY OF NAIROBI

SCHOOL OF COMPUTING AND INFORMATICS

An Assessment of the Implementation of the Kenya eCitizen ICT Project

BY

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Submitted in partial fulfillment of the requirements for the Degree of Master of Science in Information Technology Management of the University of Nairobi

DECLARATION

I declare that this project report is my original work except where due references are cited. To the best of my knowledge, this it has not been submitted for any other award in any University.

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This project report has been submitted in partial fulfillment of the requirement of the Master of Science Degree in Information Technology Management of the University of Nairobi with my approval as the University supervisor.

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ABSTRACT

Information Communication Technology (ICT) can make a valuable contribution towards the operations of and the services offered to citizens by a government. While the benefits of e-Government initiatives and projects in Kenya cannot be disputed, there are several concerns about their successful implementation. According to survey and poll results of e-Government initiatives in developing countries, 50% have partially failed, 35% have totally failed and 15% have been successful (Nawi et al. 2012).

The aim of this research was to assess the implementation of the Kenya e-Citizen project hence propose a model that can be generalized to other government initiatives in Kenya. This research was based on a case study, which entailed collecting data in Nairobi through interviews and questionnaires from four key ministries and the general users/citizens. The questionnaires and interview guides were created based on the six dimensions of the updated DeLone and McLean of Information Systems Success model. An integrated model for assessing successful implementation of ICT projects was developed. The proposed model consists of all the dimensions found in the updated DeLone and McLean model, and an additional dimension; *stakeholder engagement,* which the study felt needed to be added. The study concludes by emphasizing on the need of stakeholder engagement during the life of any ICT project.

The study finally recommends the Kenyan government to develop a strategy that would oversee the issue of *awareness*. Other strategies that the study recommends should be developed are *communication*, *training* and *change management* strategies.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

AG:	Attorney General
CISCO:	Computer Information System Company
DEPT:	Department
DVPs:	Digital Village Projects
ETP:	Economic Transformation Programme
IBSG:	Internet Business Solutions Group
ICT:	Information Communication Technology
ICTA:	Information Communication Technology Authority
ICT4D:	Information Communication Technology for Development
ISMF:	Institutional and Sector Modernization Facility
IT:	Information Technology
ITES:	IT Enabled Services
NACOSTI:	National Commission for Science, Technology and Innovation
NTSA:	National Transport & Safety Authority
SMS:	Short Message Service
SOPs:	Standard Operating Procedures

DEFINITION OF TERMS

Conceptual Framework – a set of theories widely accepted enough to serve as the guiding principles of research within a particular discipline.

e-Government – the use of information and communication technology (ICT) to enable efficient, cost-effective, and participatory government to facilitate more convenient government services, allow greater public access to information, and make government more accountable to citizens.

ICT's - unified communications and the integration of telecommunications, computers, middleware as well as necessary software, storage and audio-visual systems, which enable users to create, access, store, transmit and manipulate information.

Strategy - long-term plan designed to achieve a particular goal and/or objective.

CHAPTER 1 – INTRODUCTION

1.1 Background

Vision 2030, the national long-term development blue-print to create a globally competitive and prosperous nation, aims to transform Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens (http://www.vision2030.go.ke/). Taking into consideration Vision 2030, the Kenya National ICT Master Plan envisages the country as an ICT hub and a globally competitive digital economy (ICT Master Plan, 2014). The Master Plan has three pillars. The first pillar is e-Government services, which aims at ensuring provision of e-Government information and services as key to improving productivity, efficiency, effectiveness and governance in all key sectors. The second pillar is ICT as a Driver of Industry, which aims at transforming key Vision 2030 economic sectors to significantly enhance productivity, global competitiveness and growth. The third pillar is Developing ICT Businesses that can produce and/or provide exportable quality products and services that are comparable to the best in the world.

Arising out of the ICT Master Plan, flagship projects that will be implemented over a five-year period have been identified. The main ones are: enabling legal and regulatory framework; persons data hub and associated systems; assets data hub and associated systems; national spatial data infrastructure and associated systems; affordable and quality broadband infrastructure to underserved areas; five Centers of Excellence in ICT education and training; 1-2 year intensive structured training and attachment program producing 500 high-end ICT graduates per year; school network; health network; Science &Technology park and an ITES center in Konza Technocity connected to other innovation hubs; national electronic single window system; national payment gateway; and national agriculture commodity exchange.

Prior to the above projects, the Government of Kenya has implemented electronic systems in various State Departments and other state-owned institutions, including national tax systems, immigration information system, legal information system, the integrated financial management system and education system. Most of these systems are

to be found in the National Treasury, Kenya Revenue Authority, State Departments and Immigration Office. These systems provide partial electronic services to citizens and businesses through government portals.

These ambitious multi-million dollar ICT supported initiatives aim to improve government service delivery to her citizenry. The services provided by the projects include e-Governance, e-Learning, e-Commerce among many. Even though these initiatives are well intended, the projects have been implemented to various levels of success. Barriers to the proper implementation of ICT projects in developing countries, can affect the ability to manipulate and use information effectively (Andrade et al 2009). This can lead to unsuccessful investments in ICT. Therefore it is important to develop viable projects to avoid project failures.

The e-Citizen is a portal for citizens to access information and services provided by the Kenyan government (https://www.ecitizen.go.ke/). The services offered include business name search and registration, notice of marriage, registration of marriage, driving licenses, land searches and clearances, passport and visa applications. The system allows citizens to sign up, apply for government services and conveniently pay using mobile money, credit/debit cards and online banking from local banks. Users receive email and SMS notification every time their application has progressed.

1.2 Problem Statement

A good number of government ICT projects have not been successfully implemented thereby expected benefits not being fully realized from such projects. There has been a high failure rate of these projects despite a lot of funds and resources being channeled into them by governments and other donors such as World Bank. A study by Macapagal (2010) argues that a high failure rate in ICT projects reported is due to poor project design and management. The paper suggests that government leaders need to understand the entire process of managing projects and have knowledge on the tools available in order to enhance the success of these projects. 31% of ICT projects are not delivered within the stipulated budget and another 31% are not delivered on time (Nawi et al. 2012). The aim of this research was to assess the implementation of a government ICT

project, in particular the e-Citizen gateway to all government services. The study investigated the project from its initiation to implementation, to identify the main factors being experienced that hinder successful implementation of government ICT projects.

1.3 Research Objectives

The research objectives of this study included:

1. To investigate the assessment frameworks used in assessing ICT projects in developing countries.
2. To establish the extent to which e-Citizen Kenya has contributed towards the delivery of various government services to citizens.
3. To propose a framework that can be used to assess implementation of e-Government projects.

1.4 Research Questions

The research questions for this project included:

1. What frameworks have been used to assess ICT projects in developing countries?
2. What causes failure of ICT projects in developing countries?
3. What is the experience of individuals and businesses using services offered by e-Citizen Kenya?
4. How has e-Citizen Kenya contributed to government service delivery?
5. What strategies must be developed to enhance successful implementation of e-Government initiatives in Kenya?
6. How can e-Government projects contribute to the socio-economic development of a country?

1.5 Scope

The scope of the project was initially limited to all services offered through thee-Citizen portal at the Nairobi Center. However, as the research progressed, there was need to include Huduma Centre in the study. Four ministries participated in the study: Ministry of Land, Housing & Urban Development; Attorney General & Department of Justice;

Department of Immigration Services and National Transport & Safety Authority. The citizens (general users) were also part of the study.

1.6 Research Outcomes and their Significance to Key Audiences

This research would enable the government and stakeholders to realize benefits and achieve various goals. Given that e-Government initiatives are beginning to take shape in developing countries particularly Kenya, there was need for coming up with a suitable model that can be used to assess implementation of government projects.

The outcome of this research was a model that can be used to assess the implementation of e-Government ICT projects thereby ensure their success. This will enable;

1. Citizens/users to be able to access e-Government services with much ease, as speed will be enhanced and errors reduced.
2. The various government sectors to improve on their service delivery thereby reach their targets.
3. Government policy makers to make more informed decisions.

1.7 Hypotheses of the Research

The hypotheses in this research were as stated hereunder:

H1: Stakeholder engagement led to successful implementation of e-Citizen project

H2: e-Citizen has had positive impact in delivery of e-Government services

CHAPTER 2 – LITERATURE REVIEW

This chapter entails various research studies on ICT project implementation. The chapter focuses on theories and arguments that are meant to support this research. The issues range from implementation of ICT projects, ICT project implementation assessment models, tools and methods used in assessment of ICT projects, assessment of ICT projects in developing countries, assessment of ICT projects in Kenya and issues of ICT project implementation. Finally, this chapter forms a basis for conceptual framework that is used in this research study.

2.1 Implementation of ICT Projects

Numerous ICT projects have been undertaken all over the world most of which have been implemented successfully. Comparing developing and developed countries, (Reijswoud, 2009) projects that have been designed and implemented, and have the potential to bridge the digital gap, are those that were undertaken in developed countries as opposed to developing countries. Weerakkody et al. (2011) empirically explored the complexities of e-Government implementation and diffusion challenges in a developing country that is not in an advanced state of e-Government development and showed that, irrespective of strong financial support and resources, governments must be prepared to align national ICT strategies with various local level e-Government projects, create legislation, implementation guidelines and standards in order to achieve e-Government success. Atsu et al. (2010) argues that not much research has been done in the area of implementation of ICT projects in developing countries; this is because the area is a new phenomenon hence not been well researched upon. They go ahead to show how prioritization of factors that contribute to successful implementation of ICT projects in developed countries differs from that of developing countries.

a) ICT projects as a Contributing Factor to Socio-economic Growth

Hameed (2007) argues that ICT plays an important role in a country's socio-economic development and poverty eradication. The argument is justified through a survey that was carried out on a number of firms in 56 developing countries, which revealed that firms that used ICT grew faster, did more investments and thereby made more profits compared

to firms that did not use ICT. Langmia (2005) discusses how poverty and diseases in Africa have an effect on the quality of social, cultural and political lives of individuals, which has resulted to slow development and growth over the years. The paper further says that the introduction of information and communication technologies has contributed positively towards development. Nawi et al. (2012) shows how ICT acted as an enabler towards the growth of the economy of Malaysia. This was through Economic Transformation Programme (ETP) which is an initiative meant to increase Malaysia's income by 2020. However challenges are still being experienced in terms of success and sustainability of ICT projects (Nawi et al., 2012). It is possible to improve efficiency and effectiveness of internal administration within governments through use of information communication technologies (Gichoya, 2005).

b) Success and Failure of ICT Projects

Various authors have identified the gaps between the outcomes in the implementation of various technology initiatives. Atsu et al. (2010) explored the contextual factors that influence success of ICT projects in developing nations by studying the case of a telecommunications company in Ghana and found that those factors applicable in developed nations were relevant in the developing nation environment, though with different weighting of importance. They propose a framework that can serve as a guideline in ICT implementations in developing countries. A study by Nawi et al. (2012) argues about how government ICT projects have not been delivered on time and also the expected benefits not being perceived from these projects. Their study revealed that 31% of ICT projects were not being delivered within the stipulated budget, and another 31% were not being delivered on time. According to Reijswoud (2009), ICT projects are likely to fail due to a number of factors: inappropriate software, inappropriate hardware, inappropriate design and inappropriate implementation approaches. However, a lot of emphasis was put on the issue around local conditions in which a project/system is to operate in. Therefore, Reijswoud (2009) reckon that, during design and development of any project, there is need to consider the conditions that the project is to operate in. This issue has been brought out where they discuss about appropriate technology being suitable for the environmental, cultural and economic conditions in which a

project/system is intended to be used. Another important factor that has been discussed by various researchers is acquisition of local support in implementation of ICT projects. Reijswoud (2009) put emphasis on this point by further saying that there will not be any sustainable development without local support of the project and also, if the project does not consider the local needs and demands.

Other research studies show different opinions as to what is considered key for the success of ICT projects. According to Rozendal (2003), the success of any project lies with the local ownership, i.e. the entire process of project development (from formulation phase to operation phase) should be 100% locally owned. This is because local ownership is believed to have an impact on a project's decision-making process. Most of the literature on recent developments in ICT in public sector focuses on the underlying perspectives of approaches to e-service (Hassan et al., 2011).

Ashraf et al. (2008) have considered the rush to implement ambitious ICT projects at community level with the main focus of the interventions being the implementation of the project, rather than understanding their impacts at the recipient level thus leading to many failures of ICT projects. They have proposed an extended framework to investigate ICT impact on development at village level that includes socio-economic aspects of ICT impact, such as mobility restrictions, attitudes towards women and religious influences.
Some studies are concerned with the theory while others focus on application of e-service. There are contextual issues and factors that influence e-service. The key underlying theme is that e-service in the public sector requires closer working relationships between government and all stakeholders. In order to understand e-service better, the authors have articulated the concept, nature, boundaries, components, and elements of e-service.

However, when it comes to e-Government projects, Chang and Kannan (2002) believe that for any e-Government initiative to be implemented successfully, there is need for the issue of e-readiness to be addressed.

c) Project Management as a Contributing Factor to ICT Project Implementation

Project management is an area that has been featured in various research studies as being one that plays a very important role in the undertaking of projects thereby contributing towards the successful implementation of these projects. ICT projects are no exception and therefore Carnicero and Rojas (2010) define the success of ICT projects through project management which in their own words refer to it as "project management triangle". They proceed to say that the project management triangle corresponds to the constraints that have an effect on the execution and delivery of projects; project scope, time (project life) and the cost of the project.

A good number of projects that focus on the effective use of ICT4D have emerged over the last 3 decades (Macapagal, 2010). Most of these projects have failed due to poor project design and management, which in most cases is usually as a result of not understanding the entire process of managing projects and also use of the wrong tools.

All projects are not the same however, there are a number of things that need to be managed regardless of the type of project. ISMF (Institutional and Sector Modernization Facility) has broken down the project management process in to 44 different processes with each one of them being based on a particular knowledge area. The knowledge areas as indicated by ISMF are as follows:

1. Integration management processes
2. Scope management processes
3. Time management processes
4. Cost management processes
5. Quality management processes
6. Human resource management processes
7. Communication management processes
8. Procurement management processes and
9. Risk management processes

ISMF proceeds to put emphasis on the five project management phases that a project

must undergo regardless:

1. Project initiation
2. Project planning
3. Project execution
4. Project monitoring and control
5. Project closure

2.2 ICT Project Implementation Assessment Models

Assessment of ICT projects is conducted either as an ex-ante (before implementation) or ex-post (after implementation) procedure. Otieno and Omwenga (2014) put emphasis on the need to develop frameworks that are suitable in the context of developing countries. Various researchers have proposed different frameworks for the assessment of e-Government projects. Esteves and Joseph (2008) present an ex-post three-dimensional framework for the assessment of e-Government initiatives, the dimensions being e-Government maturity level, stakeholders, and assessment levels. Parkinson and Ramirez (2007) describe the sustainable livelihoods framework as a useful tool in assessing the contribution of ICTs to development projects and argue that applying the sustainable livelihood frameworks can help to broaden the project scope and prove more analytically rigorous than other available methods. In a handbook, (Batchelor, 2007) has reviewed the experiences in supporting ICT pilot projects in developing countries and proposed a framework for assessing the effectiveness of these pilot projects that focuses on monitoring and evaluation (M&E) components of ICT pilot projects. Ashraf et al. (2007) have highlighted some important perspectives on research into ICT and development by providing an understanding of the intentions behind the adoption and implementation of ICT interventions in developing countries. They have proposed a framework which acknowledges the perspectives of the funding bodies, the organizations responsible for undertaking the intervention, and the to-be-affected communities. Heeks (2010) draws on the models of enterprise value chains, empowerment and Sen's capability theory to demonstrate ICTs' contribution to conceptions of development as economic growth, as sustainable livelihoods, and as freedom.

In recent years, there has been extensive investment in e-government throughout the developing world. Still, little is known about the impact of those investments, partly due to a lack of assessment guidance. This paper reports development of an assessment methodology that could be used in developing countries to justify investments in e-government, as well as to establish a performance benchmark for future projects. This framework identifies key stakeholders, dimensions on which the impact needs to be measured, and a methodology of measurement. Client value is measured primarily in two dimensions: 1) cost to the client of accessing services, and 2) perception by the client of quality of service and governance. In a limited way, the financial cost-benefit impact to the agency implementing the project is also studied. The paper takes India as its example location for application of the framework, presenting assessment results from eight e-government projects which estimate the difference between client ratings of computerized and (earlier) manual systems. Clients indicated an overwhelming preference for computerized service delivery, with reports of fewer journeys, less waiting time, and some reduction in corruption (marginal in places). The results provided a tentative affirmation of the improvements that may be possible through the use of ICTs in delivering government services in developing countries. Overall impact showed wide variation across projects, highlighting the need to pay greater attention to process reform in the design of e-government projects. Measurement of direct monetary benefits to the clients provides a basis for determining the service fees that could be charged. An assessment of incremental costs of processing a transaction can help evaluate the feasibility of a public-private partnership model. The Government of India has adopted the framework used in this study to assess the impact of all mature projects implemented at the national, state, and local levels. Bhatnagar and Singh (2010) report on an assessment methodology that could be used in developing countries to justify investments in e-Government, establish a performance benchmark for ICT projects, and assess the impact of mature projects. This framework has been successfully adopted by the Government of India and used to assess the impact of all mature projects implemented at the national, state, and local levels.

2.2.1 Diffusion of Innovations Theory

ICT has been evolving at a very high rate since the early 90's (Marez et al., 2011). Citing an earlier paper by Rogers (2003), Peansupap and Walker (2006) define diffusion of innovations theory as "the process in which a new idea, concept or technology has been introduced throughout a social system over a time period". This theory comprises of four main elements that determine the diffusion of new and innovative ideas namely; the innovation which is the new idea and in turn has characteristics that determine its rate of adoption, the communication channels which are the various channels that are used to diffuse the innovation for adoption, the time between decision making and adoption of the new innovation and finally the social system which is made up of individuals looking to achieve a mutual goal. The theory focuses on 5 groups of people i.e. the innovators, the early adopters, the early majority, the late majority and the laggards (Marez et al., 2011). Peansupap and Walker (2006) say that not unless people adopt and embrace information communication technology, construction companies will not be able to gain from these technologies. The two go further to give a definition of 'ICT diffusion' as "the process by which an ICT application is adopted and implemented by an organization until its expected users accept and transfer knowledge of how to use these ICT applications throughout the organization." A study conducted by Jeffres and Atkin (1996) regarding fixed line broadband Internet, is supported by diffusion theory as the theory is able to generate profiles of individuals who tend to adopt the innovation relatively early.

2.2.2 DeLone and McLean of Information Systems Success

DeLone and McLean (2003) put emphasis on the importance of measuring the success of information systems as this will contribute towards our understanding of what value IS management actions and IS investments bring. The theory is made up of six dimensions of success: information quality, system quality, use, user satisfaction, individual impact and organizational impact. The six dimensions of success are interrelated as opposed to being independent. Urbach and Muller (2012) support this theory by citing a paper done before by Lowry et al. (2007) which says that a 1992 article done by DeLone and McLean turned out to be the most cited article in IS research. There is an updated version of the original IS success model, (Urbach and Muller, 2012) who say that what makes the

updated model different from the original model is the incorporation of service quality. Gichoya (2005) supports the DeLone and McLean model through a research framework which shows a causal relationship of how ICT facilities quality and IS quality are affected by successful ICT implementation thereby the perceived benefits being affected by the quality of ICT facilities and IS. Perceived benefits are used to evaluate and assess the success of ICT projects.

2.2.3 Hofstede's Cultural Theory

Khastar et al. (2011) have defined this framework as a famous framework that has been widely used to ascertain what effect national cultures have on organizational culture. A study done by Hofstede whereby attitudes and working values of more than 116,000 individuals at IBM were assessed, resulted to a discovery of 5 main dimensions which form the basis of this framework: power distance, uncertainty avoidance, masculinity versus femininity, individualism versus collectivism and long term perspective versus short term perspective (Wu, 2006). Kirkman et al. (2006) cites an old paper done by Sage (1980), which argues that researchers have made use of Hofstede's cultural values framework in various empirical studies. This is supported by Jones (2007) who cites a paper done earlier that says, Hofstede's work on culture is the most widely cited in existence (Bond 2002; Hofstede 1997). Designers all over the world face challenges when it comes to integration of culture in information communication technologies design (Young, 2008). The integration of culture in ICT projects design is therefore important as it contributes towards the scope of any project that is being undertaken (Young, 2008). Kovacic (2005) conducted a research study on 95 countries that analyzed the impact that national culture has on e-Government readiness. This study led to findings that indicate there being a relationship between culture and e-Government readiness & its components.

2.2.4 Approach Avoidance Theory

Scholars have made use of the approach-avoidance distinction for over two thousand years (Elliot, 2006). According to Corr (2013) the Approach Avoidance theory is used to show how behaviors towards positive and negative stimuli are motivated by systems.

This is exhibited in PytlikZillig et al. (2014) where an assessment of support and resistance towardshacktivismwas done. This led to a conclusion that support or resistance to hacktivism was determined by various worldwide pre-existing attitudes. Langdon et al. (2012) assessed various areas of human capability and product use, which would help predict individual's ability to interact with products i.e. whether they would use the products or whether they would avoid using them. The authors proceed to cite a previous paper by Zhang (2008), which emphasizes on the importance of understanding various behaviors towards use of technology, as this would ultimately inform technology design.

2.2.5 Sustainable Livelihood Framework

This framework was originally developed to enhance the understanding of poverty related issues. The main areas of this framework as pointed out by Arun et al. (2004) are as follows;

1. Livelihood assets –this entails assets that contribute towards reduction of poverty, such as human capital, financial capital, social capital, natural capital and physical capital.
2. Vulnerability context –this entails various trends such as those to do with governance, technology, economy, employment, just to mention a few.
3. Policies, institutions and processes – Policies operate at all levels, structures are both private and public organizations that set and implement policy and legislation and deliver services that affect livelihoods., processes determine the way in which structures and individuals operate and interact.
4. Livelihood outcomes – this are the end results that are achieved after application of livelihood strategies.

A number of researchers have made use of this framework in assessment of ICT and poverty reduction. Duncombe (2006) applied the framework to analyze ICT applications for poverty reduction through microenterprise in Botswana and argue that, viewed from the perspective of a livelihoods approach, greater benefits for the poor may be derived from ICTs if they are applied to strengthen a broader range of social and political assets.

The livelihoods approach is able to identify ICTs a part of a much broader development perspective and avoid overemphasis on technology that can distort ICT for development. Parkinson and Ramirez (2006) argue that applying sustainable livelihood frameworks can help to broaden their scope in a manageable way and prove more analytically rigorous than other available methods. Their application was in the assessment of a telecentre in Colombia.

2.2.6 Information Chain Model

ICTs have made it possible to deliver government services, however majority of these projects have failed either partially or totally (Heeks, 1999). ICTs contribute to the socio-economic development of a country; this contribution is based on understanding of information in development and the information chain (Heeks, 2005). Information chain model entails obtaining and evaluating data in form of raw facts and figures, which is then adapted once it has been deemed to be useful, the result of the processed data is information which can then be used (Chilimo and Ngulube, 2009). Heeks (2005) emphasizes that for data to be counted as information, individuals must be able to access it, assess its relevance and apply it to a specific decision. This will then contribute towards development when acted upon.

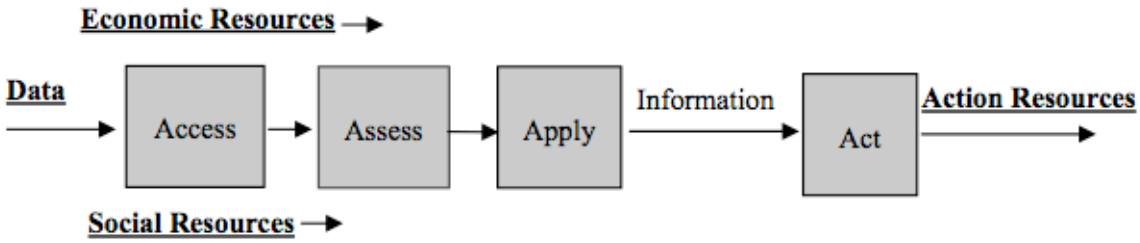


Figure 2.1: Information Chain Model

(Source: Heeks, 2005)

2.2.7 Summary of ICT Project Implementation Assessment Models

Table 2.1: Summary of Assessment Models

Model	Features
Diffusion of innovations theory	i) Made up of four main elements; innovation, communication channels, time between decision-making& adoption of new innovation, social system. ii) Focuses on five groups of people; innovators, early adopters, early majority, late majority, laggards.

DeLone and McLean of information systems success	i) Puts emphasis on the importance of measuring success of information systems. ii) Encompasses six dimensions of success; information quality, system quality, use, user satisfaction, individual impact, organizational impact. iii) The six dimensions are interrelated and not independent. iv) Updated version of the model has an additional element; service quality.

Hofstede's cultural theory	i) Focuses on culture, attitudes and values of people. ii) Encompasses five dimensions; power distance, uncertainty avoidance, masculinity versus femininity, individualism versus collectivism, long-term perspective versus short-term perspective.
Approach avoidance theory	i) Used to show how behaviors towards positive and negative stimuli are motivated by systems. ii) Emphasizes on understanding various behaviors towards use of technology.
Sustainable livelihood framework	i) Enhances understanding of poverty related issues and how ICTs can help in solving these issues. ii) Made up of four elements; livelihood assets, vulnerability context, policies & processes, livelihood outcomes.
Information chain model	i) Entails obtaining and evaluating data in form of raw facts and figures. ii) Results of the processed data is information. iii) Information is adapted once it has been deemed to be useful. iv) For data to be counted as information, individuals must be able to access it, assess its relevance and apply it to a specific decision.

2.3 Assessment of ICT Projects in Developing Countries

Rozendal (2002) is of the view that majority of ICT projects in developing countries are initiatives taken by various organizations that come and work together in order to achieve a common goal. Citing (UN Millennium Project, 2005; Walsham and Sahay, 2006), Moens et al. (2009) argue that ICTs are important to developing countries as they play an important role when it comes to change. However, Heeks and Molla (2009) express their concern regarding the number of billions of US dollars that have been channeled towards information and communication technologies for development (ICT4D) projects, yet the effect of such investments is very subtle. They proceed to say that very minimal assessment of the impact of ICT4D projects is done. They argue that this is due to lack of political will and motivation, and not having the required knowledge needed to perform impact assessment of ICT4D.Lucas (2008) supports this by saying that independent analysis that is performed on existing applications is limited and hence (Molony 2006) majority of the developing countries are yet to fully realize the benefits of ICT. Moens et

al. (2009) point out that ICT might make a positive contribution towards development. They argue that majority of the failed implementations are due to lack of enough knowledge on how to apply ICT in a development context. They further talk of Roundtable (RT) workshop as being a participatory approach that is based on constructive assessment of technology. Talyarkhan (2004) argues that information providers face challenges when it comes to making information available to individuals who have limited access to ICTs due to either illiteracy, little money and / or time. The study develops a framework that would be used in ICT projects to allow for knowledge sharing in development. This will be supported by identification of various ways that can be employed by NGOs (non government organizations) in order to make good use of ICTs in sharing of knowledge.

Rozendal (2002) talks of two dimensions of a project that must be analyzed, these are cultural and political. By analyzing these two dimensions, one will be able to understand how a project team and other components of a project function thereby be in a better position to foresee problems and issues that are likely to be experienced in future. The study further puts emphasis on the fact that ICT projects should not be isolated from their environments. The two are intertwined hence there's need for interaction with the environment as the degree of its acceptance is what determines the success of an ICT project. Kasigwa et al. (2006) argue that most developing countries have had a good number of ICT projects that have failed. Failure is due to factors such as; most projects not taking into consideration the local and cultural barriers and opportunities, setting the bar too high on the productivity improvements that ICTs can bring, ignoring the fact that ICTs are dynamic hence keep evolving, just to mention a few. The study proceeds to discuss three perspectives from which ICT can be assessed in order to determine how ICT can enhance sustainability. The three perspectives are as follows;

1. Community, which entails the needs and concerns of people, their goals and how they want to achieve them and how they benchmark their success. Sustainable ICT projects from this perspective are deemed to be those that are independent hence don't rely on the government for funding.

2. Business, which defines sustainability in terms of commercial viability and profitability of a project.
3. Government, which entails provision of services to individuals and businesses.

Madon et al. (2007) argue that a huge number of people are not able to improve their livelihoods due to lack of access to technology and educational background. This calls for digital inclusion projects that enable both ICT access by specific groups, and different kinds of support for learning and acquiring knowledge.

2.4 Assessment of ICT Projects in Kenya

Atieno and Moturi (2014) examined the implementation of Digital Village Projects (DVPs) in Kenya and report the constraints that hinder the successful implementation of these projects. These include low level of information literacy, awareness, branding of DVPs, cost of services, and unavailability of affordable bandwidth. This study showed that the DVP projects, though still young, have contributed significantly to the lives of the beneficiaries. Obora (2013) assessed the successful implementation of digital villages and found that successful implementation is faced with challenges such as loan repayment, delayed support from ICT Authority, lack of inadequate working capital and stiff competition. They discuss branding of digital villages and government support.

Njuru (2011) discusses e-Government implications on public policy formulation and implementation in Kenya by exploring how e-Government impacts the political agenda, rule making, and public service delivery. Their Key findings show that the Kenyan government has failed in disseminating information about e-Government, sensitizing Kenyans on how to make use of technology to access government services, and providing incentives to encourage use of technology.

A report by Drury (2011) shows how the Cisco IBSG team helped the ICTA identify many challenges of establishing a digital village and how those challenges can be overcome. The Cisco IBSG Digital Villages Development Toolkit has been used in establishing successful digital villages by providing a methodology for evaluating local needs and conditions, and for analyzing various business models within that context.

Ndemo (2012) identifies project management and leadership as factors that determine successful implementation of ICT projects in Kenya. This is exhibited in in a case study whose main purpose was to establish factors that influence implementation of ICT projects at Telkom Kenya.

The KACC (2008) guidelines have identified a number of loopholes experienced in ICT projects. The loopholes are as a result of poor monitoring of implementation of ICT projects and lack of proper analysis of the feasibility of projects before they can be undertaken. The guidelines have provided recommendation to enhance integrity in the management of ICT in the public sector.

Wabwoba et al. (2013) mention Green ICT having generated solutions relating to rising costs of doing business and environmental degradation; despite this, Green ICT hasn't been fully implemented in developing countries such as Kenya. This is due to the fact that Green ICT attitude level held by organizations is very low as compared to developing countries.

2.5 Issues of ICT Project Implementation

Nawi et al. (2012) argues that even though ICTs contribute positively towards productivity, competitiveness and poverty reduction, challenges are still being faced in successful implementation of ICT projects. The study goes ahead to point out that projects undertaken by governments tend to lag behind thereby failing to deliver the desired benefits. Another issue pointed out by the study is that over 50% of ICT projects are not completed within the stipulated time and budget, this is experienced more in projects undertaken by the government as opposed to those undertaken in the private industry. Legris and Collerette (2006) argue that majority of ICT projects fail due to lack of proper implementation management. They further say that a lot of emphasis is directed towards the technical side hence management of the implementation process is ignored. Price and Chahal (2006) however argue that ICT projects fail due to poor communication and underestimation of the required retaining. The study makes an assumption that considering what various researchers have said regarding failure of ICT projects, one factor comes out clearly; management. In addition, the study argues that the major reason

as to why ICT projects fail is the lack of change management. It continues to say that challenges are faced in the implementation of change management processes in organizations. A study by Al-Lozi and Al-Debei (2012) addresses issues encountered in ICT project implementation by both developed and developing countries, by assessing and evaluating five ICT innovations namely; Enterprise Resource Planning, Inter-organizational Systems and e-Business, Knowledge Management, Business Process Re-engineering and Information Systems Sourcing. The challenges discussed are related to cultural, economical, political and infrastructural. They proceed to say that various organizations face various challenges, which depends on the macro and micro characteristics of these organizations. This leads to an assumption that, there is no one way that is cast in stone on how various ICT projects need to be implemented for them to be successful. Another issue that has been raised by Al-Lozi and Al-Debei (2012) is that ICT projects are less tangible which poses as a challenge in their implementation i.e. in terms of controlling, monitoring and evaluating of such projects.

2.6 Conceptual Framework

This study proposed the use of DeLone and McLean Model of Information Systems Success that puts emphasis on the importance of measuring the success of information systems. The model consists of seven dimensions of success, one having been incorporated in the updated model: information quality, system quality, *service quality*, use, user satisfaction, individual impact and organizational impact. Gichoya (2005) employed this model in his research, which says that the model can be used to show a causal relationship of how implementation of ICT projects affect IS quality, which in turn affects the perceived benefits. The success of ICT projects is evaluated and assessed through the perceived benefits.

The proposed model (Fig. 2) depicts the relationship between DeLone and McLean's seven dimensions, which are the independent variables. The seven dimensions would then have an impact on the implementation of the e-Citizen project, which in this case is the dependent variable.

System Quality

This dimension looks at the characteristics of an information system that are deemed to be desirable. It focuses on usability aspects and system performance characteristics. System quality is measured in terms of ease of usage, integration, flexibility, reliability, functionality, data quality, portability, importance, system features, response time, interactivity, ease of learning, access, adaptability, just to mention a few. The quality of the system will determine whether or not users will use the system which would in turn have an effect on user satisfaction and thereby the individual and organizational impact (net benefits).

Information Quality

Unlike the system quality dimension which focuses on the desirable characteristics of an IS, information quality looks at the desirable characteristics of an IS's output. An example of an IS output would be the reports generated by the IS. Therefore the main focus is on the quality of the output (information) of the IS, and how beneficial the output is to the user. Information quality is measured in terms of accuracy, completeness, consistency, relevance, availability, understandability, usefulness, security and timeliness. This dimension has an effect on decisions made by the user, job effectiveness and the quality of work.

Service Quality

This dimension focuses on the quality of support that is accorded to the user of a system. The support can be provided by the IT support personnel, IS department or outsourced. Support can be in form of training, helpdesk etc. It's important to have the level of service given to users measured as this has a direct effect on how satisfied the users feel. Service quality is measured in terms of reliability, assurance, empathy, responsiveness, tangibles, flexibility etc. Unlike success of individual systems, the overall success of an IS department is measured through the quality of service. Poor user support is likely to result to losing users.

Intention to Use/Use

This dimension precedes impacts and benefits of a system, this makes it an important measure of success of any IS. It depicts the level and way in which users make use and / or utilize an IS. System use is voluntary and it's measured in terms of nature of use, number of transactions, intention to use, intention to continue using, frequency of use, time of use, number of accesses, dependency, actual use etc.

User Satisfaction

This dimension is closely related with the *Use* dimension. Greater user satisfaction will be as a result of the positive experience users of a system have. Increased *user satisfaction* would in-turn result to increased *intention to use.* Therefore this dimension is an important variable that can be used to measure opinions of users of a system as it covers the whole user experience during their interaction with a system. User satisfaction can be measured in terms of efficiency, system satisfaction, enjoyment, effectiveness, information satisfaction, adequacy among others.

Net Benefits

This dimension focuses on the benefits experienced by the various stakeholders of the system. It has merged two elements of the original DeLone and McLean IS Model i.e. *individual impact* and *organizational impact*. The net benefits largely rely on *system quality* and *information quality* dimensions. Net benefits can be measured in terms of time savings, awareness, individual productivity, job effectiveness, task performance, usefulness, business process change, cost savings, enhancement of communication and collaboration, enhanced reputation, improved decision making, quality improvement etc.

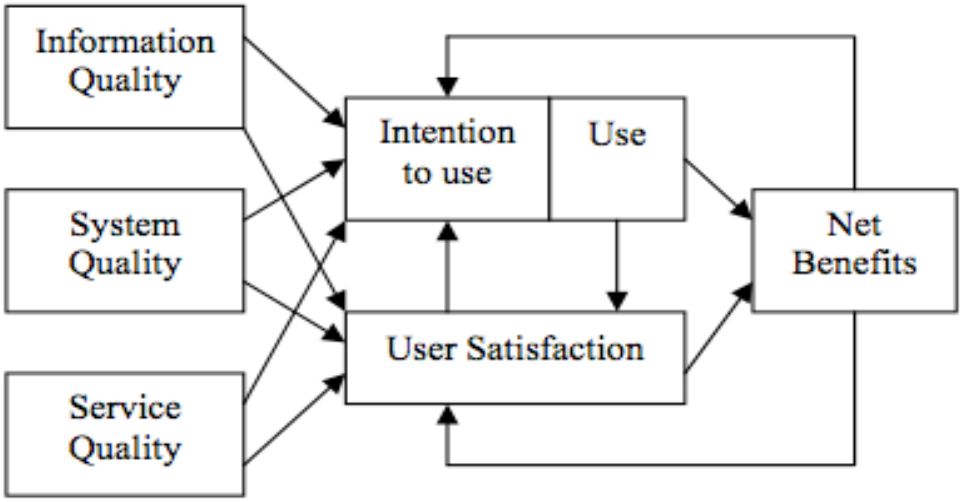


Figure 2.2: Conceptual Framework

CHAPTER 3 – RESEARCH METHODOLOGY

This chapter covers the methodology in the choice of research model and design, target population, tools and procedure that was followed in data collection procedure.

3.1 Research Design

Research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure (Kothari, 2008). Research design gives the structure in which the research is conducted and contains the collection, measurement and analysis of data.

A survey design was adopted for this study as it sought to obtain information that described a phenomena that existed. This was achieved through enquiring and observing various people's opinions, behavior, perceptions, attitudes and values regarding the topic in question. This would aid in coming up with a suitable conceptual framework for the assessment of government projects and testing this model to determine if it can be generalized to other Kenyan government initiatives. The e-Citizen project was used for proof of concept.

The research design enabled the testing of the following hypotheses:

H1: Stakeholder engagement led to successful implementation of e-Citizen project

H2: e-Citizen has had positive impact in delivery of e-Government services

Hypotheses testing was based on two predictors that were believed to have an effect on successful implementation of e-Citizen and one predictor that was believed to have an effect on delivery of e-Government services.

3.2 Target Population

A population refers to a complete set of individuals, cases or objects with some common observable characteristics (Mugenda and Mugenda, 1999). This study's target population consisted of individuals who make use of the Internet to access government information and services. An accessible population was identified, which was made up of citizens who use the Internet to access government information and services. The accessible

population consisted of general users/citizens, the e-Citizen Portal secretariat, Huduma Centre manager, project managers and their teams from the four ministries: Ministry of Land, Housing & Urban Development, Department of Immigration Services, National Transport & Safety Authority and Office of the Attorney General & Department of Justice. The respondents' breakdown is as follows:

1. General users –questionnaires were administered to this category of citizens whose questions revolved around the e-Citizen portal i.e. in terms of usability. Here we were interested in knowing the experience of the users and their opinions regarding the portal. These users have no knowledge of e-Citizen being made up of various systems from various ministries hence view it as one system which provides all the services that can be accessed through it.
2. Ministry users –questionnaires were administered this group that consists of users who are employees in the various ministries featured in this study. Questions were about e-Citizen portal in general and the system(s) developed under each ministry. Each ministry had a customized questionnaire as various services are offered through these systems.
3. Project managers – these are basically the individuals who spearheaded the development of the various systems which in most cases were heads of ICT. Interviews were conducted for this particular category.
4. Other 'users' – these are the individuals that were engaged at one of the Huduma Centers. Though this group is not part of the target population, the it was felt that it was necessary to get to interact with them, and even though they have no idea of what e-Citizen is, they still get to access government information and services though through a different mode.

3.3 Sample Size and Sampling Procedures

A sample refers to the number of items to be selected from a population. A sample is a finite part of a statistical population whose properties are studied to gain information, about the whole (Orodho and Kombo, 2002).

A sample of 150 people (from various organizations/sectors) was drawn through random and purposive sampling methods. The former was used to select the general users of the

e-Citizen portal, while the latter was used to select individuals that had the required information with respect to the objectives of this study. For random sampling, various organizations/SMEs were identified, each given a number out of which six were selected randomly. This allowed each unit a chance to be included in the sample. The participants that were selected are those that have ICT literacy and some knowledge about e-Citizen project.

To determine the sample size, a statistical formula suggested by Mugenda and Mugenda (2003) was used. The formula is argued to be suitable in cases where the sample is not known.

n = p (1 – p) (Z/d)^2

Where:

n is the sample size

Z is the area under the normal curve as per the table of normal curve. Given the confidence level of 90% = 1.645, 95% = 1.96, 99% - 2.58.

d is the margin of error = 0.08

p is the proportion in the target population estimated to have characteristics being measured

Mugenda and Mugenda (2003) recommend that if value of ***p*** is unknown, then assume ***p*** = 0.5

The sample size (assuming 95% = 1.96 level of confidence) was therefore given by;

n = 0.5 (1 – 0.5) (1.96 / 0.08)^2 = 150

Inclusion Criteria

Individuals who make use of the Internet to access government information and services had a chance of being part of the study. This only applied to those based in Nairobi. Individuals considered by this study are those that are 18 years and above.

3.4 Data Collection and Research Instruments

Data was collected through interviews, direct observation and administration of questionnaires. Interview guides and questionnaires were constructed based on the

objectives of the study. Individuals who spearheaded projects in the various ministries were interviewed using an interview guide. However, most of the data was collected through questionnaires as they provide an opportunity for anonymity hence high response rate. Permission to carry out the research was obtained in advance from various organizations and ministries specifically Ministry of Land, Housing & Urban Development; Attorney General & Department of Justice; Department of Immigration Services; National Transport & Safety Authority, e-Citizen and Huduma Secretariat. Both the researcher and respondents mutually agreed on the dates for conducting the interviews and administering the questionnaires. Respondents were at liberty not to answer to certain questions if they so wished.

Quantitative data was collected through questionnaires that were administered to two groups of respondents i.e. the ministry users and the general users (other citizens who are not part of the various ministries). The data that was collected was then grouped into various categories after-which it was entered in Microsoft Excel then coded in preparation for analysis. Qualitative data was collected through interviewing the various project managers (in this case heads of ICT) from the various ministries that took part in the study. The collected data was then entered in an Excel sheet and coded. Various themes were established from the coded data, which were then winnowed to a manageable few.

Validity and Reliability

Mugenda and Mugenda (1999) define validity as the accuracy and meaningfulness of inferences, which are based on the research results. They go ahead to define reliability as a measure of the degree to which a research instrument yields consistent results or data after repeated trials. An interview guide and questionnaire were developed, and both were scrutinized by an experienced researcher and two PhD students before they could be administered. The test-retest method of assessing reliability was employed in this study where the same instrument was administered twice to the same group of subjects at two separate times. Out of the 15 questionnaires that were administered the very first time, all of them were returned. Two questionnaires were not returned the second time and this is

because the respondents were on leave. However, all the questionnaires that were administered the second time had the same response as those administered the first time. This proved that the questionnaires were reliable hence fit for use in the study. Final refinement of the questionnaire was done and contact persons from the various organizations and / or sectors that were participating in the study identified. The questionnaires were accompanied with a letter of transmittal, which consisted of a brief regarding the research. A follow up was done with key contact individuals and this was through SMS, phone calls, emails and physically visiting the various offices. A five level likert scale was employed in the questionnaires. The raw data collected from the various respondents was categorized and coded. The data was then organized systematically by grouping the responses in different categories. The data was then captured into MS Excel and analyzed using tables, frequencies and percentages.

3.5 Ethical Considerations

Apart from the transmittal letter, respondents were verbally explained to about what the study was all about and its aim. Participation in the study was purely voluntary hence participants were free to withdraw anytime they wished to without any form of intimidation. Confidentiality and anonymity was maintained throughout the study and therefore no participant was required to disclose their name.

3.6 Mapping Objectives to Methodology

Table 3.1: Objectives and Methodology

Research Objectives	**Methodology**
To investigate the assessment frameworks used in assessing ICT projects in developing countries.	Literature review
To establish the extent to which e-Citizen Kenya has contributed towards the delivery of various government services to citizens.	Survey (interviews, questionnaires)
To propose a framework that can be used to assess implementation of e-Government projects.	DeLone and McLean Model of Information Systems Success to assess e-Citizen Kenya.

CHAPTER 4 – RESULTS AND DISCUSSION

This chapter presents the findings of the study and their interpretation. The aim of the study was to establish the extent to which e-Citizen Kenya has contributed towards the delivery of various government services to citizens. The results are presented using tables for ease of understanding. The analysis is categorized into two sections in line with the objectives. Respondents were asked to agree or disagree with given statements based on a five-point Likert-scale) where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly Agree). Elements of the five-point Likert-scale were then merged to allow for easier interpretation, thereby results were interpreted based on 3 elements; Agree, Neutral and Disagree. The results are based on data that was collected from the following: General users, Ministry users, and Project managers.

4.1 Response Rate

Out of the 150 respondents sampled, there were 106 valid responses giving a response rate of 71%, which was considered to be accurate for the study. Table 4.1 gives a summary of the responses.

Table 4.1: Respondents Distribution

Response Rate			
Organisation	**Target Population**	**Response**	**Response %**
Ministry of Land, Housing & Urban Development	12	8	67%
Attorney General &Dept of Justice	10	1	10%
Department of Immigration Services	15	9	60%
National Transport & Safety Authority	7	2	29%
e-Citizen	2	1	50%
Huduma Centre (staff)	14	13	93%
e-Citizen users	90	72	80%
Total	**150**	**106**	**71%**

Source: Research survey data, 2015

An additional 34 citizens at one of the Huduma Centres were engaged and observed. This particular category consists of individuals who are oblivious of what e-Citizen portal is and what it does. Instead they access government services by visiting any of the centers. Huduma Centre is a one-stop shop for government services where all services are offered under one roof with employees behind the counters to assist citizens. Huduma Centre offers all the government services, most of which are yet to be offered on e-Citizen portal of course thorough systems developed by the various ministries.

4.2 Demographics of Respondents

Table 4.2: Respondent Demographics

Characteristic	Classification	Frequency	%
Gender	Male	72	68%
	Female	34	32%
Age	18-25 years	22	21%
	26-30 years	23	22%
	31-35 years	28	26%
	36-40 years	14	13%
	41-45 years	12	11%
	Over 45 years	7	7%
Employment Status	Employed or wages/salary	95	90%
	Unemployed	1	1%
	Self employed	4	4%
	Student	6	6%
	Retired	0	0%
Education Level	Secondary education or less	3	3%
	Diploma/higher diploma	19	18%
	Bachelors degree	52	49%
	Masters degree/PhD	32	30%
	Other	0	0%
IT Experience	Novice	0	0%
	Intermediate	31	29%
	Advanced	49	46%
	Expert	26	25%

Male respondents accounted for 68% while female accounted for 32% of the sample. The former were more willing to participate as a good number of them had used e-Citizen portal before hence were familiar with the portal and the services offered through it. Findings from the respondents' background characteristics indicated that most of the

users were between the ages of 31 to 35 years, followed by 26 to 30 years and then 18 to 25 years. A large proportion (89%) of the respondents were employed most of whom worked in offices where they could easily acquire resources i.e. in terms of computers and internet for easy access of government information and services. Respondents with Bachelors degree formed the largest proportion (49%), followed by those who had a Masters/PhD who accounted for 30% of the sample size and finally those who had a Diploma/higher diploma who accounted for 18%. The study population had a fairly high level of education, which could impact positively on understanding and adopting of technology (e-Citizen). However, this does not necessarily mean that all the respondents were tech savvy. Majority of the respondents (46%) had an advanced level of IT experience, followed by 29% who had intermediate level of IT experience. The rest (25%) accounted for those that were IT experts.

4.3 Hypotheses Testing

H1: Stakeholder engagement led to successful implementation of e-Citizen project

The predictors (independent variables) for *H1* were;

i) *x1* – the Kenyan government engaged the public/citizens during development of the e-Citizen project.
ii) *x2* – the Kenyan government communicates promptly to the public, providing updates and progress of the project.

The dependent variable was; *y* – I plan to continue using e-Citizen in future.

Table 4.3: H1 analysis output

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.179786191
R Square	0.032323075
Adjusted R Square	0.007824925
Standard Error	0.808598617
Observations	82

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	1.725342651	0.862671326	1.319408794	0.273117934
Residual	79	51.65270613	0.653831723		
Total	81	53.37804878			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	4.55888782	0.283544396	16.07821519	1.25035E-26	3.994506826	5.123268814
x1	0.034128997	0.096854861	0.352372573	0.725497195	-0.158655779	0.226913772
x2	-0.132843694	0.082319736	-1.613752685	0.110568684	-0.296697027	0.031009638

Table 2 has coefficients of *x1* and *x2* as 0.034128997 and -0.132843694 respectively. This means that there is an increase (in future usage of e-Citizen portal) of 0.034128997 for every 1 unit increase in stakeholder engagement/communication. However, this increase is not statistically significant ($p>0.05$) hence could be attributed to random chance. Since two independent variables were used, their coefficients test the unique effect of each independent variable while the F-test (Significance F) test the joint effects of both variables together. This can therefore be interpreted to imply that there is a weak positive relationship between stakeholder engagement/communication and future usage of the e-Citizen portal. On the other hand, there is a decrease (in future usage of e-Citizen portal) of 0.132843694 for every 1 unit increase in stakeholder engagement/communication. This decrease is not statistically significant as $p>0.05$. This can therefore be interpreted to imply that there is a weak negative relationship between stakeholder engagement/communication and future usage of the e-Citizen portal. Also called Pearson correlation coefficient, this is a measure of the strength of association between future usage of the e-Citizen portal and engagement of and communication to the public/citizens during the life of the project. A multiple R of 0.179786191 indicates a weak positive relationship between stakeholder engagement/communication and future

usage of the portal. An R Square of 0.032323075 indicates that only 3.2% of the changes in the future usage of the portal can be explained by stakeholder engagement/communication. The remaining 96.8% can be explained by other factors. Despite a number of respondents having claimed that the Kenyan government did not engage the public in the development of the e-Citizen project, this does not necessarily mean that the project failed. On the contrary, the e-Citizen portal was implemented successfully and this is due to the fact that the government employed a strategy whereby other options of accessing some of the government services were eliminated thereby forcing the citizens to access these services via the e-Citizen portal.

H2: e-Citizen has had positive impact in delivery of e-Government services

The predictor (independent variable) for *H1* was;*x1* – mode of access of government information and services. While the dependent variable was; *y* – the ability of e-Citizen to enable citizens accomplish tasks more quickly and with much ease.

Table 4.4: H2 analysis output

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.661799522
R Square	0.437978607
Adjusted R Square	0.430953339
Standard Error	0.237250529
Observations	82

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	3.509170057	3.509170057	62.34333599	1.29381E-11
Residual	80	4.503025065	0.056287813		
Total	81	8.012195122			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	2.192307692	0.13958597	15.70578827	3.69375E-26	1.914522764	2.470092621
x1	-0.249351772	0.031580386	-7.895779631	1.29381E-11	-0.312198743	-0.186504801

Table 3 has coefficients of *x1* as -0.249351772. This means there is a decrease (in the dependent variable) of 0.249351772 for every 1 unit increase in the independent variable.

This decrease is however not statistically significant as p>0.05. Since one independent variable was used, the *p-value* for its coefficient is exactly the same as the *p-value* for the ANOVA F-statistic (Significance F) as they test the same thing. A multiple R of 0.661799522 indicates a fairly strong positive relationship between the mode of access of government services and the ability of citizens to accomplish tasks more quickly and with much ease via the e-Citizen portal. An R Square of 0.437978607 indicates that 43.8% of the changes in the dependent variable can be explained by the independent variable. The remaining 56.2% can be explained by other factors. This can therefore be interpreted to imply that there is a weak relationship between the mode of access of government services and the ability of citizens to accomplish tasks more quickly and with much ease. This could be due to the fact that only a few of the government services have been made available on the e-Citizen portal hence a good number of these services are yet to be availed online. This then causes the impact of e-Citizen not to be realized/felt much as yet.

4.4 System Quality

Quality of a system is a very important factor as it largely contributes towards successful implementation of a system. The quality of a system will determine whether or not users will use the system which in turn has an effect on implementation of the system. Like mentioned in the literature review, this dimension focuses on systems' usability aspects and performance characteristics. The elements that determine quality of a system and which were considered in this study are ease of usage/learning, integration, flexibility/reliability, functionality, response time, interactivity and adoption.

One of the questions the respondents were asked was whether they were able to access government information and services 24 hours/7 days. 64% agreed, 9% disagreed while 19% were neutral. These results can be interpreted to imply that the integration of various systems with the e-Citizen portal has been successful and that these systems are reliable and flexible enough. Also, the fact that users are able to pay for these services online at the comfort of their homes, implies that integration between e-Citizen and the various payment service providers has been successful. This works to the advantage of the user as

the user is able to access information and services anytime at their convenience. This in turn has an effect on the successful implementation of the system.

Respondents were also asked if they had been trained on how to use e-Citizen portal. 8% agreed, 43% disagreed while 26% were neutral. This question was directed to the general users who might not have prior knowledge on how to operate a computer or navigate a website. These results can therefore be interpreted to imply that a good number of people (43%) learnt how to operate e-Citizen on their own without necessarily being trained. This could be due to their education background and / or experience with IT. The other reason could be that the e-Citizen portal has been designed in such a way that it is easier for any learned person to navigate it with much ease.

Respondents were also tested on their ease of learning on how to use and operate e-Citizen portal. 68% agreed that it was easy for them to learn how to operate and use e-Citizen, 4% disagreed while 6% were neutral. These results can be interpreted to imply that, based on the 68% of individuals who said it was easy for them to learn how to operate e-Citizen, this means a good percentage of people did not have a difficult time learning how to navigate the portal. This could have been as a result of the way the system was designed such that it is user friendly. This could also mean that the quality of a system determines the adoption rate which in turn has an effect on the implementation of the system. Therefore, there's a causal relationship between technology adoption and implementation.

The element of users being able to accomplish tasks quickly and with much ease was tested and 78% of the respondents agreed, 3% disagreed while 14% were neutral. These results can be interpreted to imply that the portal was designed in such a way that it allows users to perform their transactions quickly and with much ease. This could be due to ease of navigation and also encouragement of interaction and user interactive support options such as phone and email communication. The response time can also be said to be quick i.e. in terms of time taken to process user requests and transactions. In addition, the portal could have been designed in a manner which the user is informed of mandatory

fields and what fields need to be filled out when performing various transactions. Also, the user is alerted in case of incorrect filling of a field and told what could be causing an error. Another thing is the possibility of the portal being able to provide hyperlinks to other sections that are relevant to the user. Finally, the fact that users are able to pay for services online makes it easy for them to perform and complete transactions within the shortest time possible.

This study sought to find out if users had experienced any hardware or software problems while navigating the e-Citizen portal. 19% of the respondents agreed that they had indeed experienced hardware and / or software problems while 27% were neutral. However, 40% disagreed meaning they had not encountered any problems. This could indicate that the system was well coded and that a well laid out procedure was followed during the entire development of the system. By doing this, major (apart from teething problems) software and hardware problems are avoided.

The security and privacy measures of the system are believed to be good and this is based on the response of the users whereby 34% agreed this statement. There's need for assurance to be given to users with regard to protection of their information, which is entered and submitted via the portal. The fact that a good number of users access government services through the e-Citizen portal and pay for these services online, means that the users have confidence in the system and therefore trust it.

Results discussed above have been summarized in table 4.3

Table 4.5: System quality dimension analysis

Statements	Agree	%	Neutral	%	Disagree	%
Access government information and services (24hrs/7days)	68	64%	20	19%	10	9%
Users have been trained on how to use e-Citizen portal	8	8%	28	26%	46	43%
Ease of learning how to operate e-Citizen	72	68%	6	6%	4	4%
Ease of using e-Citizen if trained	51	48%	25	24%	6	6%
Accomplish tasks quickly/with much ease	83	78%	15	14%	3	3%
Experience hardware/software problems	21	19%	29	27%	43	40%
Satisfactory security & privacy measures	36	34%	36	34%	10	9%

Source: Research Survey Data, 2015

4.5 Information Quality

Information quality is an important factor for the successful implementation of any IS system. The selected information quality elements were: accuracy, completeness, relevance, availability and security. The fact that a big percentage (64%) of users agreed to being able to access government information and services 24/7, can be interpreted to imply that information is readily available to users whenever they are in need of it. Users are naturally inclined to cease using a system if there's inconsistency in terms of availability of information and services. 64% of the respondents agreed that e-Citizen provides them with relevant, adequate and accurate information on services. Even though there was a small percentage (3%) that did not agree to this statement, these results can be interpreted to imply that majority of the users feel that complete, accurate, useful and relevant information is provided by e-Citizen.

A small percentage (11%) feels that e-Citizen does not provide efficient information and services thereby rendering the portal as not being useful. However, more than half (54%) of the respondents think otherwise. This can therefore be interpreted to imply that information is made available to users, which in turn makes e-Citizen useful to them (though this could also mean that they find e-Citizen useful despite there being inefficient availability of information). This resulted in the conclusion that there's a causal relationship between information quality and use of the system by the user. This is further supported by the fact that 42% of the respondents did not agree to the statement which said that they experienced difficulties using e-Citizen due to lack of information and awareness campaigns. However, there are people (44%) who felt that awareness campaigns were not satisfactory. This could mean that indeed information is there but the extent to which it is being communicated to the public is limited. This is supported by the fact that 42% of the respondents feel that the Kenyan government did not communicate promptly to the public.

This study concluded that users trust and have confidence in the information provided on the portal. When asked about the level of security and privacy measures, 34% said

security was satisfactory, another 34% were neutral, while 9% felt the level of security was wanting.

Table 4.6: Information quality dimension analysis

Statements	Agree	%	Neutral	%	Disagree	%
Access government information and services (24hrs/7days)	68	64%	20	19%	10	9%
Relevant, adequate & accurate information on services	68	64%	32	30%	3	3%
e-Citizen not useful/inefficient availability of info & services	12	11%	29	27%	58	54%
Difficulties in usage due to lack of info & awareness campaigns	19	18%	19	18%	44	42%
Awareness campaigns not satisfactory	47	44%	16	15%	19	18%
Kenyan government communicates promptly to public	22	21%	37	35%	44	42%
Satisfactory security & privacy measures	36	34%	36	34%	10	9%

Source: Research Survey Data, 2015

4.6 Service Quality

This dimension measures how well the service level is delivered and if it matches the expectations of the users. It focuses on the quality of support accorded to the user of a system. Respondents (general users) were asked if their queries were answered in good time: 57% agreed, 11% disagreed, while 10% were neutral. This can be interpreted to imply that the support given to the users is of high quality hence this would determine if or not the users would continue to use the system. It was felt that it was important to ask questions regarding packaging of services that are offered and continual future usage as these two are intertwined with the quality of service offered.

Table 4.7: Service quality dimension analysis

Statements	Agree	%	Neutral	%	Disagree	%
Services packaged well for easier access	73	69%	19	18%	7	7%
Queries answered in good time	60	57%	11	10%	12	11%
Continual future usage	84	79%	12	11%	3	3%

Source: Research Survey Data, 2015

4.7 Intention to Use/Use

Like mentioned in the literature review, this dimension largely feeds into the impact and benefits of an IS system. This dimension is determined by almost everything pertaining an IS system hence it all trickles down to whether or not the user intends and / or will continue using a system. Therefore it is an important factor when it comes to implementation of an IS system. Results show that 79% of the respondents intend to continue using the e-Citizen portal in future. According to table 4.6, high percentages are seen in the following areas: access of information 24/7, ease of learning how to operate e-Citizen, affordability of resources required to access the portal, being able to accomplish tasks quickly and with much ease, well packaged services for easier access, queries being answered in good time, relevancy and accuracy of information, usefulness of the portal to users and satisfactory security and privacy measures. This can be interpreted to imply that all these factors largely determine whether or not a user will continue using an IS system. However, research also revealed that the Kenyan government has ensured that some government services are only offered online. This leaves the users with no other alternatives and so they are forced to access them online. This then forces individuals to continue using the e-Citizen portal in future. However, a number of factors need to be considered as they can easily result to discontinued usage of a system if they are ignored. These are: training of users on how to use a system, availability of information and services, awareness campaigns regarding the system, consistency in communication to the citizens and stakeholder engagement during development.

Table 4.8: Intention to use/use dimension analysis

Statements	Agree	%	Neutral	%	Disagree	%
Access government information (24hrs/7days)	68	64%	20	19%	10	9%
Users have been trained on how to use e-Citizen portal	8	8%	28	26%	46	43%
Ease of learning how to operate e-Citizen	72	68%	6	6%	4	4%
Ease of using e-Citizen if trained	51	48%	25	24%	6	6%
e-Citizen/government services affordable	62	58%	14	13%	6	6%
Accomplish tasks quickly/with much ease	83	78%	15	14%	3	3%
Services packaged well for easier access	73	69%	19	18%	7	7%
Queries answered in good time	60	57%	11	10%	12	11%
Relevant, adequate & accurate information on services	68	64%	32	30%	3	3%
e-Citizen useful to citizens	87	82%	23	22%	3	3%
e-Citizen not useful/inefficient availability of info & services	12	11%	29	27%	58	54%
Experience hardware/software problems	21	19%	29	27%	43	40%
Difficulties in usage due to lack of info & awareness campaigns	19	18%	19	18%	44	42%
Awareness campaigns not satisfactory	47	44%	16	15%	19	18%
Kenyan government communicates promptly to public	22	21%	37	35%	44	42%
Kenyan government engaged public during development	16	15%	41	39%	46	43%
Satisfactory security & privacy measures	36	34%	36	34%	10	9%
Continual future usage	84	79%	12	11%	3	3%

Source: Research Survey Data, 2015

Table 4.9: Usage frequency

Variables	Classification	Frequency	%
Mode of access of government information & services	e-Citizen portal	86	81%
	Huduma centre	17	16%
	Other	0	0%

Source: Research Survey Data, 2015

4.8 User Satisfaction

This dimension is closely related to the dimension discussed above, and it is determined by the experience a user has while using a system. Good user experience would result in greater user satisfaction and vice versa. What was measured here is the entire user experience during their interaction with the e-Citizen portal. Referring to table 4.7, it was concluded that there's greater user satisfaction especially in the areas of users being able to learn with much ease how to use the portal, information and services having been packaged well and users being able to accomplish tasks quickly.

Even though all government services are yet to be availed online, users appreciate the fact that there are services that are currently being offered online, which can easily be accessed by anyone. This is seen through the number of users who access the various services and the frequency of access.

Table 4.10: Services accessed/frequency of access

Variables	Classification	Frequency	%
Frequency of access of e-Government services	Weekly basis	26	25%
	Monthly basis	35	33%
	Annually	31	29%
	Other	9	8%
e-Government services accessed	Business name registration	32	30%
	Notice of marriage	3	3%
	Solemnization of marriage	3	3%
	Commissioning of affidavits	4	4%
	Driving test booking	15	14%
	Driving license renewal	68	64%
	Driving class endorsement	8	8%
	Land search (Nairobi blocks)	16	15%
	Passport application for children	16	15%
	Business name search	36	34%
	Issuance of a registrar's certificate	4	4%
	Issuance of marriage certificate	5	5%
	Provisional driving license	13	12%
	Interim driving license	12	11%
	Duplicate driving license	9	8%
	Driving license information correction	10	9%
	Passport application for adults	38	36%
	Application for Kenyan visa	10	9%

Source: Research Survey Data, 2015

4.9 Net Benefits

This dimension is made up of two elements i.e. individual impact and organizational impact. The fact that majority of the respondents can access government information and services 24/7, and that they feel accessing the services is not expensive, this implies that these services are available to them any time. This works to their advantage as they don't need to wait for a public office to be opened for them to acquire these services. The e-Citizen portal has relevant information and services packaged well which enables users to easily access them and thereby able to accomplish tasks quickly and with much ease. e-Citizen being a one stop shop that offers most of the government services, has helped citizens in saving time as they are able to acquire various services at the same time and they don't need to queue anywhere in order to acquire these services. As much as a fee is paid for processing the online transactions, this fee is very subtle hence cannot be compared to what was spent by majority of these citizens to get themselves to the CBD just to acquire these services. This therefore concurs with (Bhatnagar and Singh, 2010) who argue about how using ICTs result in improvements in the delivery of government services in developing countries.

Discussed later in this chapter is the amount of revenue the government has been able to collect through e-Citizen. There has been an increase in revenue and this has been attributed to the elimination of queues hence being able to serve as many citizens, the possibility of making payments online and the fact that digitization has made it easier for the government to follow clear procedures in the collection of money (majorly through Mpesa) and accounting for it. This therefore concurs with (Hameed, 2007) whom in literature review, shows how firms that used ICT made more profits compared to those that did not use ICT. In addition, due to good security and privacy measures, this has contributed towards the good image of the government systems thereby built trust from citizens. e-Citizen has also enabled the government to provide services that are of good quality to the citizens which also contributes to its reputation. However, the government needs to take note on the issue of awareness campaigns, as this is likely to affect the implementation of a system. A system might be good but if awareness of the system is

not created and communication is not well, then the adoption rate will be low hence unsuccessful implementation of the system.

Table 4.11: Net benefits dimension analysis

Statements	Agree	%	Neutral	%	Disagree	%
Access government information (24hrs/7days)	68	64%	20	19%	10	9%
e-Citizen/government services affordable	62	58%	14	13%	6	6%
Accomplish tasks quickly/with much ease	83	78%	15	14%	3	3%
Services packaged well for easier access	73	69%	19	18%	7	7%
Queries answered in good time	60	57%	11	10%	12	11%
Relevant, adequate & accurate info on services	68	64%	32	30%	3	3%
e-Citizen useful to citizens	87	82%	23	22%	3	3%
Awareness campaigns not satisfactory	47	44%	16	15%	19	18%
Satisfactory security & privacy measures	36	34%	36	34%	10	9%

Source: Research Survey Data, 2015

Table 4.12: Revenue Collection

Variables	Classification	Frequency	%
Mode of payment	Mpesa	93	88%
	Airtel Money	3	3%
	Debit/credit/prepaid card	9	8%
	Mobikash	0	0%
	e-Citizen agent	1	1%
	Orange Money	1	1%

Source: Research Survey Data, 2015

4.10 Qualitative Analysis

Qualitative data analysis seeks to make general statements on how categories or themes of data are related (Mugenda and Mugenda, 1999). Qualitative data was collected from the four ministries by interviewing the various individuals in ICT departments of these ministries. Results of qualitative analysis are presented in sections *4.10.1* to *4.10.5*.

4.10.1 Synergy

Based on the interviews conducted, one thing came out strongly, that the level of synergy in terms of development and implementation of ICT projects in the government is wanting. This is because there are two entities (Huduma and e-Citizen) offering the same services. These two entities are very different and even though Huduma hasn't gone

online yet, plans are underway for all services that are currently offered at the various Huduma centers, to be digitized hence "eHuduma". On the other hand, some of these services are already being offered online by e-Citizen whose intention is to have digitized all the 3000 government services by the year 2020. Instead of having two similar projects running concurrently, there's need for synergy between the Ministry of Devolution (that oversees Huduma) and e-Citizen. By doing so, services will not be duplicated resulting to quality service being offered to citizens thereby user satisfaction and also avoiding wastage of scarce government resources. It was observed several cases where citizens (who did not know about e-Citizen) went to one of the Huduma Centers to seek for services that are indeed offered online bye-Citizen. Since there's a cyber within the Huduma Center, the employees there would help these citizens (at a small fee) get the services online. But instead of them showing these citizens how to do it and telling them that they can actually do it themselves from anywhere as long as they had Internet, they do everything for the citizen after which a fee of Kshs.150 is paid by the citizen. This means, if the citizen doesn't get to know about the services being offered online, they would still go back to Huduma Center next time they are in need of such services. The result of this research strongly concurs with Njuru (2011) who reported the Kenyan government having failed to disseminate information about e-Government and not sensitizing Kenyans on how to make use of technology to access government services. For this synergy to exist, the two entities need to put their differences aside hence merge and thereby provide the best services to the citizens because at the end of the day, the goal is one i.e. to offer citizen centric services to everyone.

Lack of synergy also results to wastage of resources such as time and money. For instance, the Ministry of Devolution has budgeted Kshs.7 billion that is meant to be spent on development of a gateway. Since e-Citizen are already doing a similar thing, it is only best of the two entities merged hence worked together as a team. By doing this, the little resources that are available will be utilized well.

4.10.2 Awareness and Training

Even though the government seemed to have learnt from previous projects, there are still grey areas such as low level of information literacy and lack of awareness, which have been featured in a research conducted by (Atieno and Moturi, 2014) where they have the two elements as some of the constraints that hinder successful implementation of ICT projects. This research established that enough awareness and sensitization has not been done by the government. This has resulted to ignorance of and lack of knowledge about e-Citizen by the citizens. This explains why out of the citizens that were interviewed and observed at Huduma Center, majority had no idea of what e-Citizen was and the services it offered. This is also seen on the users' opinions where 44% felt that the awareness campaigns conducted by the government are not enough while 15% were not sure. The individuals from the ministries, who were involved in the development and implementation of the various systems that are integrated with e-Citizen, felt that the government hasn't done much when it comes to creating awareness about the government services offered online and the possibility of paying for these services online. The various ministries therefore took it upon themselves to advertise the services each one of them offers online. However, this has mostly been done through the local newspapers as the budget allocated to them cannot allow them advertise on other advertising channels such as TV. If enough awareness is not done, this then means that the citizens are lacking the required information that would determine their decision on use/intention to use a system. A good system without public awareness will not have the desired and perceived impact. Therefore, awareness creation is a very critical factor that needs to be considered when implementing a system.

Of the citizens who have and are accessing government services online, most of them learned on their own how to operate and navigate the e-Citizen portal. This is probably because most of these individuals are tech savvy hence know how to operate a computer and other devices that make it possible to access these services. However, there are those individuals who don't even have the basic skills of operating a computer. These are the citizens who end up suffering due to lack of knowledge. These are the individuals who apart from being sensitized about the online services, need to be trained on how to go

about accessing these services. Another case was observed at Huduma Center where a user had wanted to renew his driving license, and since he did not know how to use a computer, he had to reveal his user name and password for the Huduma Center employee to help him perform the transaction. As much as public awareness needs to be created, training too needs to be conducted. However, according to the various ministries, training individuals is a thing they cannot achieve as it is very expensive. This then leaves a good number of citizens suffering as some of them end up being exploited when they go to seek for services in various cyber cafes. A good example is that of one user who did not know that she could actually do a land search online within a few minutes and pay Kshs.500. Her lack of knowledge had her visit the offices several times and got whatever she wanted after a week whereby she spent close to Kshs.20,000.

Therefore, the government needs to develop a good strategy on how to go about creating awareness on the systems and services offered, and also training the citizens especially since it will reach a point whereby all services will be offered only online.

4.10.3 Plan

All the ministries had a plan in place. Initially part of this plan was to develop a system (that would offer all the services housed by each of the ministries) and roll it out at once. However they later realized that this would not be possible given the budget constraint. Financial issues came out as a key challenge in all the ministries that took part in this study. The ministries were then forced to revise their plan thereby prioritize, having what was most important topping the list and what was less important coming last. This was achieved by targeting services that are key to all other services, these were considered as key processes that would influence other processes. Some of these services are driving license renewal, driving test booking, land search, name search, passport application just to mention a few. These would then be followed by other services until all services are digitized by all ministries. This strategy has worked to their advantage especially for the driving license and passport services where the government gave no other alternative for individuals to access these services apart from online. This study therefore supports a research by Ashraf et al. (2008) who proposed an extended framework to investigate ICT impact on development at village level – this would then enable one to understand what

is core to the citizen/user of the system thereby inform the development and implementation of the system. This study was able to overcome one of the challenges that were reported by (Drury, 2011) where emphasis is put on the need of identifying the services users want or need most.

One key point that was part of the plan and therefore emerged from all the ministries was 'outsourcing'. Consultants (companies) were outsourced to develop the various systems belonging to the various ministries. This was done through an open tender, an exercise that was conducted by the various procurement departments. The consultant then works together with the implementation team; which is made up of registrars, ICT team and a coordinator of the government national digital payment gateway (e-Citizen). Outsourcing is a good approach as it ensures that the best service is provided by an expert in a specific field.

Having a good plan in place was considered to be very important (and therefore the highest factor in ranking) for the implementation of any system to be successful. However, a plan is likely not to work out as perceived. If this was to happen, there should be flexibility such that it is easier to change and/or adjust the plan. By doing so, a quality system is able to be developed. A quality system results to provision of good service which in turn results to user satisfaction and thereby realization of benefits, and this is both to the user and the entity in charge of the system.

4.10.4 Resistance and Change Management

New technology is bound to come with resistance from individuals. This is one issue that is being experienced by the ministries. Most of the users of these systems, particularly the registrars who are considered as the main users haven't embraced the systems as they are used to the manual systems. This calls for a lot of change management that needs to be done in order to change people's attitudes and make them see the benefits of digitization. What is happening at the moment is that, a lot of communication is being done through various workshops. Despite these workshops being carried out over and over, there is still laxity of users being experienced. However, if the workshops fail to work out, there is

another strategy in place which is to eliminate those who resist change. It is felt that before any change management can be done, there is need for training to be conducted. These two are intertwined and therefore both would determine if or not a system would be received well by users.

4.10.5 Benefits

Even though not all government services are currently being offered online, a number of benefits have been realized of the services that have been digitized so far. The main point that was raised in terms of benefits is revenue. Since e-Citizen was put in place, there has been an increase in the amount of revenue collected. This is because through e-Citizen, a huge number of citizens get to access the various services online. This way the government is able to serve masses of people in a day and thereby collect more revenue compared to what was collected back then.

There are more than 1 million registered users of e-Citizen in Nairobi, of which in a day, about 39,000 access land services, 800,000 access NTSA services and 500 access services offered by AG's ministry. The government therefore gets to collect more revenue and also save time on both their end and that of the citizen's. The introduction of e-Citizen has seen revenue growing on a monthly basis. They started with Kshs.400,000, then Kshs.10 million, then Kshs.17 million, then Kshs.100 million and stagnated at Kshs.105 million. An average of 6000 transactions are performed on a daily basis. Other benefits that have been realized are; saving on accountability of documents (printable documents), reduction of time taken to process applications, reduction of queues, ease of doing business and improved service delivery. This concurs with (Nawi et al., 2012) and (Gichoya, 2005) who argue how ICT is an enabler of economic growth, and the possibility ICT being able to improve efficiency and effectiveness of internal administration within governments. Figures 4.1 and 4.2show the revenue collected as of August 2015 by one of the ministries whose services are offered online. Based on what has been discussed herein, we can conclude that ICT contributes towards the socio-economic growth of a country and that of its citizens as well.

Looking at the points discussed in 4.9.2, 4.9.3, 4.9.4 and 4.9.5, we can conclude that all these factors can only be managed well through good project management. This would in turn result to realizing the benefits mentioned in 4.9.6.This makes project management an important factor that needs to be performed during the life of any IS project as this will have a huge impact on the implementation of the project.

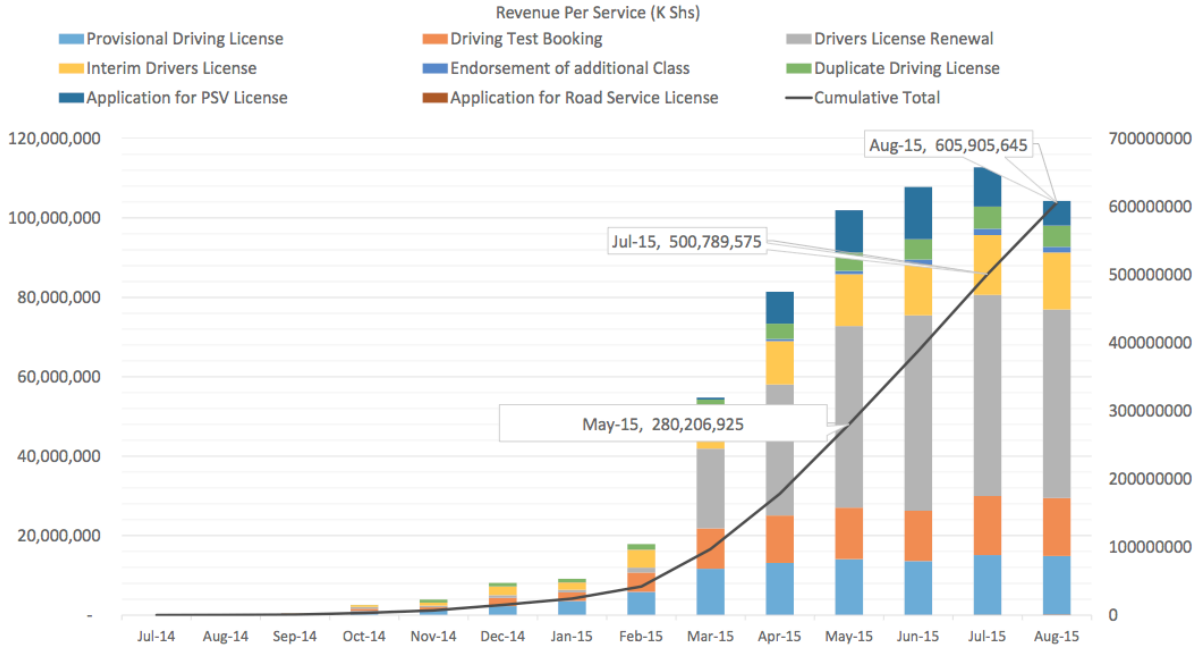
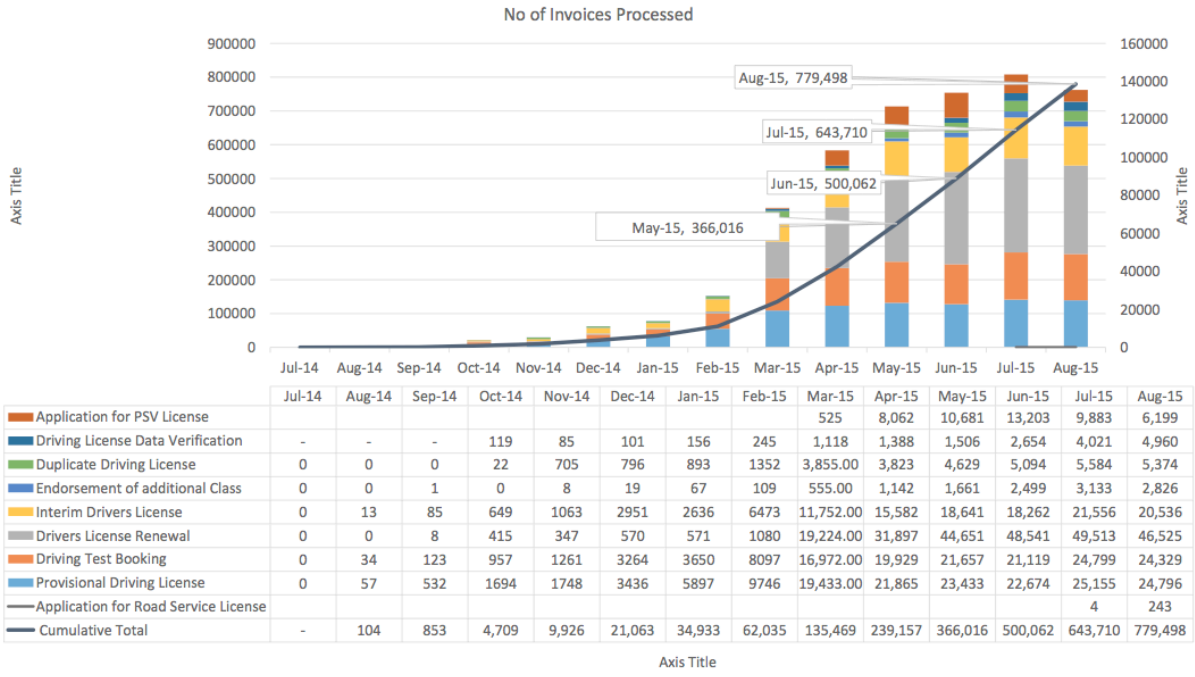


Figure 4.1: Revenue Data (Source: NTSA)



	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15
Application for PSV License									525	8,062	10,681	13,203	9,883	6,199
Driving License Data Verification	-	-	-	119	85	101	156	245	1,118	1,388	1,506	2,654	4,021	4,960
Duplicate Driving License	0	0	0	22	705	796	893	1352	3,855.00	3,823	4,629	5,094	5,584	5,374
Endorsement of additional Class	0	0	1	0	8	19	67	109	555.00	1,142	1,661	2,499	3,133	2,826
Interim Drivers License	0	13	85	649	1063	2951	2636	6473	11,752.00	15,582	18,641	18,262	21,556	20,536
Drivers License Renewal	0	0	8	415	347	570	571	1080	19,224.00	31,897	44,651	48,541	49,513	46,525
Driving Test Booking	0	34	123	957	1261	3264	3650	8097	16,972.00	19,929	21,657	21,119	24,799	24,329
Provisional Driving License	0	57	532	1694	1748	3436	5897	9746	19,433.00	21,865	23,433	22,674	25,155	24,796
Application for Road Service License													4	243
Cumulative Total	-	104	853	4,709	9,926	21,063	34,933	62,035	135,469	239,157	366,016	500,062	643,710	779,498

Figure 4.2: Invoice Data (Source: NTSA)

4.11 Enhanced Model for Assessing Implementation of ICT Projects

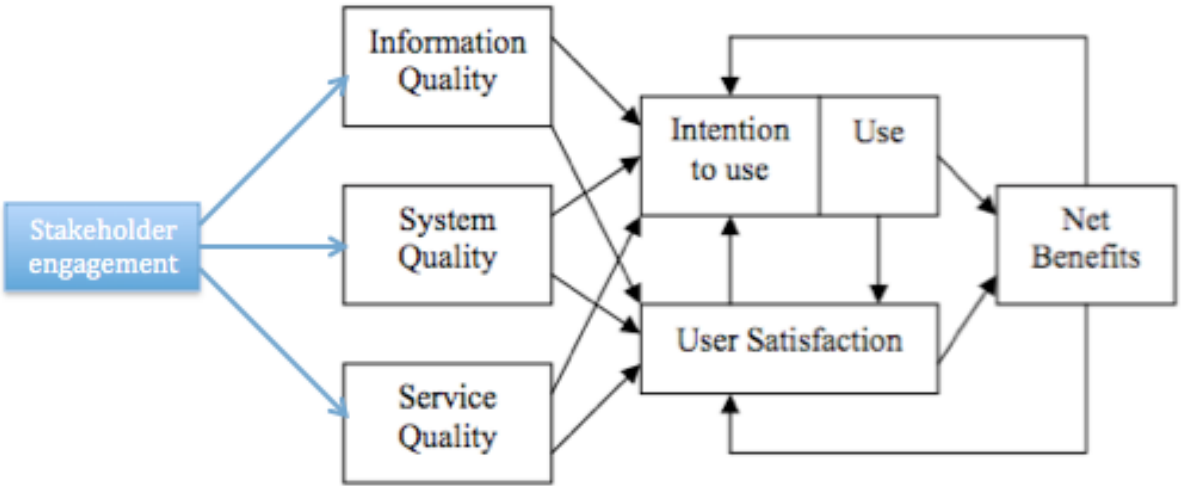


Figure 4.3: Enhanced Assessment Model

The DeLone and McLean model has 6 dimensions; information quality, system quality, service quality, intention to use/use, user satisfaction and net benefits. This research proposes that one dimension be incorporated into the DeLone and McLean model: *stakeholder engagement,* which would be determined by communication, training, awareness and change management. This is inline to the roadmap for IT project implementation developed by Legris and Collerette (2006), which integrates stakeholders and change management. *Stakeholders* is one of the dimensions of the three-dimensional framework (for the assessment of e-Government initiatives), which was proposed by (Esteves and Joseph, 2008). Even though hypotheses indicate a weak relationship between stakeholder engagement and successful implementation of e-Citizen project, results show that only 15% of respondents agreed that the Kenyan government engaged the public during development of e-Citizen, the rest either disagreed or did not know. This clearly indicates that the citizens/users were never really engaged and that majority did not even know about the existence of e-Citizen. This is a risky move as it is likely to result to resistance and negative attitudes from the users. The study supports research done by Reijswoud (2009) who argues of there not being any sustainable development

(of ICT projects) without local support of the project and also ignoring the local needs and demands. Therefore, just like it has been argued by (Hassan et al., 2008), e-service in the public sector necessitates closer working relationships between government and stakeholders hence the need for stakeholder engagement as this would feed into the quality of the system, the quality of information and the quality of service offered. Each of these three would then feed into both intention to use/use and user satisfaction. Use would then feed into user satisfaction which in-turn would feed back into intention to use. Both use and user satisfaction would feed into net benefits which would in-turn feed into both intention to use and user satisfaction. Here a causal relationship between the elements is seen. Awareness and training needs to be a continuous process as the system will keep changing hence the need for more awareness campaigns and training.

CHAPTER 5 – CONCLUSION AND RECOMMENDATIONS

This chapter gives a summary of the study by looking at the key findings of the research and their implications to the various stakeholders in this case both the citizens and government. The objectives and corresponding research questions are revisited thereby showing how the research was able to address the objectives and research questions. This chapter also contains the contribution, limitations and conclusions of the study, and recommendations for future work.

5.1 Linking Study Findings to the Objectives

Research Objective 1: *To investigate the frameworks used in assessing ICT projects in developing countries.*

To address this objective, the study sought to answer two questions regarding: *frameworks that have been used to assess ICT projects in developing countries* and *causes of failure of ICT projects in developing countries*. These questions were answered through a literature review, and the details are in Chapter 2 of this document. The literature review revealed some of the factors that result to failure of ICT projects in developing countries. Six models employed in the assessment of various ICT projects in developing countries have been discussed. The DeLone and McLean of Information Systems Success model was adopted and hence used to assess the implementation of the e-Citizen Kenya ICT project.

Research Objective 2:*To establish the extent to which e-Citizen Kenya has contributed towards the delivery of various government services to citizens.*

This objective was addressed by tackling two questions: *the experience of individuals and businesses using services offered by e-Citizen Kenya* and *how e-Citizen Kenya has contributed to government service delivery*. This was achieved through administration of questionnaires and conducting interviews with questions based on the conceptual framework. The questionnaires consisted of, among others, questions that focused on the

user experience in interacting with the e-Citizen portal. A Likert scale of 1 to 5 was employed in order to get the various opinions of the respondents. The interviews conducted were directed to the project managers of the various ministries that were part of the study. Questions that were asked generated answers that informed the extent to which e-Citizen Kenya has contributed to government service delivery.

Research Objective 3:*To propose a framework that can be used to assess implementation of e-Government projects.*

Two questions were generated for this objective: *the strategies that must be developed to enhance successful implementation of e-Government initiatives in Kenya* and *how e-Government projects can contribute to the socio-economic development of a country.* This objective was achieved through analysis of the quantitative data generated from the completed questionnaires, and also through identification of various themes and issues that arose from the qualitative data that was collected through conducting interviews. This in turn informed the proposed model which had more constructs incorporated.

5.2 Contribution to the Study

This research sought to propose a model that can be employed in the assessment of ICT projects. Even though the DeLone and McLean model has dimensions that are deemed important in the assessment of ICT projects, based on the findings of this study, there is need to examine the contribution of one other dimension: *stakeholder engagement*. This therefore contributes to the body of knowledge, and thereby improves the assessment process of implementation of ICT projects in developing countries. The proposed model is based on the DeLone and McLean of Information Systems Success model which consists of six dimensions: systems quality, information quality, service quality, intention to use/use, user satisfaction and net benefits. This research proposed that *stakeholder engagement* be incorporated in the DeLone and McLean model. The findings from this study are not only relevant to other researchers but practitioners such as system implementers, project managers and government policy makers.

5.3 Limitations of the Study

The research was limited to the Nairobi region hence respondents from other parts of the country especially the rural areas were left out. A good number of citizens are not familiar with the e-Citizen portal and hence they opt to go to the various Huduma Centers. This may have limited the location of the most appropriate respondents. Acquiring all the data considered important to the study from government offices as well as approvals was not an easy task.

5.4 Conclusion and Recommendations

The literature reviewed in this study shows that a good number of ICT projects in developing countries have not been successfully implemented. Based on the results of the study, there is one major issue that needs to be addressed: stakeholder engagement, this is especially through public awareness, which is an attribute that determines stakeholder engagement. Research reports that 44% of the respondents felt that the government did not create enough awareness of the e-Citizen portal, 15% were neutral while 18% disagreed. Observations made at Huduma Center also indicate that a good number of citizens are oblivious of what e-Citizen is about and what it does. Therefore it can be concluded that there is need of engaging stakeholders during the life of a project. The government needs to develop a good strategy that would oversee the awareness campaigns that need to be conducted. Other strategies that need to be developed are communication, change management and training strategies. By doing this, the government will be able to serve the public better as the main aim of e-Government initiatives is to serve the public. This is supported by Otieno and Omwenga (2014), who argue that e-Government initiatives should be driven by public value. They define public value as "the value created by government through services, laws, regulation and other actions".

Based on the six dimensions of the DeLone and McLean model which have been discussed in sections 4.4, 4.5, 4.6, 4.7, 4.8 and 4.9, the study concluded that *system quality*, *information quality* and *service quality* have an effect on the *intention to use/use* and *user satisfaction*. The quality of these three dimensions determines if or not a system

will be used by users and also, if the users intend to use it in future. So far the three dimensions have been addressed well and this is explained by the high percentages (indicated in the three sections) which explain the attributes that inform them. Results in section 4.7 could be interpreted to imply that there exists a causal relationship (between the first three dimensions and *intention to us/use*) whereby 79% of respondents agreed to continue using the portal. The study therefore concluded that this could be due to the fact that the first three dimensions (*system quality*, *information quality* and *service quality*) were well addressed. However on the flip side, the high percentage for *intention to use/use* could be due to the government directive which forces people to use the system by eliminating other alternatives which people can use to access the government services. This then leaves the respondents with no other option than to continue using the portal. Section 4.8 talks of there being greater *user satisfaction* through usage of the portal, which is shown in the results discussed in the section. The benefits discussed in sections 4.9 and 4.10.5 indicate that the benefits can only be realized when users are satisfied with the quality of information, system and service. This in turn encourages the users to continue using the system hence the existence of a causal relationship between *user satisfaction* and *net benefits*, and *net benefits* and *use*. When users use the system and are satisfied, they will be able to realize benefits offered by the system. It can therefore be concluded that, the dimensions in the conceptual framework applied to this particular study. However, it is not a guarantee that there has to be a causal relationship between the dimensions when it comes to government initiatives. This is because of the strategy that was employed by the Kenyan government which forces people to access (online) the services that are currently being offered thereby making individuals' opinions and choices not to count.

Since the government is looking to have all the services offered only online in future, there is need for collaboration between the various sections within the government in order to ensure that all categories of citizens are considered, including those in the remote areas, those who are illiterate and those not tech savvy. Collaboration will ensure that as projects are undertaken and systems developed, all aspects will be addressed. This will then have all categories of people catered for specifically the ones in remote areas. This

basically means when undertaking the e-Citizen project, the government entities that worked on projects such as the digital villages and county connectivity need to be looped in.

5.5 Further Research

This research focused mainly on the e-Citizen project. However, the study findings reveal that there is lack of synergy within the government. This is informed by the fact that Huduma Centers are also planning to develop a gateway (eHuduma) that is meant to operate in the same manner as e-Citizen. Further research should be extended to Huduma Centers in order to learn from past experiences and avoid making the same mistakes.

The study findings indicated that males were the highest respondents with a percentage of 68% while their female counterparts were 32%. Also, based on one on one interaction with people, it turned out that compared to men, most of the women were oblivious of e-Citizen portal which explains the few number of women who took part in the study. Further research should look in to the issue of women and technology adoption. This will have both genders involved thereby benefit from the positives that come with digitization of government services.

From observations made at Huduma Centre, a huge number of people visit the centres in order to acquire government services. Most of these people wanted to have their driving licenses and passports renewed – services that could be accessed via the portal. Some of these people had gotten to hear about the portal but still felt the need to visit the centres to acquire these services. Therefore there is need to not only do further research in women and technology, but also to look in to issues surrounding peoples' interest in technology.

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APPENDICES

Appendix A: Questionnaire Survey (General Users)

eCITIZEN PROJECT SURVEY

All questions contained in this questionnaire are part of a survey on public perception of eCitizen project. This survey aims to seek opinions and perceptions of both individuals who have used eCitizen and those who have not. The survey should only take 5-10 minutes of your time.

INSTRUCTIONS

Please answer questions as they relate to you. For most answers, check the box(es) most applicable to you or fill in the blanks.

Demographic Information

1. Age bracket

- ☐ 18 – 25 years
- ☐ 26 – 30 years
- ☐ 31 – 35 years
- ☐ 36 – 40 years
- ☐ 41 – 45 years
- ☐ Over 45 years

2. Gender

- ☐ Female
- ☐ Male

3. What is your employment status?

- ☐ Employed for wages/salary
- ☐ Unemployed
- ☐ Self employed
- ☐ Student
- ☐ Retired

4. What is your highest level of education?

- ☐ Secondary education or less
- ☐ Diploma / Higher diploma
- ☐ Bachelors degree
- ☐ Masters degree / PhD
- ☐ Other (Please specify)

5. What is your experience level with IT?

- ☐ Novice
- ☐ Intermediate
- ☐ Advanced
- ☐ Expert

General eGovernment / eCitizen Questions

6. How do you access government information and services?

(Select all that apply)

- ☐ eCitizen portal
- ☐ Huduma Centre
- ☐ Other……

7. How often do you access eGovernment services?

- ☐ Weekly basis
- ☐ Monthly basis
- ☐ Annually
- ☐ Other……...

8. What eGovernment services do you access?

(Select all that apply)

- ☐ Business name registration
- ☐ Business name search
- ☐ Notice of marriage
- ☐ Issuance of a registrar's certificate
- ☐ Solemnization of marriage
- ☐ Issuance of marriage certificate
- ☐ Commisioning of affidavits
- ☐ Provisional driving license
- ☐ Driving test booking
- ☐ Interim driving license
- ☐ Driving license renewal
- ☐ Duplicate driving license
- ☐ Driving class endorsement
- ☐ Driving license information corrections
- ☐ Land search (Nairobi blocks)
- ☐ Passport application for adults
- ☐ Passport application for children
- ☐ Application for Kenyan visa
- ☐ Other……

9. What mode of payment do you use?

(Select all that apply)

- ☐ Mpesa
- ☐ Airtel Money
- ☐ Debit / credit / prepaid card
- ☐ Mobikash
- ☐ eCitizen agent
- ☐ Orange Money
- ☐ Other……

10. How/what device do you use to access eGovernment services?

(Select all that apply.)

- ☐ Computer / laptop
- ☐ iPad
- ☐ Cyber caffe
- ☐ Phone
- ☐ Huduma Centre

eCitizen Assessment Questions

11. Am able to access government information and services 24 hours a day, 7 days a week.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

12. I have been trained on how to use eCitizen.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

13. It is easy for me to learn how to operate and use eCitizen.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

14. It will be easy for me to use eCitizen if I got good training.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

15. eCitizen / eGovernment services are affordable.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

16. eCitizen enables me accomplish tasks more quickly and with much ease.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

17. Services on eCitizen have been packaged well to enable me find the exact service I want with much ease.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

18. My queries on eCitizen are answered in good time.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

19. eCitizen offers me relevant, adequate and accurate information regarding its services.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

20. eCitizen is useful to me and other citizens.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

21. My family, friends and colleagues have used eCitizen.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

22. eCitizen is not useful due to inefficient availability of government information and services.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

23. I experience problems (hardware / software) when accessing eCitizen portal.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

24. I find it difficult to use eCitizen due to lack of information and awareness campaigns.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

25. I am not satisfied with the eCitizen awareness campaigns conducted.

(Select only one)

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

26. The Kenyan government has offered enough support towards the eCitizen project.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

27. The Kenyan government communicates promptly to the public, providing updates and progress of the project.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

28. The Kenyan government engaged the public/citizens during development of the eCitizen project.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

29. eCitizen offers satisfactory security and privacy measures.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

30. I plan to continue using eCitizen in future.

- ☐ Strongly disagree
- ☐ Disagree
- ☐ Neutral
- ☐ Agree
- ☐ Strongly agree

Appendix B: Questionnaire Survey (Ministry Users)

MINISTRY X

All questions contained in this questionnaire are part of a survey on public perception of projects undertaken by various government ministries and are delivered to citizens via eCitizen portal. This survey aims to seek opinions and perceptions of individuals who were involved in the NTSA project, and are familiar with other government services offered via eCitizen portal. The survey should only take 5-10 minutes of your time.

INSTRUCTIONS

Please answer questions as they relate to you. For most answers, check the box(es) most applicable to you or fill in the blanks.

Demographic Information

1. Age bracket

- ☐ 18 – 25 years
- ☐ 26 – 30 years
- ☐ 31 – 35 years
- ☐ 36 – 40 years
- ☐ 41 – 45 years
- ☐ Over 45 years

2. Gender

- ☐ Female
- ☐ Male

3. What is your highest level of education?

- ☐ Secondary education or less
- ☐ Diploma / Higher diploma
- ☐ Bachelors degree
- ☐ Masters degree / PhD
- ☐ Other (Please specify)

4. What is your experience level with IT?

- ☐ Novice
- ☐ Intermediate
- ☐ Advanced
- ☐ Expert

System Assessment Questions

5. Up to what level were you involved in the development of the system?

(Select all that apply)

- ☐ Planning
- ☐ Analysis
- ☐ Design
- ☐ Coding
- ☐ Testing
- ☐ Maintenance

Comments**:**……..

6. How did you go about the development of the system?

7. Up to what level were you and your colleagues involved in the decision making process?

8. What is your view regarding security of the system since it was launched?

- ☐ Very secure
- ☐ Secure
- ☐ Moderate
- ☐ Insecure

Comments**:**……..

9. What are some of the challenges that were faced by you and your colleagues?

(Select all that apply)

- ☐ Bad communication
- ☐ Unlear requirements
- ☐ Increasing cost
- ☐ Quality control
- ☐ Security
- ☐ Always debugging

☐ Delayed project delivery
☐ Market pressure
☐ Coordination a& collaboration
☐ Human resources
☐ Other……

☐ Right design patterns
☐ Knowing technical needs
☐ Procurement
☐ Data storage and retrieval

10. What is your view on how the system is being received by the public/citizens?

11. What are some of the issues regarding the system that have been raised by the public/citizens?

eCitizen Assessment Questions

12. Do you get to use the eCitizen portal and services offered through it?

☐ Yes ☐ No

13. If yes to 12, how often do you access the portal to acquire information and / or services about or from the government?

(Select all that apply.)

☐ Daily basis
☐ Weekly basis
☐ Monthly basis
☐ Once a month
☐ Once a year
☐ Never

14. What services do you access?

(Select all that apply)

☐ Business name registration
☐ Notice of marriage
☐ Solemnization of marriage
☐ Commisioning of affidavits
☐ Driving test booking
☐ Driving license renewal
☐ Driving class endorsement
☐ Land search (Nairobi blocks)
☐ Passport application for children
☐ Business name search
☐ Issuance of a registrar's certificate
☐ Issuance of marriage certificate
☐ Provisional driving license
☐ Interim driving license
☐ Duplicate driving license
☐ Driving license information corrections
☐ Passport application for adults
☐ Application for Kenyan visa

15. What mode of payment do you use?

(Select all that apply)

☐ Mpesa
☐ Airtel Money
☐ Debit / credit / prepaid card
☐ Mobikash
☐ eCitizen agent
☐ Orange Money

16. How/what device do you use to access eCitizen services?

(Select all that apply.)

☐ Computer / laptop
☐ iPad
☐ Cyber caffe
☐ Phone
☐ Huduma Centre

17. Am able to access government information and services 24 hours a day, 7 days a week.

☐ Strongly disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly agree

18. How do you access government information and services?

(Select all that apply)

☐ eCitizen portal
☐ Other……
☐ Huduma Centre

19. eCitizen enables me accomplish tasks more quickly.

☐ Strongly disagree ☐ Agree

☐ Disagree ☐ Strongly agree
☐ Neutral

20. With eCitizen, am able to perform my transactions with much ease.

☐ Strongly disagree ☐ Agree
☐ Disagree ☐ Strongly agree
☐ Neutral

21. Services on eCitizen have been packaged well to enable me find the exact service I want with much ease.

☐ Strongly disagree ☐ Agree
☐ Disagree ☐ Strongly agree
☐ Neutral

22. eCitizen offers me relevant, adequate and accurate information regarding services offered by the various ministries.

☐ Strongly disagree ☐ Agree
☐ Disagree ☐ Strongly agree
☐ Neutral

23. eCitizen is useful to me and other citizens.

☐ Strongly disagree ☐ Agree
☐ Disagree ☐ Strongly agree
☐ Neutral

24. My family, friends and colleagues have used eCitizen.

☐ Strongly disagree ☐ Agree
☐ Disagree ☐ Strongly agree
☐ Neutral

25. eCitizen is not useful due to inefficient availability of government information and services.

☐ Strongly disagree ☐ Agree
☐ Disagree ☐ Strongly agree
☐ Neutral

26. I experience problems (hardware / software) when accessing eCitizen portal.

☐ Strongly disagree ☐ Agree
☐ Disagree ☐ Strongly agree
☐ Neutral

27. The Kenyan government has offered enough support towards the eCitizen project.

☐ Strongly disagree ☐ Agree
☐ Disagree ☐ Strongly agree
☐ Neutral

28. The Kenyan government communicates promptly to the public, providing updates and progress of the project.

☐ Strongly disagree ☐ Agree
☐ Disagree ☐ Strongly agree
☐ Neutral

29. The Kenyan government engaged the public/citizens during development of the eCitizen project.

☐ Strongly disagree ☐ Agree
☐ Disagree ☐ Strongly agree
☐ Neutral

30. I plan to continue using eCitizen in future.

☐ Strongly disagree ☐ Agree
☐ Disagree ☐ Strongly agree
☐ Neutral

Appendix C: Interview Guide

MINISTRY X

All questions to be asked are part of a survey that seeks to understand the implementation of the NTSA system/project and identify benefits and/or challenges experienced from inception to implementation of the system/project.

Demographic Information

1. Age bracket

- ☐ 18 – 25 years
- ☐ 26 – 30 years
- ☐ 31 – 35 years
- ☐ 36 – 40 years
- ☐ 41 – 45 years
- ☐ Over 45 years

2. Gender

- ☐ Female
- ☐ Male

3. Level of education

- ☐ Secondary education or less
- ☐ Diploma / Higher diploma
- ☐ Bachelors degree
- ☐ Masters degree / PhD
- ☐ Other (Please specify)

General Questions

4. ICT structure (this entails the ICT team)

5. When did the project commence and when was the system integrated with eCitizen?

6. In which phase is the project currently in?

7. Who were involved in the project?

8. What were their roles?

9. Who are the content generators of the project?

10. What are the key services offered by the system/project?

System Assessment Questions

11. What are the main objectives of the project?

12. What's the implementation team made up of?

13. What's the development team made up of?

14. What criteria did you employ in selecting the development team members?

15. How would you describe the support and commitment of the top management towards the project?

16. Was there a plan in place on how to go about implementation of the project? Briefly explain.

17. In summary, please describe the implementation process to date? (Key events, incidents).

18. What strategies do you have in place? (change management, risk management, communication etc).

19. Briefly summarize the main objectives and methods of implementation of these strategies.

20. What is your view regarding security of the system since it was launched?

21. How often does monitoring and evaluation take place?

- ☐ Every 3 months
- ☐ Every 6 months
- ☐ Once a year
- ☐ Other

22. How did you go about integration of the system with eCitizen?

23. What measures do you have in place to ensure system recovery thereby business continuity?

24. Who are your service providers and what services do they offer you?

25. How widespread is the use of the system amongst public organizations and citizens? Please specify?

26. What are the metrics in terms of no.of people who access and make use of the services offered through the system?

27. What are the metrics in terms of no.of transactions performed?

28. Do you interact with citizens in order to get their opinions and suggestions? If yes, how often?

29. Are there any awareness programmes regarding benefits of using the system?

30. Are there any training programmes available for the public? If yes, please describe.

31. What are the main challenges that have been experienced by implementers of the system?

32. Would you consider financial issues as a key challenge in the development of the project?

33. How has the system/project contributed to government service delivery?

34. How can the system/project contribute to the socio-economic development of citizens and that of the country?

35. What future plans are in place for the system/project?