TITLE

DESIGN REALITY GAP FRAMEWORK FOR POST IMPLEMENTATION EVALUATION OF THE NATIONAL ICT POLICY:

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P54/65111/2014

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SUBMITTED IN PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR THE AWARD
OF THE DEGREE OF MASTER OF SCIENCE IN INFORMATION TECHNOLOGY
MANAGEMENT, SCHOOL OF COMPUTING
AND INFORMATICS, UNIVERSITY OF NAIROBI.

JULY 2015

DECLARATION

I the undersigned, hereby declare that this research project is my original work and that it has not been presented to any other university for award of any academic qualification.

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APPROVAL

This research project has been submitted for examination to the University of Nairobi with my approval as the appointed supervisor.

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ACKNOWLEDGEMENT

I am grateful to God for everything in my life, my past my present and my future, and for making it possible for me to complete my thesis. I cannot express enough gratitude to my supervisor Dr. Agnes Wausi, Nairobi University, who guided me in every step of my thesis, her unwavering commitment and diligence enabled me develop a researchers mindset and successfully complete my thesis.

I wish to thank my panelist Dr.Opiyo and Dr.Muchemi for critiquing my work and offering professional guidance towards delivering a relevant, practical and high quality thesis document

I am grateful to the ministry of ICT for allowing me to conduct data collection at their deferent departments, their encouragement and support motivated me to tirelessly collect and analysis data that was representative of my targeted sample number.

Lastly my heart felt gratitude goes to my parent, Purity Gathoni Kinyuah for her unconditional support, towards the completion of masters program.

DEDICATION

I dedicate my research project to my son, Jayson Kinyua Wanjau, family and friends. God bless you.

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LIST OF ABBREVIATIONS

EFA : Exploratory Factor Analysis

CFA : Confirmatory Factor Analysis

ICT : Information Communications Technology

CSF : Critical Success Factor

CFF : Critical Failure Model

ABSTRACT

This study analyzed, examined and evaluated the gaps between Information Communication Technologies (ICT) policy design and their actual outcomes in governmental ICT agencies, informed by the objectives and identified variables in the national ICT policy document of 2006, this was focused on a framework developed by Richard Heeks, and extended by Baqir et al. (2009), the "Design and actuality Gap". The study was also informed by a sustainability failure model that explicitly considered the sustainability of ICT projects longitudinally, by Kumar and Best (2008). A quantitative approach design was used to gather and analyze data on ICT policy design and actuality gap, the scope was limited to the ministry of ICT and Communication Authority of Kenya (CAK), responsible for national ICT agencies in Kenya. The quantitative method was also used to investigate the relationships between policy design and the actual outcome in terms of successful and or unsuccessful deployment of ICT use, resources, infrastructure, policy awareness and legal framework. The data that was collated in this study was used to develop a theoretical foundation for the evaluation and analyzing of the gaps between government ICT policy design and actual outcomes of the implementation of the policy document. The data collected stimulated critical understanding of the various variables and factors that are critical towards ensuring the success of ICT policy in ICT agencies. The identified ICT gaps affecting the Kenyan Government as noted by ministerial 2013-2017 ICT strategic plan provided pivotal data, that informed the study on crucial dimensions and variables, that contributed towards the success and or failure of ICT, Finally the critical factors were deduced from the identified variables in the policy document, using exploratory factor analysis, the identified gaps were tabulated and analyzed in relation to the identified factors, suggestions and recommendations were captured, and a riketscale was used to explain the suitability of the policy document after analysis and evaluation.

CHAPTER ONE

Introduction

Background to the Study

Governments around the world have set very ambitious goals and are running programs with considerable financial volume for the implementation of electronic service delivery in the public sector (Aichholzer, 2010). The Governments use of Information and Communication Technology (ICT) has the potential to transform the relationship between citizens and how public services are delivered but only if it is clear what the ICT is being used for (Jones, 2005). The adoption of the national ICT policy by the Government of Kenya, in public institutions aims to provide improved ICT service delivery in contrast to the orthodox manual service delivery, thus the realization of electronic government and transformation of service delivery (Prins, 2001) is accompanied by strategic policy frameworks intended to guide basic decisions and day-to-day practical actions. Though researchers have focused considerable attention on how ICT policies can help the government or public agencies in improving their ICT services, there has been considerably less focus on examining the long-term sustainability and effectiveness of ICT projects (Aichholzer, 2004; Heeks, 2002; Heeks, 2003a). Kenya produced its first National ICT Policy in 2006 whose vision forecasted a prosperous ICT-driven society, while its mission entailed improvement on the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable and affordable ICT services. A framework for evaluation of ICT policy design and implementation is valuable because it shows what works and what does not. It can be used as an efficient way to communicate and encourage consistency in evaluation. This study looked at various evaluation models, that include critical success factors (CSF) and critical failure factors (CFF) model (Heeks & Bhatnagar, 1999a), 'design-actuality' (R. Heeks, 2002) or 'design-reality' gaps (Heeks, 2003a), (Kumar & Best 2006) sustainability failure model. Strategic national ICT Statistic, 2013 shows that there has been a significant uptake in the use of ICT across board; it indicates that ICT sector in Kenya grew at an average of nearly 20% per year from 1999-2013. The number of phone subscriptions grew from the equivalent of one per 1,000 adults in 1999 to the equivalent of nearly one per adult in 2013; Internet usage rates for 2013 were around five per ten adults. Person-to-person mobile money transactions at the

end of 2010 were equivalent to around 20% of GDP with two of every three Kenyan adults being users. ICT has been one of the main drivers of Kenya's economic growth over the last decade. Since 2000, Kenya's economy grew at an average of 3.7 percent with ICT being responsible for 0.9 of the 3.7% annual GDP growth, and for all of Kenya's GDP per capita growth (World Bank). These statistics show that ICT is a crucial industry in social- economic development and a significant contributor to the annual GDP growth of Kenya. This study aims to examine and analyze the gap between Information Communication Technologies (ICT) policy implementation and their actual outcomes in the Kenyan Government that will identify ways to bridge gaps by enhancing the design process.

Statement of the Problem

The Governments use of Information and Communication Technologies (ICTs) in line with the adopted ICT policy, tries to improve the activities of public sector organizations, this brings with it the promise of greater efficiency and effectiveness of public sector operations and service delivery to Kenyans, some of the critical dimensions of the ICT policy include ICT use, Legal framework, Human resource and Technology, this dimensions were used to look at the design reality gaps to adequately determine that gaps that exist between ICT policy design and current reality on the round. According to Richard Heeks (2003) most Government ICT projects fail either fully or partially or succeed, Heeks (2003) notes that, Total failure: the initiative was never implemented or was implemented but immediately abandoned. Partial failure: major goals for the initiative were not attained and/or there were significant undesirable outcomes. Success: most stakeholder groups attained their major goals and did not experience significant undesirable outcomes. The growth of ICT by an average of nearly 20% per year from 1999-2013, that in turn grew the economy by 0.9%, indicates that ICT has significant potential to the country's economy if deployed efficiently and effectively .This study therefore examined and analyzed the gap between Information Communication Technologies (ICT) policy implementation and their actual outcomes in the Kenyan Government and try to identify ways to bridge gaps by enhancing the design process.

General objective of the Study

To examine and analyze the gap between Information Communication Technologies (ICT) policy design and their actual outcome

1.1 Specific objectives

The study was guided by the following objectives:

i. To understand the level of ICT use in government agencies and as required by the national ICT policy
ii. To assess the human resource level of training in policy implementation
iii. To determine the level of ICT legal policy framework exposure to public agents and stakeholders by government.
iv. To find out whether the state coordinating office publicized the national ICT policy framework to stakeholders?

1.2 Research Questions:

a) To what extent have ICT government agencies adopted the use of ICT?
b) Were ICT public servants of various national ICT agencies trained in policy implementation?
c) What percentage of government employees were exposed to the legal ICT policy framework?
d) Did the state coordinating office publicize the national ICT policy framework to stakeholders?

Justification for the Study

The findings of this study have provide a theoretical foundation for the evaluation and analyses of the gaps between government policy design and actual outcomes of the implementation of these policies

Significance of the Study

The design reality model findings will strengthen the extended framework in explaining the design and actuality gap that will allow for a greater in depth assessment process and in identifying ways to bridge gaps.

Scope

The study looked at the institutions involved in ICT projects and policy formulations, ICT Authority, Communication authority of Kenya (CAK), and various stake holders as has been identified in table 1 Sampling frame.

Limitations

Some of the respondents were neither willing nor cooperative in filling out the questionnaire, the analysis programs for model reduction were expensive to purchase, thus I only used Spss, the time for data gathering and analysis was insufficient.

Assumptions of the study

The assumption made was that the respondents would be cooperative and provide accurate information when responding to the research questions. It was also assumed that the sample size chosen would be adequate to enable the researcher draw valid conclusion about the actuality gap.

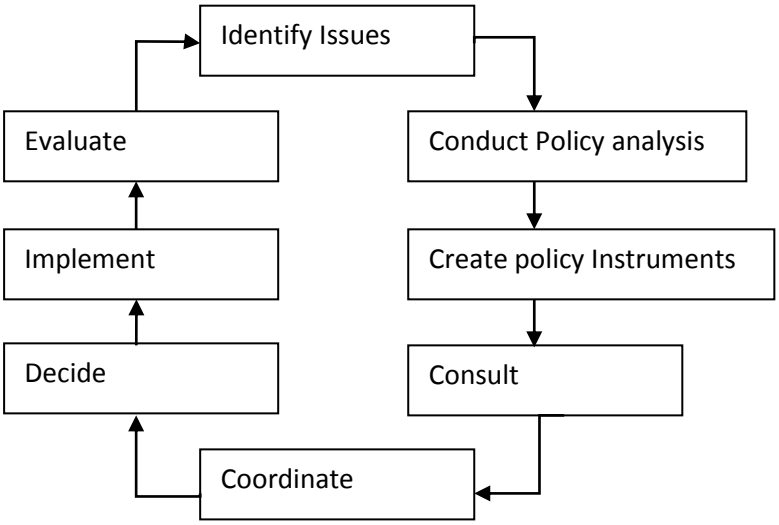
CHAPTER TWO
REVIEW OF RELATED LITERATURE

2.1 Introduction

Chapter two was used to review empirical literature on the various evaluation models of ICT policy design implementation in relation to the successes or failures of ICT projects in Kenya. Evaluation refers to the process of measuring and assessing the impacts and merits of government policies, strategies and programs. It is a means of determining the appropriateness, effectiveness and efficiency of government policies and programs, and contributing to policy improvements and innovation. Researchers have proposed a number of theories and models for understanding the reasons for success or failure of such projects. A methodological review of past literature is a crucial endeavor for any academic research (Webster & Watson, 2002). A lot of the empirical literature has been done with regards to the evaluation of Information and Communications Technologies (ICT) policies, (Pozzebon and Heck, 2006; Gerhan and Mutula, 2007, Best and Kumar, 2008). ICT evaluation can be defined as establishing by quantitative, and/or qualitative methods the value of the ICT to the organization (Khalifa et al, 2004). literature on policy evaluation prescribes several evaluation methods to discover "best practices" in government policies (Mann and Schweiger, 2009; Gibbons, 2008; Rossi and Freeman, 1993; Shadish et.al., 1991; Berk and Rossi, 1990).The extent of recent research on ICT policy evaluation is limited to the identification of successes and failures of national ICT policies in several countries (Olsson, 2006; Samarajiva and Zainuddin, 2008; Gao & Rafiq, 2009).The categorization of ICT policies into successes and failures without critical theoretical grounding runs into problems of evaluation subjectivity: a failure for one person could be success of another, and evaluation timing: today's success might be tomorrow's failure (Heeks, 2002). While researchers have proposed a number of theoretical frameworks to help understand the reasons for the failure of such ICT projects, there are relatively few empirical case studies that examine long-term sustainability. Some of the few examples that do exist include a study of the Gyandoot rural e-government project in India, which found that although service satisfaction was high, usage over time was low, and the poorest people were not using the services Cecchini & Raina, 2003). In another case study, lack of regularly updated content and interactivity led to the failure of a community-based e-government initiative in South Africa within a year despite its initial success (Benjamin, 2001). Heeks (2002) has offered brief overviews of several more cases of total or partial failure of ICT initiatives in developing countries.

2.2 Theoretical framework

(Mara, 2007) Policy design theorists argued that scholars should look further back in the causal chain to understand why policies succeed or fail, because the original policy formulation processes, and the policy designs themselves, significantly contribute to implementation outcomes. There are many methods and techniques for evaluating government policies, like design reality gap and extended design actuality gap. Typically, however, the evaluation involved: some form of analysis, interpretation and judgment; comparison between stated objectives, performance indicators and actual results; consideration and measurement of impacts; assessment relative to other policies (existing or potential); a focus on efficiency and effectiveness; and an attempt to understand how the policy operates in practice, especially relative to how it operates in theory. Evaluation helps determine the success of earlier steps in the policy development cycle, whether the program had the intended impacts and met its objectives, and whether things can be done better in the future. The policy cycle (Bridgeman 2007)



Evaluation is a valuable activity. Properly planned and executed, it can result in benefits for the government, agencies, public servants and the community. Some examples of these benefits are outlined in Table 2.

Beneficiary	**Potential benefits**
Government	More information to assist decision making
	Improved ability to achieve government priorities
	More efficient resource allocation

	Highlights achievements and opportunities to strengthen performance
	Encourages greater public trust in government
Agencies	Stronger basis for informing government priorities and resource allocation
	Improved service delivery and client satisfaction
	Builds an organization's reputation for innovation and continuous improvement
Public servants	Develops new skills and broadens experience
	More opportunity to shape public policy
	Fosters a more dynamic and creative work environment
	Recognizes and rewards efforts to improve performance
	Develops new skills and broadens experience
	More opportunity to shape public policy
Community	Better government services
	More informative government reporting
	More transparent and accountable government
	Public monies used more efficiently
	Greater confidence in activities of government

2.2.1 Kingdon's Agenda-Setting Theory

Kindon notes that the policy agenda is the list of issues or problems to which government officials, or those who make policy decisions, pay serious attention. Moving an idea higher up on an agenda involves three processes: problems, proposals, and politics.

Problems refer to the process of persuading policy decision makers to pay attention to one problem over others.

Proposals represent the process by which policy proposals are generated, debated, revised, and adopted for serious consideration.

Politics are political factors that influence agendas, such as changes in elected officials, political climate and the voices of advocacy or opposition groups.

These three elements operate largely independently, although the actors in each can overlap. Successful agenda setting requires that at least two elements come together at a critical time that is, when a "policy window" opens. For example, advocates may develop a policy proposal, wait

for the right problem to come along, and then attach their proposal to it. Or researchers may identify a problem, but it will not get on the agenda until politics shift. Policy windows are not just chance opportunities, however; they also can be created.

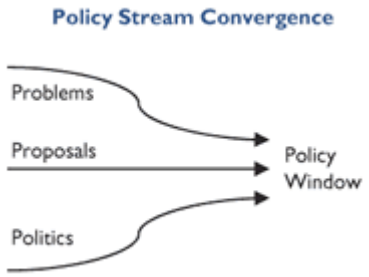


Figure 1 Policy Stream Convergence

2.2.2 Design reality gap

Heeks emphasizes the idea of design reality gap in e-government projects, the reality "where we are now" and the Design "where the e-government project wants to get us", Heeks emphasizes that the larger the gap between reality and design the more difficult it is to successfully complete the project, the smaller the gap the higher the chances of success. Design reality gaps is denoted by 7 dimension's that determine the gap, these seven dimensions include information, technology, processes, objectives and values, staffing and skills, management systems and structures, and other resources: time and money. These seven dimensions are summed up in the acronym ITPOSMO.

The Design-Reality Gap Model created by Heeks is an important contribution to the field of e-government and can be extended to policy evaluation, it provides a systematic and uniform way to monitor ICT policy and assess their success. It also highlights a mismatch between the requirements of the users of technology at the grassroots level (the reality) and the understanding of these requirements by those who are designing technological tools to facilitate ICT policy (design). This model shall use four dimensions and twelve sub dimensions which shall be used in providing information on the design reality gap of the national ICT policy.

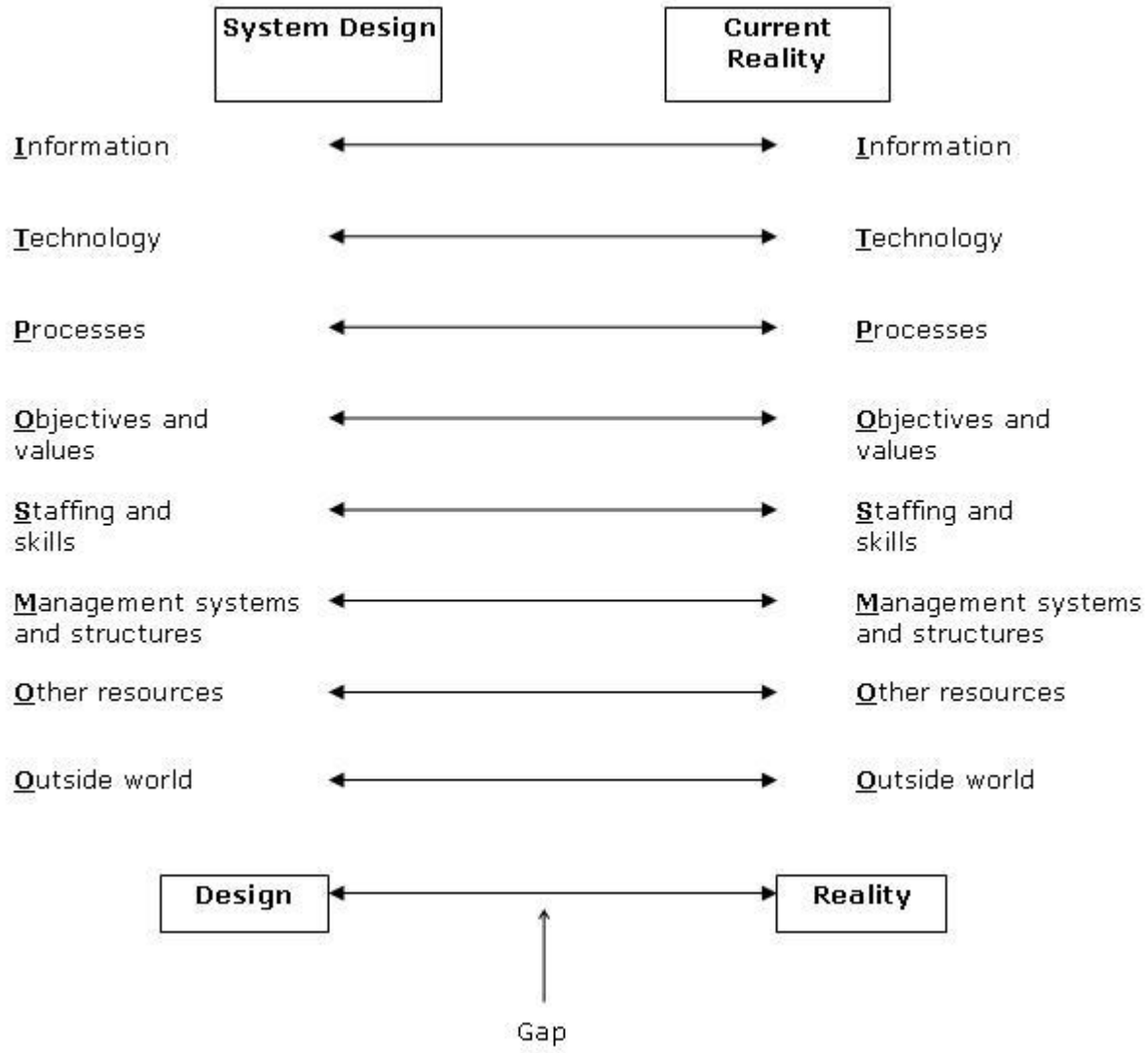


Figure 2Design Reality Gap

2.3 Evaluation Models

2.3.1 Critical success factor (CSF) and critical failure factor (CFF) models (Heeks & Bhatnagar, 1999). This model views success or failure of ICT projects in ten factors Heeks and Bhatnagar (1999b) , this factors are categorized into ten categories that have been synthesized into seven critical dimensions: Information; Technology; Processes; Objectives and values; Staffing and skills; Management and structures; and Other resources. This framework requires assessing the gaps that exist in the design of the project and the reality along these seven dimensions. Heeks (2002) further refines this framework using a contingency model of organizational change into a design-actuality gap model, and his colleagues (1990) as having identified three generations of implementation research.

2.3.2 The "design-actuality" (Heeks, 2002) or "design-reality" gaps (Heeks, 2003)

ICT projects are classified into three categories: total failure in which a new system never gets implemented or is implemented but is abandoned immediately; partial failure in which the major goals are unattained or in which goals are attained for some stakeholders but not all; and success in which all major goals are attained for all stakeholders. The proportion of projects in developing countries failing totally and partially may range from 20-25% to 33-60% respectively (Heeks, 2002). Only around 15-20% of the projects can be classified as successful.

2.3.3 The extended design and actuality gap framework (Baqir et al, 2009)

An extension to the design-actuality gaps framework (Heeks, 2002) that introduces the concept of dimensional gaps and elemental gaps. This framework explains the gaps between Government's ICT policies and citizens' actualities in the case of a developing country. This framework allows for a greater depth in the assessment process and in identifying ways to bridge gaps by enhancing the design process.

2.3.4 Sustainability failure model (Kumar & Best, 2006a)

This model consists of five principal modes of ICT sustainability failure: financial/economic sustainability failure; cultural/social sustainability failure; technological sustainability failure; political/institutional sustainability failure; and environmental sustainability failure.

2.4 factors affecting ICT implementation in kenya

As noted by Gichoya (2004) Most ICT projects are initially donor funded. Some donations are made without prior consultation or carrying out a needs analysis by the recipient organization. Operational/running costs are met by the government. Funding (capital and human resource requirements) ends with the project phase. The budgets for ICT are inadequate but rising. lack of ICT policies and master plans to guide investment. There has been rising cases of multiple investments for the same product due to lack of coordination. focus on ICT applications that support traditional administrative and functional transactions has been employed rather than on effective information processing and distribution within and without government departments. Finally, the Use of unstable ICT resources in kenya. These are some of the challenges as noted by Gichoya on failure factors of ICT adoption and sustainability in kenya.

2.5 Summary of the studies

Kingdon's Agenda-Setting Theory, did aid this study in accessing the problems, proposals and political dimensions in policy design that necessitates policy changes, it gives insight into theories that propose basses for policy change and factors to be considered in view of agenda setting. The Punctuated equilibrium theory illustrates that policy design is not gradual but punctuated ICT policy design that stabilizes at equilibrium for a while, then changes, the findings of this study have indicated factors that have given rise to policy design and the type of theory adopted. The Critical success factor (CSF) and critical failure factor (CFF) models (Heeks & Bhatnagar, 1999) look at success and failure of ICT projects into ten categories, this was further refined in 2002 by Richard Heeks, who proposed the design and actuality gap, consisting of eight categories, this framework was later in turn extended by Baqir et al, 2009, as the extended design and actuality gap that introduced various dimensions and elements in ICT policy evaluation. Kumar & Best 2006 present a sustainability failure model built upon the work of Heeks and Bhatnagar to help explain why projects that succeed initially can still fail to enjoy long-term sustainability. This study has augmented the extended framework model with the sustainability model that has been able to identify the gaps between ICT policy design implementation and actual realities.

2.6 Conceptual framework

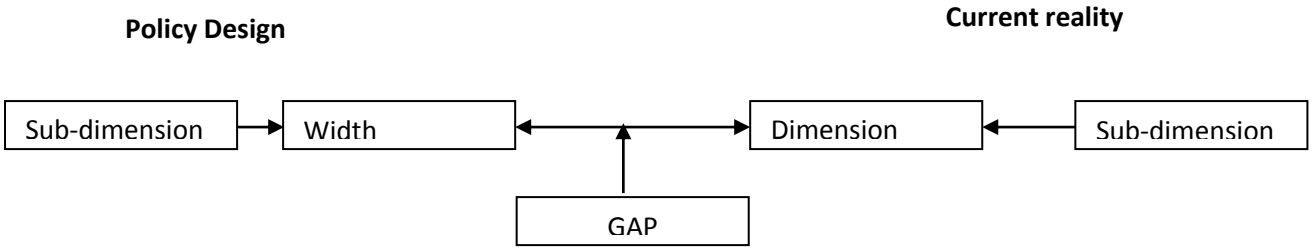


Figure 3 Design Reality Gap Framework

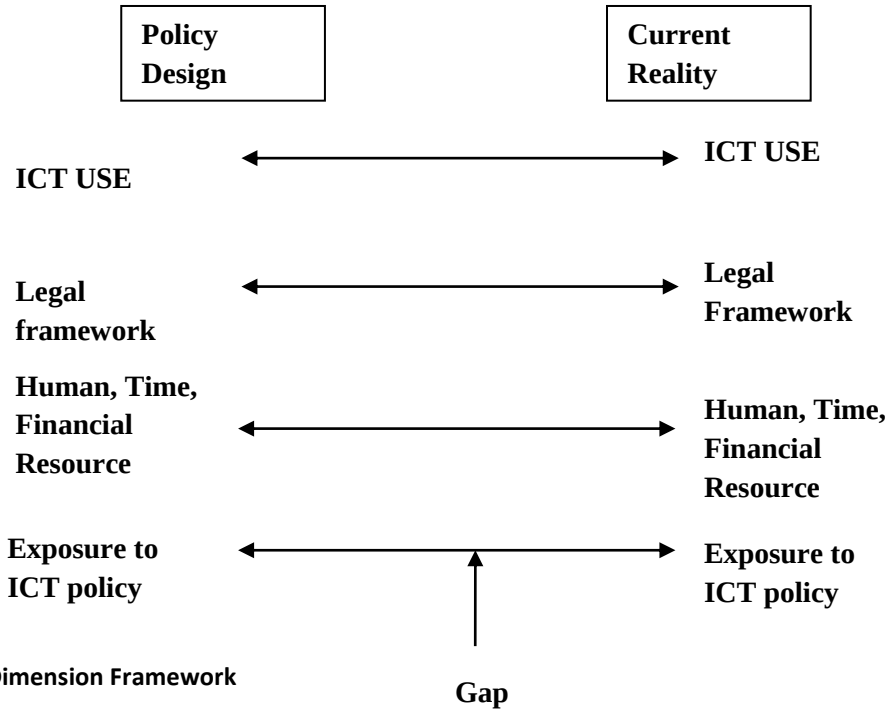


Figure 4 Dimension Framework

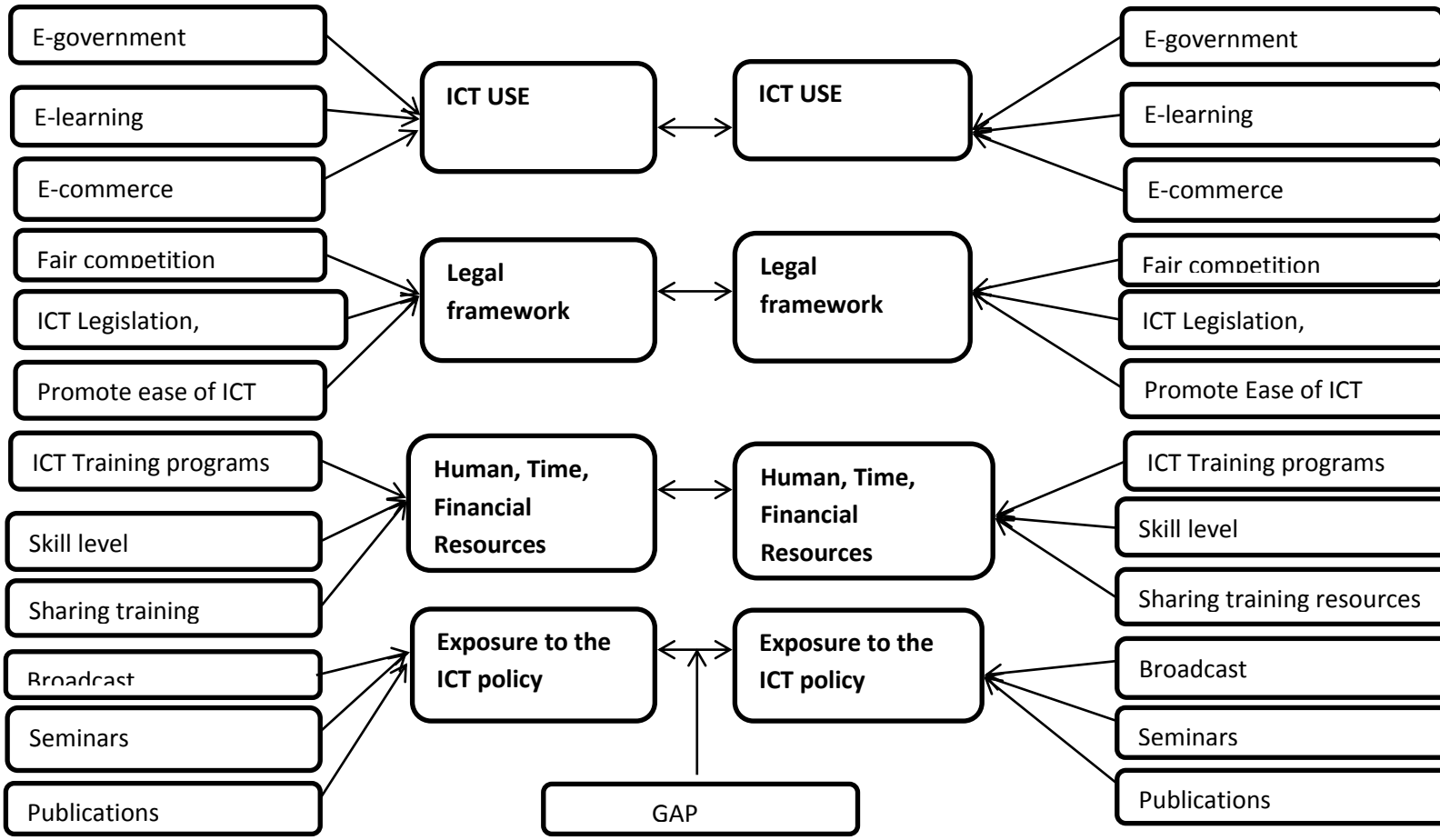


Figure 5 Variable Dimension Framework

The Analysis of the National ICT policy indicates that four dimensions – that have been summarized by the ILHT acronym – are necessary and sufficient to provide an understanding of design-reality gaps:

1. **ICT use**: The objective of ICT use is to increase efficiency, in automate processes, eliminate inaccurate and duplicate entries into systems, enable comprehensive reports, allow staff to be more self-sufficient and provide access to important data, facilitate for online buying and selling of goods and services. Implementing integrated learning and management systems improve the way schools store information, reporting and everyday operations.

2. **Legal Framework:** The objective of the national ICT policy was to establish an adequate legal framework and capacity to deal with national security, network security, cyber-crime and terrorism; and to establish mechanisms for international cooperation to combat cross-border crimes.

3. **Human, Time, Financial Resource:** the objective is to developing a mechanism for attracting and retaining skilled, Setting up a framework for evaluating and certifying ICT training programs and to provide financial, material, technical assistance as well as build capacity for sustainability

4. . **Exposure to ICT policy:** to ensure implementation, enforcement and compliance of the ICT policy, with the intentions of improving high quality service delivery to users

Extended Design-Actuality Gaps Across Identified Dimension		
Elements of Design (from public policies)	**Elements of Actuality**	**Gaps**
Human Resource		
Promoting ICT in education at primary, secondary, tertiary and Universities	Promoting ICT in education at primary, secondary, tertiary and	
Setting up a framework for evaluating and certifying ICT training programs;		
Developing a mechanism for attracting and retaining skilled human resources;	mechanism for attracting and retaining skilled human resources;	
Establishing networks for sharing training resources;	Establishing networks for sharing training resources;	
Developing strategies to support research and innovation	Developing strategies to support research and innovation	
E-Government		
Improve collaboration between Government agencies and enhance efficiency and effectiveness of resource utilization;	Improve collaboration between Government agencies and enhance efficiency and effectiveness of resource utilization;	

Improve Kenya's competitiveness by providing timely information and delivery of Government services	Improve Kenya's competitiveness by providing timely information and delivery of Government services;	
Reduce transaction costs for the Government, citizens and the private sector through the provision of products and services electronically;	Reduce transaction costs for the Government, citizens and the private sector through the provision of products and services electronically;	
Provide a forum for citizens' participation in Government activities	Provide a forum for citizens' participation in Government activities	
LEGAL FRAMEWORK		
Support ICT development, investment and application;	Support ICT development, investment and application;	
Promote competition in the industry where appropriate;		
Ensure affordability and access to ICT nationally		
Address issues of privacy, e-security, ICT legislation, cybercrimes, ethical and moral conduct, copyrights, intellectual property	e-security, cybercrimes, ethical and moral conduct, copyrights, intellectual property rights and piracy;	

rights and piracy;		
Support research and development in ICT;	research and development in ICT;	
Develop an institutional framework for policy development and review.		
ICT USE		
Promote ICT tourism	Promote ICT tourism	
Alleviating poverty, improving healthcare, and general welfare of the population;	Alleviating poverty	
Using IT to improve security	Using IT to improve security	
Using IT to generate additional employment and promoting entrepreneurship for the new digital economy	IT has generated additional employment and promoted entrepreneurship for the new digital economy	
Encouraging the use of IT in schools, colleges, universities and other educational institutions in the country so as to improve the quality of teaching and learning	Encouraging the use of IT in schools, colleges, universities and other educational institutions in the country so as to improve the quality of teaching and learning	

Table 2 Extended Design-Actuality Gaps

CHAPTER THREE:
METHODOLOGY

3.1 Introduction

This chapter outlines the research design, target population, sample size and sampling techniques, research instruments, validity and reliability of the study, data collection procedures, data analysis techniques and data presentation procedures.

3.2 Research design

The methodology used was quantitative, survey approach to gather data on ICT policy design and actuality gap. The quantitative approach was used to quantify the variables in order to come up with factors that were used to describe current conditions and to investigate the design reality gaps. This method provided data and information that facilitated vivid understanding of policy design and reality gaps.

3.3 Target population

Population is defined as any group of people, observation or test in which the researcher happened to be interested. According to (Borg and Gall 2009), target population of a study is defined as all the members of real or hypothetical set of people, event or objects to which the investigator wishes to generalize the results of the study. This study was informed by the incorporation of ICT Government agencies, public officers, and stakeholders, as the sole respondents who provided information on ICT policy design and reality gaps.

3.4 Research instruments

Sampling Technique and Sample Size

Mugenda and Mugenda (2012) defines sample as a small group obtained from accessible population. Each member in a sample is referred to as a participant. Stratified random sampling was used to select respondents.

The population was divided into strata such as, Government agencies and stakeholders, from which 50% of each strata were obtained through random sampling.

The respondents comprised of respondents and staff who were randomly selected.

According to Mugenda and Mugenda (1999), She points out that 10% of the target population can make a reasonable size for experimental studies or 30% or more samples may be

required for descriptive studies. I used 50% of the total sample size to conclusively evaluate the National ICT policy reality gap.

Table 3 Sampling frame

Govt Agencies and Institutions	**Management**	**Available**	**Officers**	**Available**	**Respondent N= 50%**
Ministry of ICT	**14**	**4**	**40**	**21**	**12**
CAK	**12**	**-**	**40**	**10**	**5**
Kenya ICT authority	**6**	**3**	**40**	**26**	**14**
KENET	**8**	**5**	**40**	**29**	**17**
Nairobi Huduma Center	**--**	**--**	**50**	**38**	**19**
ICTAK	**3**	**1**	**12**	**9**	**5**
Arap Moi primary	**3**	**3**	**3**	**3**	**3**
Multimedia University	**4**	**1**	**15**	**9**	**5**
Total	**52**	**17**	**240**	**145**	**80**

3.4.1 Pilot study

A pilot study was conducted to test the reliability and validity of the questionnaires. The aim of the pilot survey was to test whether the design of questions was logical, the clarity of the questions and understandability, The pre-test was conducted and allowed to researcher to progress as the pilot respondents were comfortable, The pre-testing was carried out on a sample consisting of 50% of the respondents, issues that were raised by test respondents were clarified and rectified.

3.5 Validity of Instruments

Validity of the instruments represents the degree to which a test measures accuracy and relevance of inference made based on research results (Mugenda and Mugenda, 2003). An instrument is valid when it actually measures what it claims to measure. Validity of research instrument was attained through correlation analysis test and exploratory factor analysis this ensured that the fitness of purpose of the design reality gap model was used, also. Content validity was also used based on research question of the study and professional advice from peers who have completed their master's degree. My supervisor was exemplary in assisting me to correct inaccuracies of the

3.6 Reliability of instruments

The degree to which a research instrument yields consistent results or data after repeated trials is known as reliability (Borg & Gall, 1989).To establish reliability, this was measured through test-retest technique by administering the questionnaires to a group of individuals with similar characteristics as the actual sample size. The test was repeated after two weeks. Scores obtained from both tests were correlated to get the coefficient of reliability; a spearman's correlation coefficient of p of < 0.05 was used that indicates acceptable reliability (Mugenda, 2008).

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3.7 Data collection procedure

The primary data collection method were questionnaire, review of secondary data and observation. Primary data was collected using structured questionnaires and observation method. The questionnaires were administered to the respondents directly by the researcher. The observation was carried out at the same day when the questionnaires were administered to the respondents at their place of work. The secondary data was collected from business text books, economic surveys, Government reports, journal and periodicals.

3.8 Data analysis procedure

Data analysis is breaking down of data into constituent parts to obtain answers to the research questions. After data collection exercise the questionnaires schedule were converted into

quantitative data. The quantitative data was then analyzed using SPSS software to obtain descriptive statistics: percentages, frequencies, mean median, variance and standard deviation correlations and exploratory factor analysis.

3.9 Limitation of study

Time-lags, data availability and quality, and the complexities of determining causality may have produce uncertain or unreliable information. Accordingly, the findings of evaluations can be subject to interpretation, criticism and resistance.

CHAPTER FOUR
DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter discusses data analysis and presentation of the research findings in four subheadings: Descriptive statistics; exploratory factor analysis, Confirmatory factor analysis; Correlation Coefficients and discussions of research findings. This study used SPSS (v.20) to perform descriptive statistics and to find correlation coefficient, Exploratory Factor Analysis that informed Confirmatory Factor Analysis. For purposes of Statistical analysis, the following qualitative measures were assigned numerical values in the likert scale used in the research instrument.

Likert Measure	**Number Equivalent**
Strongly Agree	1
Agree	2
Somehow Agree	3
Disagree	4
Strongly disagree	5

Table 4 Numeric Values assigned to Likert scale

First Order Model

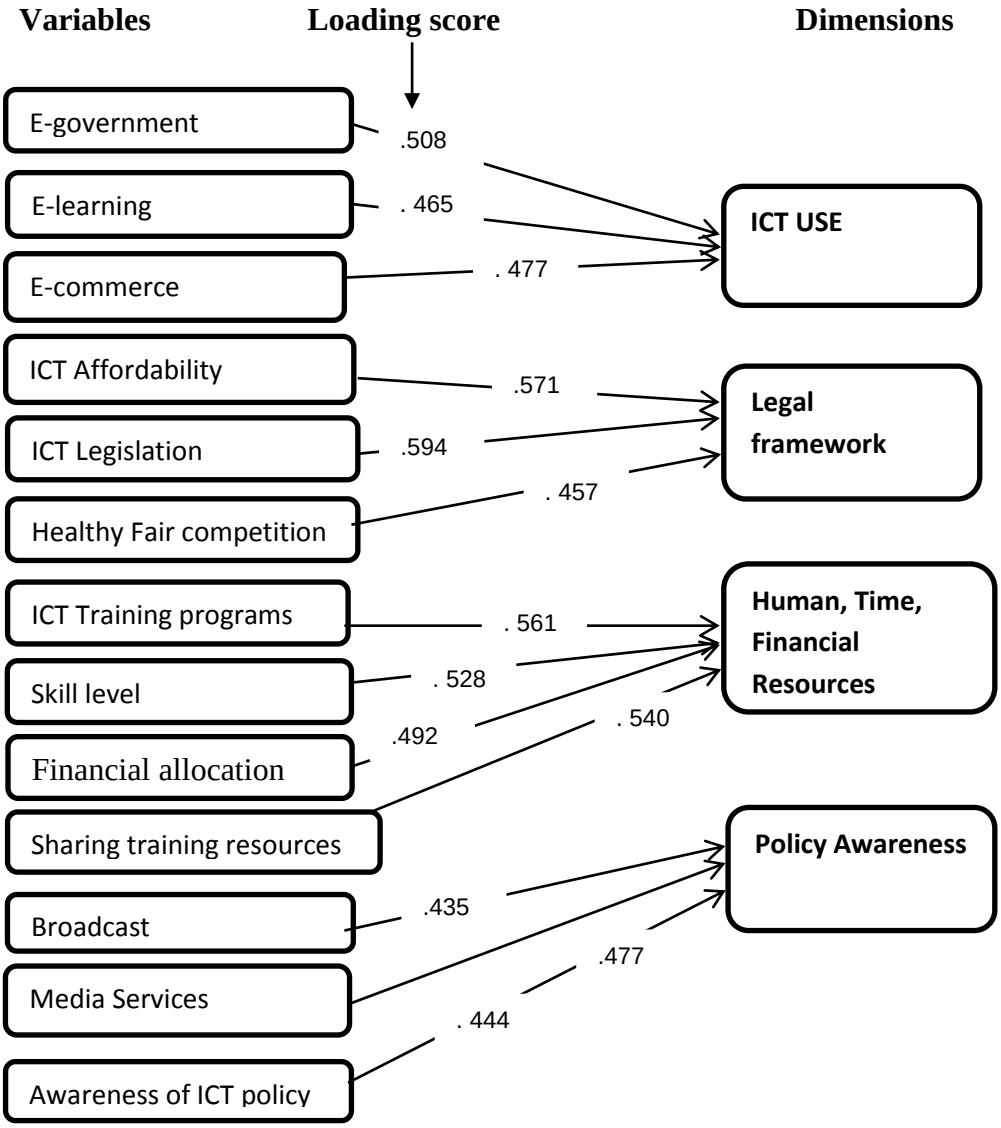


Figure 6 First Order Model

Second Order Model

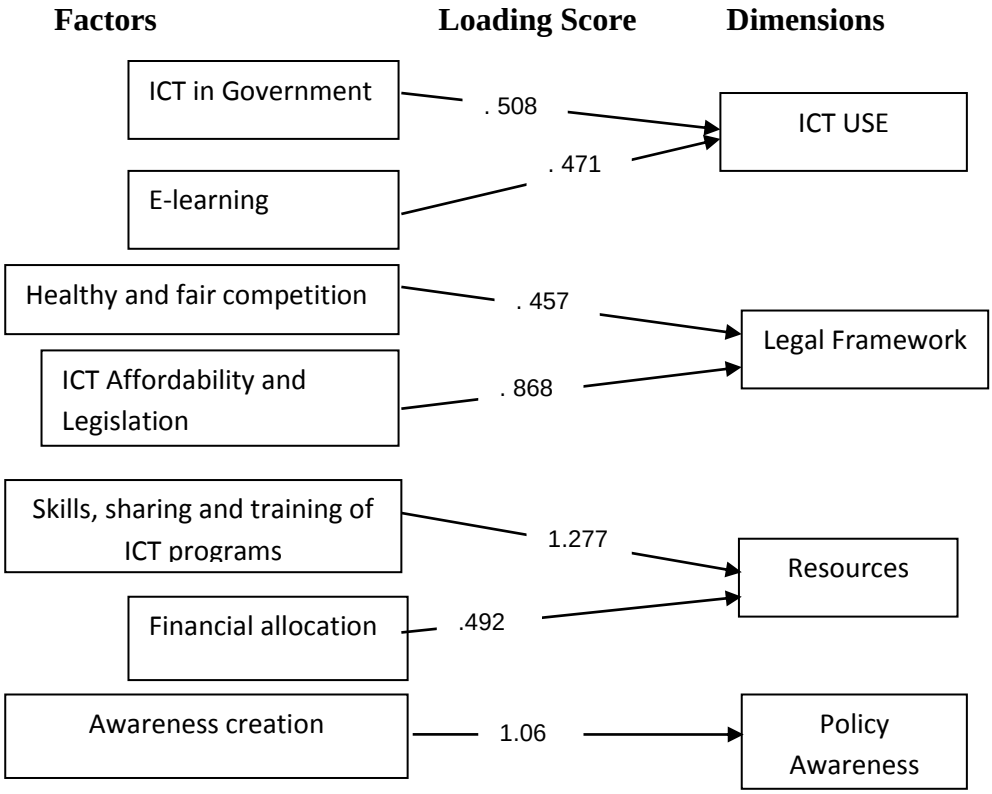


Figure 7 Second Order Model

Complete Design Reality Framework

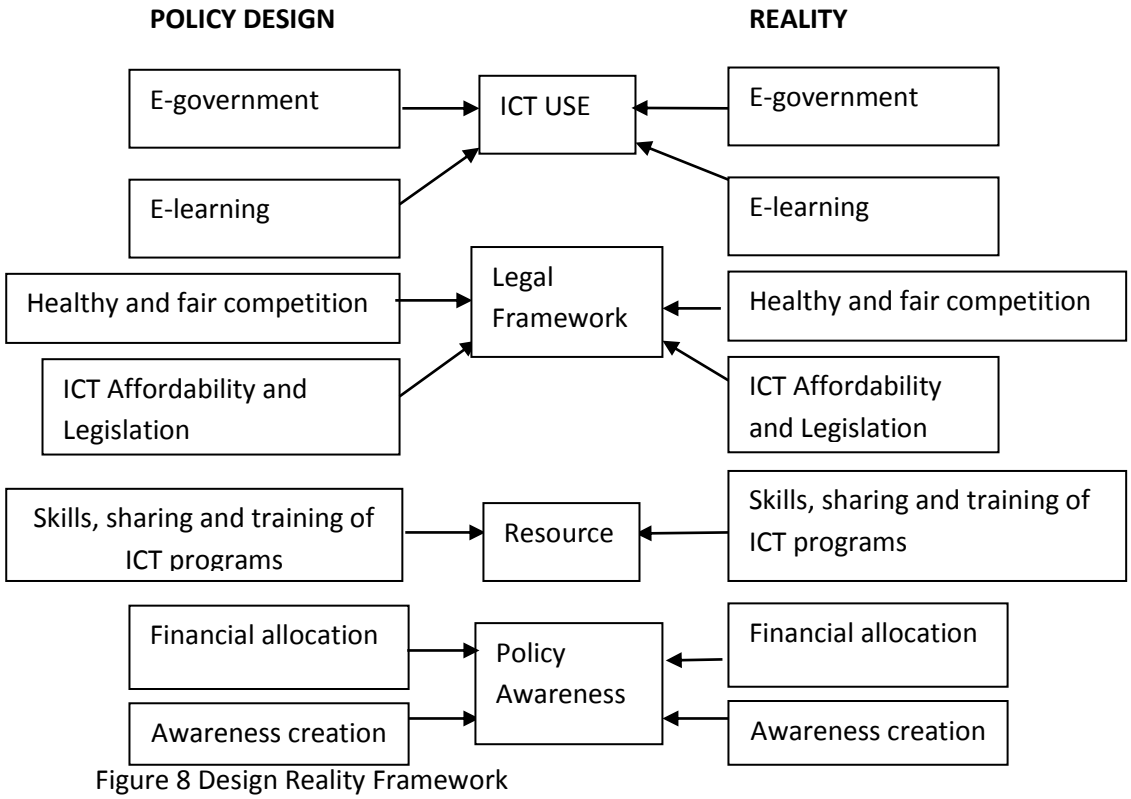


Figure 8 Design Reality Framework

4.2 Order Model Diagrams

4.2.1 First Order Model

This diagram illustrates the variables that influence the various dimensions as highlighted in the national ICT policy document, the constructs include ICT use, Legal Framework, Resources and policy awareness, the loading score has been arrived at by using Exploratory Factor Analysis in SPSS, this show how much loading or influence a variable has on the identified dimension.

4.2.2 Second Order Model

This model illustrates the variables that have been identified as highly influencing the associated dimensions, EFA identified variables that were similarly related and combined them into single factors giving an average loading score.

4.2.3 Design Reality Framework Diagram

This diagram, illustrates the complete design reality gap framework as deducted by EFA, it shows the factors that load heavily on associated dimensions

Exploratory Factor analysis measures	**Recommended Value**	**Model Result**
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	>0.5	**0.6**
Suppress of small coefficient	.10	0.4
Bartlett's test of Sphericity		3

Figure 9 Factor Analysis Measures

4.3 Descriptive Statistics

4.3.1 Respondents Organization

Respondents Organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ministry of ICT	12	15.0	15.0	15.0
	CAK	5	6.3	6.3	21.3
	Kenya ICT Authority	14	17.5	17.5	38.8
	KENET	17	21.3	21.3	60.0
	Nairobi Huduma Center	19	23.8	23.8	83.8
	ICTAK	5	6.3	6.3	90.0
	Arap moi primary	3	3.8	3.8	93.8
	Multimedia University	5	6.3	6.3	100.0
	Total	**80**	**100.0**	**100.0**	

Table 5 Raw respondents Organization

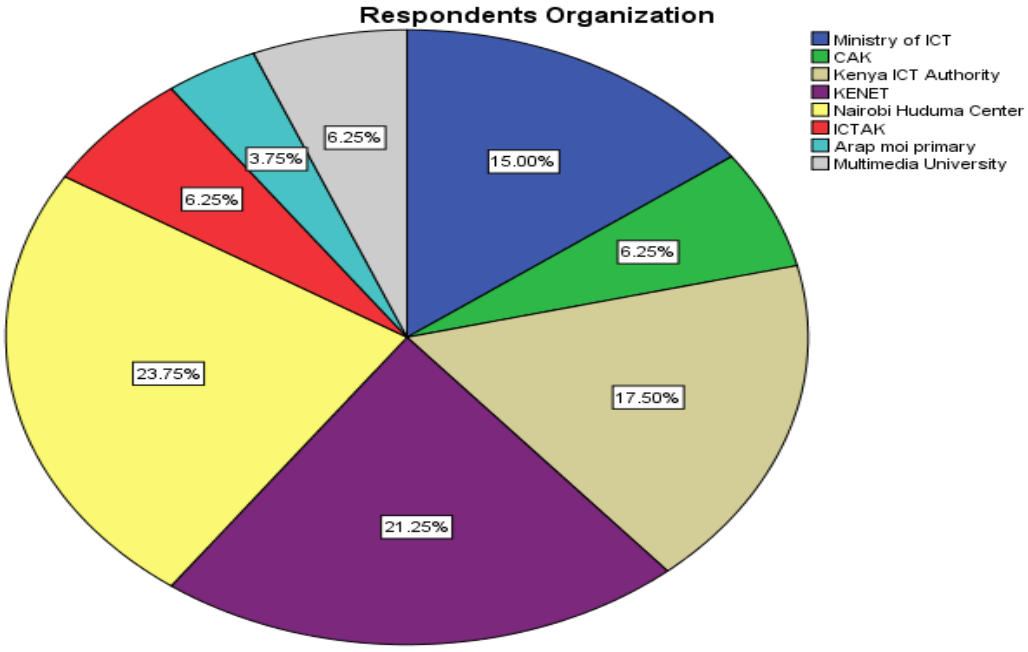
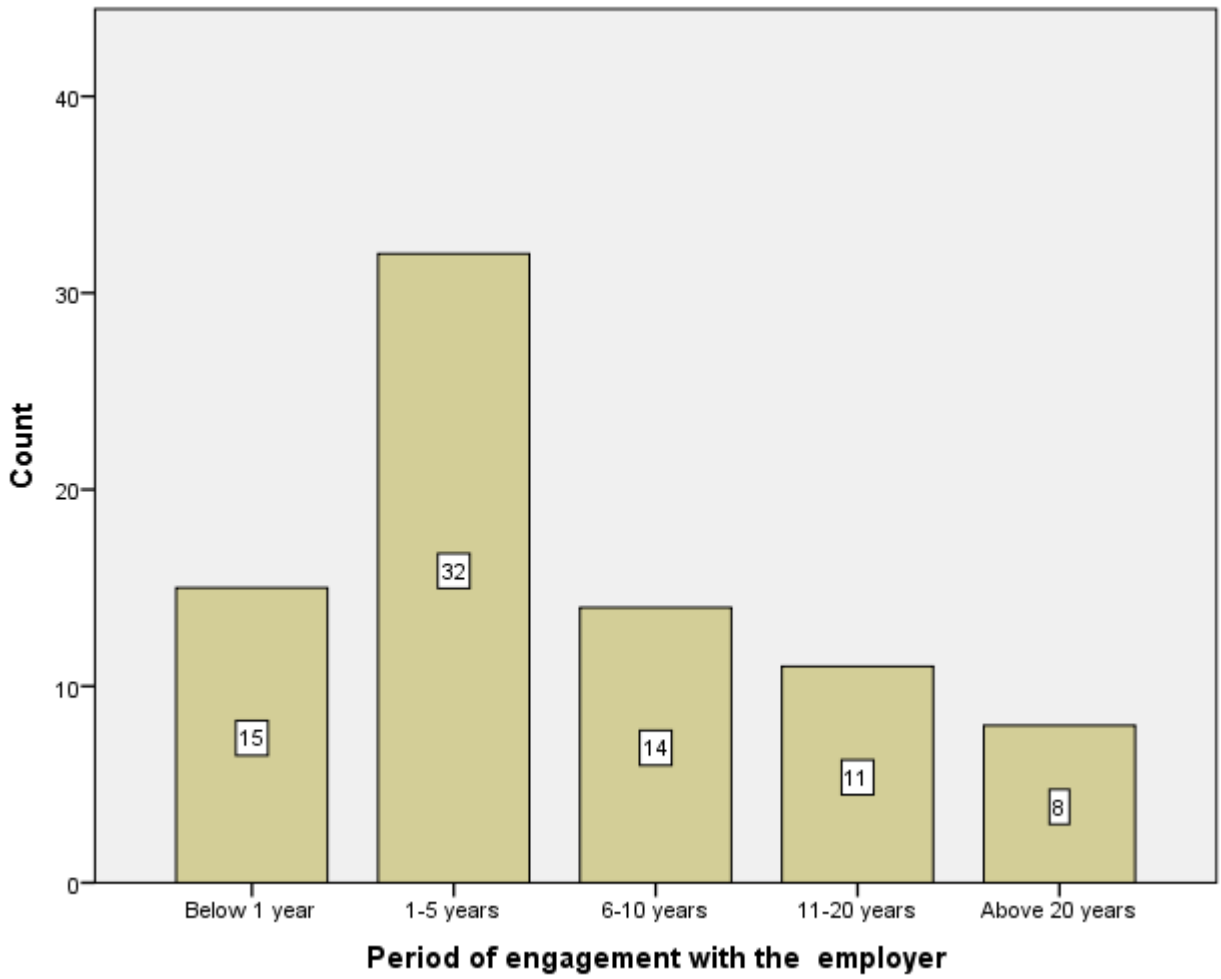


Figure 10 Period of engagement with employer



4.5 ICT use

4.5.1 Understand the level of ICT use by government agencies as stipulated in the National ICT policy

To properly comprehend the level of ICT use in government agencies and Institutions, three variables were considered; E - government, E- learning as well as E- commerce, as provided by the national ICT policy. The responses were sorted so as to determine the level of ICT use.

4.5.1.1 Use of E-government to provide timely and accurate services

E-government		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	10	12.5	12.5	12.5
	Agree	32	40.0	40.0	52.5
	Somehow Agree	29	36.3	36.3	88.8
	Disagree	8	10.0	10.0	98.8
	Strongly Disagree	1	1.3	1.3	100.0

	Total	80	100.0	100.0	

Table 6 Use of E-government

Majority of the respondent, 40% agreed that through E-government the National government has been able to provide timely and accurate service to the end user, only 10.0% disagree with this statement sighting limited or no change at all through the use of E- government to provide service to the end user. Respondents were asked to give suggestions on ways to improve e-government service delivery

4.5.1.2 Findings on the level of significance of ICT in E- learning on improving the quality of teaching and leaning

E-learning		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Highly Significant	20	25.0	25.0	25.0
	Significant	26	32.5	32.5	57.5
	Somehow Significant	21	26.3	26.3	83.8
	Least Significant	11	13.8	13.8	97.5
	Insignificant	2	2.5	2.5	100.0
	Total	80	100.0	100.0	

Table 7 Significance of E-learning

32.5% of respondents agreed that introducing e-learning has contributed significantly towards improving the quality of teaching and learning, 13.8% believe that e-learning has les significance on improving the quality of teaching and learning. 2% felt that e-learning has insignificant impact on the quality of learning.

Thus from the above findings it is clear that e-learning is significant and the ICT policy design should pay close attention to bettering e-learning in learning institutions

4.5.1.3 Findings on the level of commitment by the government towards investing in E-commerce

E-commerce		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Highly Committed	16	20.0	20.0	20.0
	Committed	24	30.0	30.0	50.0

Somehow committed	25	31.3	31.3	81.3
Less committed	12	15.0	15.0	96.3
Uncommitted	3	3.8	3.8	100.0
Total	80	100.0	100.0	

Table 8 Investing in E-commerce

Majority of the respondents 31% felt that the government was somehow committed towards investing in E-commerce, 15% felt that the government was less committed , while only 3% of the respondents saying that the government was totally uncommitted in investing in e-commerce.

4.5.1.4 Findings on the level of ICT usage in government

Percent Frequency on the level of ICT usage in government	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The ICT policy use in ICT has improved government agencies efficiency on service delivery.	21.3	37.5	15	18.8	6.3
The use of E-commerce has improved transparency and accountability in the purchase of online products and services	22.5	38.8	15	18.8	5.0
Thought the use of ICT most government agencies are in the right pathway in achieving the vision 2030	21.3	22.5	26.3	21.3	8.8
ICT usage has enabled and even facilitated the provision of government service through E-Government	23.8	40	16.3	13.8	6.3
Through ICT several multibillion government projects have sprung up thus in turn improving the life of common man	15	21.3	28.8	23.8	11.3
Provide a forum for citizens' participation in Government activities	21.3	48.8	16.3	11.3	2.5
Improve Kenya's competitiveness by providing timely information and delivery of Government services	23.8	33.8	22.5	17.5	2.5
Improve collaboration between Government agencies and enhance efficiency and effectiveness of resource utilization;	23.8	35	25	16.2	0

Table 9 Level of ICT usage in governments

37.5% of the respondents felt that the use of ICT policy has improved government agencies efficiency on service delivery. 38.8% felt that the use of E-commerce has improved transparency and accountability in the purchase of online products and services. 26.3% of the respondents felt that the government had not done enough towards achieving the vision. 40% agreed that ICT usage has enabled and even facilitated the provision of government service through E-

Government. 28.8% of respondents were neutral on ICT being a multibillion industry. 48.8% of the respondents agreed that through the use of ICT has encouraged the spirit of involvement from the common man since they can now participate on various government forums. 33.8% agreed that ICT has improved Kenya's competitiveness by providing timely information and delivery of Government services. Finally, 35% of the respondents agree that the level of effective utilization of resources has been improve thank to ICT system which are in place. Thus these findings illustrate that government agencies and institutions are comfortable with the use of ICT. Respondents also identified gaps that have been tabulated in 21

4.6 Resources

4.6.0 Assess the Impact of; Human, Time and Financial Resources in Implementation of the National ICT Policy Implementation

Attempt to evaluate the impact of human, time and financial resources in policy implementation; assessment was carried out from the different stakeholders on their opinion towards the following factor in implanting the national ICT policy frame work. The factors included Human resource, time as well as financial support. Below tables present the findings

4.6.1 Findings on staffs training and education on the use of ICT as provided for by the National ICT policy

Staff training and education on the use of ICT				**Financial allocation on training and education**			
Staff training		Frequency	Percent	Financial allocation		Frequency	Percent
Valid	Yes	56	70.0	Valid	Excellent	9	11.3
	No	24	30.0		Good	14	17.5
					Satisfactory	16	20.0
					Low	27	33.8
	Total	80	100.0		Poor	14	17.5

Table 10 Staff training and financial allocation on training and education

From table 11 above majority of respondents who participated on this research at 56% said yes that actually they have received training and education on the use of ICT , 24% said no. on

financial allocation 33% of respondents felt that financial allocation was poor , some of the reasons attributed have been captured on 21.

Do you think the level of training was beneficial to you

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	5	6.3	6.3	6.3
	Agree	23	28.8	28.8	35.0
	Neutral	45	56.3	56.3	91.3
	Disagree	7	8.8	8.8	100.0
	Total	80	100.0	100.0	

Table 11 Training benefit

56% of respondents were neutral as to whether the level of training was beneficial to them, only 5% of respondents strongly agreed that the level of training was beneficial, this shows that training needs to be reevaluated so as to be beneficial to the majority of users

4.6.2Findings on the government structure on attracting skilled staff to ensure high quality service delivery to end users as provide by National ICT policy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	42	52.5	52.5	52.5
	No	38	47.5	47.5	100.0
	Total	80	100.0	100.0	

Table 12 Attracting and retaining skilled staff

52.5% of respondents agreed that the government has put in structures to attract and retain skilled personnel, 47% of respondent felt that the government had not done much to attract and retain the skilled staff they attributed these to the following, table 21 shows the illustrated gaps.

4.6.3 Findings on the time for evaluating and certifying ICT training program to fully implement the national policy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	45	56.3	56.3	56.3
	No	35	43.8	43.8	100.0
	Total	80	100.0	100.0	

Table 13 Government commitment on evaluation and certify ICT training

56.3% of respondents responded positively on government evaluation of training programs, while 43.8 felt that the government was not committed in certifying of training programs, the gaps have been illustrated in table 21. The above variable tables illustrate that a good number of respondents have attended training on the national ICT policy, though an equally substantial number are neutral to the benefits derived and financial allocations of the training programs

4.7 Legal Framework

4.7.1 Level of ICT Legal Framework in Promoting Healthy and Fair Competition, Providing Ease of Affordability and Legislation

The objective of the national ICT policy was to establish an adequate legal framework and capacity to deal with national security, network security, cyber-crime and terrorism; and to establish mechanisms for international cooperation to combat cross-border crimes.

4.7.2 Findings Legal framework implementation on the healthy/fair competition within the Government agencies in Kenya

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly agree	12	15.0	15.0	15.0
	Agree	33	41.3	41.3	56.3
	Don't Know	15	18.8	18.8	75.0
	Disagree	17	21.3	21.3	96.3
	Strongly Disagree	3	3.8	3.8	100.0
	Total	80	100.0	100.0	

Table 14 The ICT legal framework implementation on healthy/fair competition in Kenya

4.8. Policy awareness

4.8.1. Exposure of the National ICT policy

Exposure to these policies framework in another way in ensuring that the ICT policy design does not only remain on a piece of paper but becomes a reality in an attempt by the government to make Kenya an ICT economy as well as becoming an ICT hub.

4.6.1 Findings on attendance of seminars, workshops symposia, and conferences on ICT policy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Seminar	22	27.5	27.5	27.5
	Workshop	16	20.0	20.0	47.5
	Symposia	9	11.3	11.3	58.8
	Conference	33	41.3	41.3	100.0
	Total	80	100.0	100.0	

Table 15 Attendance

Most respondents 33% stated that they attended conference on ICT policy, while 9% stated that they have attended a symposia meant to discuss particular element of the ICT policy document. This shows that there has been adequate trainings and discussions about the national ICT policy

4.8.3 Findings on the impact of media services like radio in ensuring the ICT agencies and stakeholders gain awareness on the existence of these National policies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	53	66.3	66.3	66.3
	No	27	33.8	33.8	100.0
	Total	80	100.0	100.0	

Table 16 Significance media services on the awareness of National ICT policy

Media service like radio and television has been applauded a lot for encouraging awareness on the national ICT policy. A majority of 66.3% said that media services actually have played major role on awareness of these policies, only 33.8% said that Medias service haven't played enough of their role in championing these policies. Thus from the findings we can conclude that for these national ICT policy for be fully operation and be relevant to various agencies, media should continue playing their part in encouraging awareness on them to these agencies as well a stakeholders involve.

4.9 CORRELATIONS

Correlation analysis between E-government, E-learning and E- commerce as the key dimension in the ICT National Policy

Correlation on the e-government, e-learning and e- commerce on National ICT policy

		Use of E-government by national government	Significance of E-learning the quality of teaching and learning	Government commitment towards E-commerce
Use of E-government by national government	Pearson Correlation	1	.294**	.328**
	Sig. (2-tailed)		.008	.003

	N	80	80	80
Significance of E-learning the quality of teaching and learning	Pearson Correlation	.294**	1	.244*
	Sig. (2-tailed)	.008		.029
	N	80	80	80
Government commitment towards E-commerce	Pearson Correlation	.328**	.244*	1
	Sig. (2-tailed)	.003	.029	
	N	80	80	80

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

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

Table 17 Correlation On ICT use

To ascertain the level of significance of e-commerce, e- learning and e-government as the key dimension of the National ICT policy framework, correlation analysis was carried out to evaluate the relationship between these variables and their level of significance to the National ICT policy framework. Above findings represent how they contribute to the ICT policy implementation as well as how they influence the ICT usage as whole. The level of significance was at p=0.01, E government is one of the areas upon which the use of ICT has been of a great success it was noted that there was a strong level of significance at p=0.029 which is far much greater than significance level p=0.01 between the e- government and national ICT policy framework and in form of relationship there as a weak relationship at r=0.244.E-commerce level of significance p=0.008 which was far much below signifies that e- commerce much as it is one of the major core component of ICT policy framework it relationship with these policy however were just moderate at p= 0.328. Finally in e-learning the significance level was also weaker at p=0.008 this was also reflected on its relationship with the ICT policy r=0.294. Thus from the finding it is very clear that these three variables are important in implantations of these National ICT Policy as growth of ICT in general to these agencies and stakeholders

Resource allocation correlations

Correlations

		How would you rate the level of financial allocation on training and education on ICT use within of National ICT	Do you think the government has put in place structures to attract and retain skilled staff	Do you believe the government has setup sufficient time to evaluate and certify ICT training
How would you rate the level of financial allocation	Pearson Correlation	1	.260*	.199
	Sig. (2-tailed)		.020	.076

on training and education on ICT use within of National ICT	N	80	80	80
Do you think the government has put in place structures to attract and retain skilled staff	Pearson Correlation	.260*	1	.473**
	Sig. (2-tailed)	.020		.000
	N	80	80	80
Do you believe the goverment has setup sufficient time to evaluate and certify ICT training	Pearson Correlation	.199	.473**	1
	Sig. (2-tailed)	.076	.000	
	N	80	80	80

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

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

The level the level of financial allocation on training and education on ICT use has a positive correlation of r=.260 and high significance level of p= 0.020, with the government putting structures to attract and retain skilled staff, and has a week relationship with sufficient time allocated to evaluate and certify ICT training where r=1.99 and in statistically insignificant where p=0.78.

Legal Framework Variables Correlation

Correlations

		The legal framework has improved on issues of privacy, e-security, ICT legislation, cybercrimes, ethical and moral conduct	The legal framework has ensured affordability and access to ICT nationally	The ICT legal framework implementation has encouraged healthy/fair completion in Kenya
The legal framework has improved on issues of	Pearson Correlation	1	.438**	.248*
	Sig. (2-tailed)		.000	.026

privacy, e-security, ICT legislation, cybercrimes, ethical and moral conduct	N	80	80	80
The legal framework has ensured affordability and access to ICT nationally	Pearson Correlation	.438**	1	.301**
	Sig. (2-tailed)	.000		.007
	N	80	80	80
The ICT legal framework implementation has encouraged healthy/fair competion in Kenya	Pearson Correlation	.248*	.301**	1
	Sig. (2-tailed)	.026	.007	
	N	80	80	80

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

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

Table 18 Correlation on Legal Framework

National Ict Policy Exposure

Correlations

		Significance Internet Broadcasting on the level of exposure on National Ict Policy	Significance media services like radio and television on the awareness of National ICT policy	Awareness on the existence of the National ICT policy
Significance Internet Broadcasting on the level of exposure on National Ict Policy	Pearson Correlation	1	.282*	.249*
	Sig. (2-tailed)		.011	.026
	N	80	80	80
Significance media services like radio and television on the awareness of National ICT policy	Pearson Correlation	.282*	1	.196
	Sig. (2-tailed)	.011		.081
	N	80	80	80
Awareness on the existence of the National ICT policy	Pearson Correlation	.249*	.196	1
	Sig. (2-tailed)	.026	.081	
	N	80	80	80

*. **Table 19Correlation on ICT policy awareness**

From the table above correlation analysis was carried on three variables which influence the level of ICT exposure and the implementation of National ICT policy. In this case, the level of significance was at p=0.05. In the case of internet impact on level of exposure there was strong positive correlation significance since our value of p =0.081 was far much greater than the magic p=0.05 however in term of correlation between the internet and the level of exposure there was weak positive correlation (r=0.196). And other hand broadcasting had a weaker significance in level of exposure at p=0.026 which was far much lower than the magic number p=0.05, in terms of correlation it was also noted that broadcasting had weaker correlation with the level of exposure of ICT at r=0.249. Finally significance of media service were also at negative and weak with p= 0.011 which is far mach below however, on correlation it was also noted that it had a weaker correlation at r=0.282. Thus from the find it is clear there is some level of significance from these three above dimension in terms of exposing ICT usage as well as Implementation of National; ICT policy design

4.10 EXPLORATORY FACTOR ANALYSIS

The main purpose of using factor analysis: was for data reduction- this involved measuring internal reliability and reducing data to a smaller set of summary variables example (E-Government, E-learning, E-commerce) with each construct measured using multiple items which was combined in a two factor scores.

Exploratory factor analysis (EFA) was used to determine the number of factors required in a set of three variables and also develop a structure, as opposed to and confirmatory factor analysis (CFA) where the number of factors is predefined so as to test a hypothesis

The following steps were used in EFA

Sample size <50 bad

General rule, at least three variables

Compute correlations among variables computed (correlation matrix)

Extraction (identify factors in the data)

Rotation

Interpretation

Investigating correlations	Recommended	Model results
Visual Inspection: (correlation matrix)	R<.30	.00
Partial correlation & anti-image correlation matrix	P=0.01 <0.05	.00
Bartlett test of sphericity (significant correlations among variables)		3
Measure of sampling adequacy (MSA)	<.50 Unacceptable >.60 average >.70 Middling >.80 Meritorious	.617

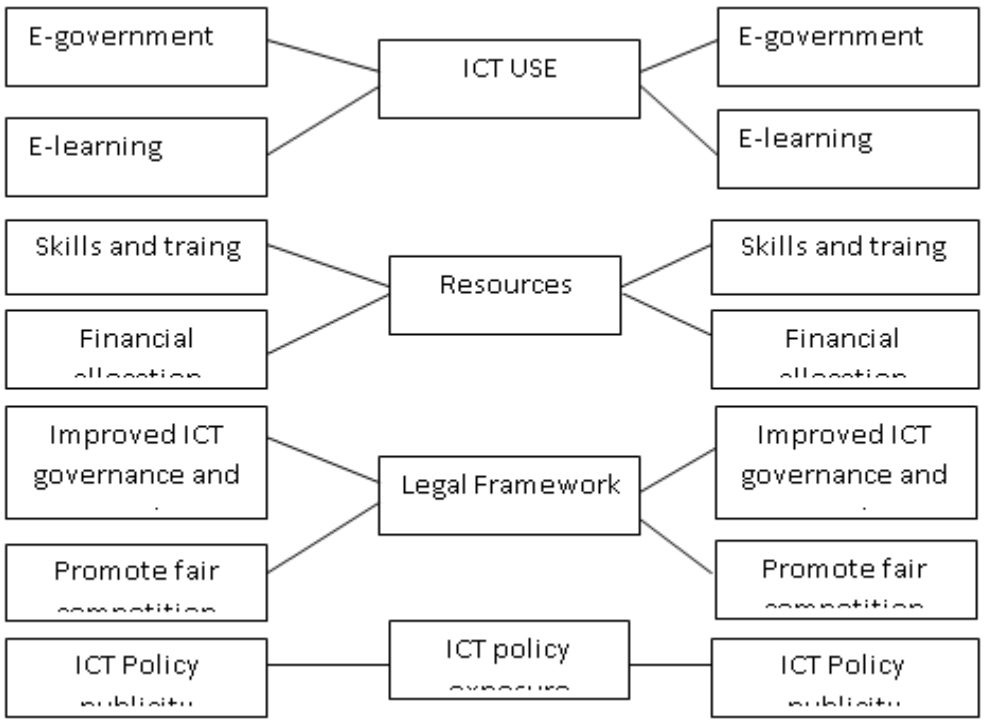


Figure 11 Final Design Reality Framework

Extended Design-Actuality Gaps Across Identified Dimension		
Elements of Design (from public policies)	**Elements of Actuality**	**Gaps**
Human Resource		
Promoting ICT in education at primary, secondary, tertiary and Universities	Promoting ICT in education at primary, secondary, tertiary and	**Isolated success stories; overall implementation of ICT in learning institutions**
Setting up a framework for evaluating and certifying ICT training programs;		**Funding became scarce; no longer active** **Lack of political will**
Developing a mechanism for attracting and retaining skilled human resources;	mechanism for attracting and retaining skilled human resources;	**Lack of better terms and conditions** **Nepotism**
Establishing networks for sharing training resources;	Establishing networks for sharing training resources;	**Funding is no longer available** **Limited success**
Developing strategies to support research and innovation	Developing strategies to support research and innovation	**Lack of awareness** **Lack of user involvement** **No notable success**
E-Government		
Improve collaboration between Government	Improve collaboration between Government	**Lack of Universal access to the internet by**

agencies and enhance efficiency and effectiveness of resource utilization;	agencies and enhance efficiency and effectiveness of resource utilization;	**all agencies**
Improve Kenya's competitiveness by providing timely information and delivery of Government services	Improve Kenya's competitiveness	**Lack of updated websites**
Reduce transaction costs for the Government, citizens and the private sector through the provision of products and services electronically;	Reduce transaction costs for the Government, citizens and the private sector through the provision of products and services electronically;	**Ignorance** **Lack of universal internet access** **Lack of awareness and training**
Provide a forum for citizens' participation in Government activities	Provide a forum for citizens' participation in Government activities	**Isolated success stories; Huduma centers**
LEGAL FRAMEWORK		
Support ICT development, investment and application;	Support ICT development, investment and application;	**Review the Kenya Communications (Amendment) Act, 2009,** **Limited discussion; No Implementation** **Lack of awareness** **Lack of implementation and enforcement**
Promote competition in the industry where appropriate;		**lack of focus in evolving regulations** **Lack of awareness** **Evolving technology**
Ensure affordability and access to ICT		**lack of focus in evolving regulations** **Lack of awareness**

nationally		
Address issues of privacy, e-security, ICT legislation, cybercrimes, ethical and moral conduct, copyrights, intellectual property rights and piracy;	e-security, cybercrimes, ethical and moral conduct, copyrights, intellectual property rights and piracy;	**limited awareness/implementation** **Limited discussion; limited success**
Support research and development in ICT;	research and development in ICT;	**Lack of awareness**
Develop an institutional framework for policy development and review.		**Lack of legislation awareness/ implementation** **Implemented but use is limited**
ICT USE		
Promote ICT tourism	Promote ICT tourism	**Limited success: use of websites and social media**
Alleviating poverty, improving healthcare, and general welfare of the population;	Alleviating poverty	**Limited success in healthcare improvement and poverty alleviation**
Using IT to improve security	Using IT to improve security	**Showing signs of improvement, Lack of Cyber law; limited awareness/implementation**
Using IT to generate additional employment	IT has generated additional employment and	**Shown signs of improvement;**

and promoting entrepreneurship for the new digital economy	promoted entrepreneurship for the new digital economy	
Encouraging the use of IT in schools, colleges, universities and other educational institutions in the country so as to improve the quality of teaching and learning	Encouraging the use of IT in schools, colleges, universities and other educational institutions in the country so as to improve the quality of teaching and learning	**Notable success stories, in several institutions**
ICT POLICY EXPOSURE		
broadcasting has enhanced the level of exposure of the national ICT policy	Enhanced exposure	**Lack of funding** **Lack of universal access to broadcast media**
Training on the implementation and enforcement of the ICT policy		**Corruption** **Limited success in various institutions** **No substantial gains**

Table 20 Gaps Analysis

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the research findings, conclusions and recommendations of the research study. The study evaluated, examine and analyzed the gap between Information Communication Technologies (ICT) policy implementation and their actual outcomes in the Kenyan Government, the study was focused on a framework developed by Richard Heeks, and extended by Baqir et al. (2009), the "Design and actuality Gap". It also presented summary of the results, research limitations, statement of the conclusions and recommendations for further studies

5.2 Brief Overview of chapters

The first chapter of the study described the brief background of the government usage of Information Communication technology to deliver services to the public, it also examined the strategies and policy framework which stair the use of Information communication technology as a whole in Kenya. Chapter one also critically evaluated the various models which were deigned previously by looking at their success and failures or in generally their 'reality-gap'. Chapter one also noted the gap between the information communication technology the actual outcome from these policies. It also presented the statement of the problem which stated that 'According to Richard Heeks (2003) most Government ICT projects fail either fully or partially or succeed, Heeks (2003) notes that, Total failure: the initiative was never implemented or was implemented but immediately abandoned. Partial failure: major goals for the initiative were not attained and/or there were significant undesirable outcomes.' Thus a call for examination of this gap between Information Communication Technologies (ICT) policy implementation and their actual outcomes in the Kenyan Government and try to identify ways to bridge gaps by enhancing the design process

In chapter two, it wholly looks at the ICT design reality framework from the other writer perspective by evaluating the previous work and any other relevant materials on the information communication technology policy framework. This chapter was divided into five categories to clearly give the proper insight of the policy framework as whole they included; theoretical framework, Kingdon's Agenda theory-setting theory, Design reality gap, evaluation model and the sustainability failures model. These model promotes useful description, explanation, critique thus helping the researcher to properly understand these design reality gap framework on

evaluation of the national ICT policy within the government agencies; They were also used to inform the study on various evaluation model used to examined the success and failure of the design reality gap frameworks.

Chapter three outlined the methodology which was applied to the study. It records a description of target population which included government agencies, ICT mangers, Public officer and stakeholders who are responsible for the ICT policy designed framework and their implementation.; Research design and its justification which was basically quantitative in nature to help evaluate the relationship between the policy design and actual outcome; Sampling plan mainly involving stratified random sampling was applies to select 80 respondent drawn from the target population above,; Data collection procedure and instruments;

Data analysis was carried out using SPSS software to obtain descriptive statistics: percentages, frequencies, mean median, variance and standard deviation. Likerttype scale which was analyzed using confirmatory factor analysis (CFA) to test the hypothesized relationships. . The sampling plan involved an identification of the implementers eligible to be included in the sample. In the research design a conceptualization of the models to be tested was done and these models were presented at the end of the chapter. A code of variables under study was done to aid data presentation and analysis. And finally the chapter also identified the limitations of methodology and how they were overcome and Research design.

In chapter four the full accounts of the findings from the study was presented The analysis of the data obtained from the field was carried out under three major heading to examine these reality gap of ICT framework policy. They included inferential statistics/descriptive statistic for each element, correlation coefficients for each dimension (Factor analysis), Confirmatory factor analysis.

Inferential statistics/ descriptive statistic for each variables was done under heading A-E, where A was the personal information of the respondents from the field, B-was The level of ICT use by the government agencies as stipulated in National ICT policy, C-assessment of the impact of human, time and financial resources in policy implementation D-Level of ICT legal framework implementation and enforcement to public agencies and stakeholders. Last E-Level of exposure to the National ICT policy

Correlation coefficient provides significant support for the relationships between design reality gap framework and the actual success or failure of these framework policies. The results also provide significant support for positive relationships between implementation process and implementation outcomes.

5.3 Research Findings and Results

The First Objective,

To understand level of ICT use by government agencies as stipulated in national ICT policy framework.

The results indicated that there was significant level of ICT usage in government agencies inform of E-government, E- commerce as well as E- learning, 40%, 31% 32%. This shows that there is room for improvement on ICT implementation.

On average 34% of respondents score indicates that substantial consideration and efforts should be employed in effectively ensuring the success of ICT use is realized.

The Second Objective

To access the impact of human, time and financial resources in the national ICT policy implementation

The findings show that a significant number of respondents agreed that they had received training on the national ICT policy through conferences, though the greater majority did not feel that the training was beneficial to them, this shows that the government need to device effective ways of training public officer on implementing the national ICT policy document.

1. 56.3% agreed that government had set up sufficient time for evaluating and certifying ICT training programs while 43.8 % did not agree, they mainly attributed that to lack of funds, corruption and misappropriation of funds, to fully implement the National ICT Policy,
2. Majority of respondents 33% felt that the financial allocation allocated to ICT programs was poor
2. 52.5% of respondents agreed that the government has put in structures to attract and retain skilled personnel, 47% of respondent felt that the government had not done much to attract and retain the skilled staff

On average 47% were comfortable with the allocated resources while 53% were not, this also shows that the government needs to structure and put more emphasis on allocated resources to as to achieve the intended goal of the ICT policy

Third Objective

Third objective was to assess the level of ICT legal framework implementation and enforcement to public agencies and stakeholders

From the findings it was evident that;

1. Majority of the respondents felt that the implementation of the legal framework helped in promoting healthy and fair competition in ICT industry
2. Majority of respondents (28.8%) felt that the government was not committed in enforcing the legal framework
3. Majority of respondents (31%) partially agreed that the legal framework was supporting ICT development investments and application
4. Majority of the respondent (38%) agreed that there are some changes affecting the implementation and enforcement of the legal framework while only 17.6% of the respondents believed that there were no challenges.
5. Respondents were torn between agreeing and disagreeing that the legal framework has improved affordability and access to ICT nationally, as 30% agreed while 28.8% did not agree.

The average score of 31.95% of respondent's results clearly indicate that the government needs to put significant amount of effort in enforcing and successfully implementing the legal framework, as this dimension scored the poorest score among the four

Fourth Objective

Finally the last objective was to ascertain the level of exposure to the National ICT policy, Majority of the respondents 41.3% agreed that they have had an opportunity to attend conference on the ICT national policy, 66.3% also agreed that use of media services and internet was beneficial and significant in creating awareness of the policy document.

53.8% average score indicates that more than half of the respondent agrees that policy exposure is beneficial towards the success of the National ICT policy implementation. The government needs to continue publicizing and creating awareness of the policy document

Interpretation

For each one of the dimensions, a numerical rating is assigned to indicate the size of the design-reality gap on that dimension. The rating for each dimension's gap can be anywhere on a scale from zero to ten Heeks (2003). All numbers in the range are possible. Illustrative ratings:

• 10 rating would indicate 'no change between the design and current reality';

• 5 rating would indicate 'some degree of change between the design and current reality';

• 0 rating would indicate 'complete and radical change between the design proposal and current reality'.

Dimensions	Factors	Rating %	Out of 10
ICT USE	E-Government, E-Commerce	**34%**	**3.4**
	E-Learning		
LEGAL FRAMEWORK	Improved ICT Governance	**31.95%**	**3.195**
	Promote Healthy And Fair Competition		
RESOURCES	Skills And Training	**47%**	**4.7**
	Financial Allocation		
POLICY EXPOSURE	Policy Exposure	**53.8%**	**5.38**

Total Score 16.675

This result of 16.675 was not rounded off to two decimal places so as to get an accurate measure of the likely hood of success and failure of the policy document. The results indicate that *The National ICT policy may well fail unless action is taken to close design-reality gaps*. The reality gaps have been identified and listed in table 21.

Overall rating	Likely outcome
33-40	National ICT policy may well succeed.
25-32	National ICT policy might be a partial failure unless action is taken to close design-reality gaps.
17-24	National ICT policy might fail totally, or might well be a partial failure unless action is taken to close design-reality gaps.
9-16	National ICT policy may well fail unless action is taken to close design-reality gaps.
0-8	National ICT policy will almost certainly fail unless action is taken to close design-reality gaps.

5.3 Research Limitations

The research was limited by time and financial resources. The available time and financial resources were very limited thus data could not be collected from each and every government agencies, ICT manager, and other stakeholders hence the researcher had to assign strata to help out with respondent who were available to participate in the study.

Bureaucracy in these government agencies and ICT regional offices, limited the collection of data, Other were unwilling to avail enough information because of fear of victimization and/or fear of the unknown, some claimed it was not within their jurisdiction to avail sensitive information with regards to the national ICT policy and its implementation.

5.4 Conclusion

The findings show that some dimensions within the national policy document have been implemented with varied success, To some extent, ICT use has been implemented in most agencies, while little is known about the legal framework that legislates issues affecting ICT, respondents were torn between the adequacy of resources used as majority felt that financial resource was significantly inadequate, while other respondents remained neutral. Most respondents agreed to have knowledge of the ICT policy document but with limited success on implementation, they agreed that media services and the web should be used to create awareness

of the policy document. Respondents also noted the gaps that existed between policy design and actual implementation as noted in table 21, these gaps will be used to aid in the development of a better policy document

5.5 Recommendations for Further Studies

The research was only examining the design reality gap framework on the evaluation of national ICT policy document, and focused on four dimensions. A lot was observed during the course of the study such as partial success of some policy dimensions and partial failures in others. This study highlighted several gaps in policy implementation; the gaps were noted in table 21. Further studies should be conducted on other factors the influence and affect the success of ICT policy, such as Political will, social responsibility, and policy enforcement agencies.

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APPENDIX

TITLE

DESIGN REALITY GAP FRAMEWORK FOR POST IMPLEMENTATION EVALUATION OF THE NATIONAL ICT POLICY:

QUESTIONNAIRE

Introduction:

My name is Alfred Wanjau Kinyua, a student at the University of Nairobi undertaking Masters in science in Information Technology Management and I present to a self-administered questionnaire concerning a framework on Design Reality gaps in the National ICT policy in government agencies. The information given is only for research purpose. Please respond as honestly and spontaneously as possible

Instructions: please tick [✓]

SECTION A: PERSONAL INFORMATION:

6. Gender
   1. Male [ ]
   2. Female [ ]

3. Age
   1. 18-30 [ ]
   2. 31-40 [ ]
   3. 41-50 [ ]
   4. Above 51 [ ]

4. Highest Level of Education?
   1. Primary [ ]
   2. Secondary [ ]
   3. College [ ]
   4. University [ ]

5. For how long have you been engaged with your current employer?

1. Below 1year [ ]
2. 1-5 years [ ]
3. 6-10 years [ ]
4. 11-20 years [ ]
5. 20 years and above [ ]

SECTION B: UNDERSTAND LEVEL OF ICT USE BY GOVERNMENT AGENCIES AS STIPULATED IN NATIONAL ICT POLICY

6. Do you agree/disagree that the use E-government by the National government has provided timely, accurate and satisfactory services to end users? Tick one

Strongly Agree	Agree	Somehow Agree	Disagree	Strongly disagree

ii) What can be done to improve on this?

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7. As provided for by the National ICT policy, what level of significance has the use of ICT in schools, (E-learning) had, on improving the quality of teaching and learning? Tick one

Highly Significant	Significant	Somehow Significant	Least significant	Insignificant

8. What level of commitment do you think the government has portrayed towards investing in E-commerce? Tick one

Highly Committed	Committed	Somehow committed	Less committed	Uncommitted

ii) What can be done to improve on this?

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9. Please indicate the level which you agree/disagree with the following statements, with regards to ICT usage in government.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The ICT policy use in ICT has improved government agencies efficiency on service delivery.					
The use of E-commerce has improved transparency and accountability in the purchase of online products and services					
Thought the use of ICT most government agencies are in the right pathway in achieving the vision as well as helping the country to achieve Vision 2030					
ICT usage has enabled and even facilitated the provision of government service through E-Government					
Through ICT several multibillion government projects have sprung up thus in turn improving the life of common man					
Provide a forum for citizens' participation in Government activities					
Improve Kenya's competitiveness by providing timely information and delivery of Government services					
Improve collaboration between Government agencies and enhance efficiency and effectiveness of resource utilization;					

6. To what extent do you agree with the following aspect in relation to the National ICT policy in the use of ICT by government Agencies

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Using IT has improved security					
Using IT has generated additional employment and promoting entrepreneurship for the new digital economy					
Increased access to quality and affordable government services					
Enhanced national security and defense					
Provide a forum for citizens' participation in Government activities					
Improve Kenya's competitiveness by providing timely information and delivery of Government services					
Improve collaboration between Government agencies and enhance efficiency and effectiveness of resource utilization;					

SECTION C: ASSES THE IMPACT OF HUMAN, TIME AND FINANCIAL RESOURCES IN POLICY IMPLEMENTATION

1. (i). Does the government provide staff training and education on the use of ICT as provided for by the National ICT policy?

   Yes [ ]

   No [ ]

Do you think the level of training was beneficial to you?

Strongly agree	Agree	Neutral	Disagree	Strongly disagree

2. How would you rate the level of financial allocation on training and education on ICT use in line with the National ICT policy design? Tick one

Excellent	Good	Satisfactory	Low	Poor

3. Do you think that the government has put in place structures to attract and retain skilled staff to ensure high quality service delivery to end users as required by the National ICT policy?

   Yes [ ]

   No **[**]

(ii). If No, what can the government do to attract and retain skilled staff

……
……
……

4. Do you believe that the government has set up sufficient time for evaluating and certifying ICT training programs to fully implement the National ICT Policy?

   - Yes [ ]
   - No [ ]

ii) If No, what do you think should be done to enhance this?

……
……
…….....

Please indicate the level which you agree/disagree with the following statements based on the following rankings strongly agree, Agree, Neutral, Disagree, Strongly disagree

5. To what extent do you agree with the validity of the following statements concerning the attempt by government agencies to improve on the implementation of the National ICT policy?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
They have enhanced development of strategies to support research and innovation to improve on the ICT sector					
Most agencies have established networks for sharing training resources on ICT					
It is through these agencies that the mechanism for attracting					

and retaining skilled human resources have been created and also improved.					

SECTION D: LEVEL OF ICT LEGAL FRAMEWORK IMPLEMENTATION AND ENFORCEMENT TO PUBLIC AGENCIES AND STAKEHOLDERS

1. How strongly do you agree/disagree with the following statement? The ICT legal framework implementation has encouraged healthy/fair competition in Kenya. Tick one

Strongly Agree	Agree	Don't Know	Disagree	Strongly Disagree

ii). what could be some of the hindrance to the legal framework implementation towards encouraging fair and healthy competition in Kenya?

……
……
……..

2. How would you rate the government's commitment towards enforcement of the legal framework?

Very Good	Good	Satisfactory	Poor	Very poor

3. To what extent does the government support implementation and enforcement of the legal framework amongst the various ICT agencies and stakeholders? Tick one

Very Good	Good	Sufficient	Poor	Very poor

(v) Give your opinion on the level of ICT legal framework implementation and enforcement and what you feel about it

……

……

…….....

4. To what extend would you agree/disagree on the following statements, with regards to the implementation and enforcement of the legal ICT framework?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
The legal framework development has improved ICT development, investment and application to various agencies and stakeholders					
The legal framework has ensured affordability and access to ICT nationally					
The legal framework has improved on issues of privacy, e-security, ICT legislation, cybercrimes, ethical and moral conduct, copyrights, intellectual property rights and piracy within ICT sector.					

5. Do you think that the legal policy framework has been successful in supporting ICT development, investments and application?

Strongly agree	Agree	Partially Agree	Disagree	Strongly disagree

(ii) Are there challenges affecting the implementation of the legal ICT policy framework to various government agencies?

Yes	Partially	Not sure	Don't Know	No

If yes, what measure do u think should be employed to improve on ICT policy framework implementation ----------

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6. How would you rate the implementation of the legal ICT policy framework towards research and development, investments and application in ICT? Tick one,

Very High	High	Fair	Poor	Very Poor

7. To what extent do you think the implementation of the legal framework has ensured affordability and access to ICT Nationally? Tick one option

Very Good	Sufficient	Good	Poor	Very poor

8. Please indicate how much you agree or disagree with following statements based on the implementation of the legal framework

	Completely disagree	Disagree	Neutral	Agree	Completely Agree
The legal framework has had a positive impact on improving the level of skills through encouragement of use of ICT as well as training and research thus attracting and retaining skilled human resource					
The level of services delivery by government has greatly improve due to adaption of E- government					
The legal framework is the core back bone to the effective and efficient use of ICT in Kenya					
The legal framework has had a positive impact on improved the rate of coordination within various departments.					

The legal framework has enabled the government to meet and promotion of quality of services and responsiveness to people's need					

SECTION E. EXPOSURE TO THE NATIONAL ICT POLICY

1. The government of Kenya offer training on various issues as this has been mandated and budgeted for, which of these have you attended with regards to ICT national. Leave blank if you have never attended

Seminars,	Workshops	Symposia	Conferences	Summits

ii) was the exposure to the ICT policy beneficial to you?

Yes	To some extent	Not sure	Don't Know	No

2. Do you think that the use of Internet has significant influence in ensuring that ICT agencies and stakeholders are aware on the existence of the National ICT policy? Tick one

Yes	To some extent	Not Sure	Don't Know	No

3. Do you think the government uses media services like radio and television to create awareness on the National ICT policy?

   Yes [ ]

   No [ ]

ii) If no, what ways do you think the government should use to improve on level of exposure of ICT national Policy to stakeholders?

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4. Has broadcasting (use of media) enhanced the level of exposure of the national ICT policy to various agencies and stakeholder in Kenya?

Yes	To some extent	Not sure	Don't know	No

THANK YOU