



UNIVERSITY OF NAIROBI

SCHOOL OF COMPUTING AND INFORMATICS

**A FRAMEWORK FOR ENFORCING THE NATIONAL ICT
POLICY IN KENYA GOVERNMENT**

By

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(P54/65049/2013)

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**A project report submitted in partial fulfilment of the requirement for the award of
Masters of Science in Information Technology Management of University of Nairobi**

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DECLARATION

This project is my original work and to the best of my knowledge this research work has not been submitted for any other award in any university.

Signed: í í í í í í í í í í í í í í í Date í í í í í í í í í í .

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

Signed: í í í í í í í í í í í í .. Date í í í í í í í í í í í .

Dr. Agnes Wausi

DEDICATION

I dedicate this research project to my loving wife, Emmarita and daughters Gloria, Jubilant and Abigail for their relentless support when I had to burn mid-night oil gathering and compiling data.

ACKNOWLEDGEMENT

Special thanks to my supervisor Dr. Agnes Wausi for her guidance and advice from the time I started to the end of the project.

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LIST OF ACRONYMS

CA Communications Authority

E-Government Electronic Government

ICT Information & Communications Technology

KEBS Kenya Bureau of Standards

IT Information Technology

UN United Nations

UNESCO United Nations Educational Scientific and Cultural Organization

VSM Viable System Model

ABSTRACT

This project report sought to establish the extent to which the Kenya National ICT Policy has been enforced within the Kenya government by targeting sampled Kenya Government ministries where ICT has been embraced under the strength of the existing national ICT policy. The objective was to find out if the existing Kenya National ICT Policy has been embraced within the various government ministries and to what extent. The motivation behind this study resulted from the fact that Kenya has in place a national ICT policy that is expected to act as a guide as the country seeks to achieve its objectives for vision 2030. Qualitative research method was employed to gather required data for analysis as it is known to be descriptive in nature.

The primary data collection tool was an open-ended questionnaire as this gave respondents a chance to air their views conclusively without being guided. An analysis of the results was done using MS Excel which grouped similar responses together and using five point Likert scale for ease of analysis. Four ministries which are in possession of the Kenya National ICT policy were sampled. It became clear that the Kenya National ICT policy has not been embraced fully and that as much as the sampled ministries possessed the policy they only used it partially.

These findings added to the existing knowledge on ICT policy development and eventual implementation by curving a path through which the policy can be enforced. Future research on this area would be guided by the outcome of the report for findings showed that there are a good number of Kenya government ministries where the policy is still unheard of while in the ones sampled little sense had been made of the Kenya National ICT policy.

CHAPTER ONE

1.0 BACKGROUND OF STUDY

Many countries are currently faced with the difficult tasks of formulating the national ICT policy development framework that could enable and equally benefit all stakeholders (Olatokun, 2008). In addition, there is neither a clear ICT strategy nor explicit ICT plan to address ICT as a policy arena (Galit Cohen-Blankshtain, 2004). There is lack of sincerity which betrays dealing with potentially empowering use of technology when analysing the policy document in detail (Stahl, 2008).

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 e-government and transformation of service delivery (Prins, 2001). According to Schwalbe (2006) many institutions are increasingly spending on ICT but a long history of ICT failure or at best mitigated success reveals that these institutions need to improve the way ICT is invested and exploited.

A new constitution was enacted in Kenya in the year 2010 in which various objectives, among them quality service delivery by the public service (*Article 232*) and correctness of information held by the state (*Article 35*), have been highlighted. Application of ICT is a key method by which the objectives outlined in the new constitution will be achieved.

The new constitution's ICT requirements cannot be satisfied without an ICT policy which lays down guidelines that provide an ICT framework to all technology stakeholders addressing ICT duties and responsibilities.

Therefore the Kenya National ICT Policy, developed way back in March 2006 by the Ministry of Information and Communications (*MIC, 2006*), will come into play and set the pace within which all ICT requirements set forth by the government will be achieved. It has a vision for a prosperous ICT driven society and a mission to improve the livelihood of Kenyans by ensuring accessibility to available, efficient, reliable and affordable ICT services. According to Chini (2008), ICT policy backs up ICT vision. Although the National ICT Policy is still undergoing development and amendments to capture latest advances in technology, it will come in handy in assisting the government achieve its vision through the

use of IT based technologies. It is with this background in mind that this research paper seeks to determine the degree to which the Kenya National ICT policy has been enforced.

1.1 Problem statement

ICT policy development has been explained as the main driving force that serves as a policy central nervous system. The development and formulation of the Kenya National ICT Policy followed various steps thus; Development phase outlines all the required processes in ICT policy formulation (Mashinini, 2008). Implementation phase on the other hand outlines all the necessary processes in ICT policy awareness raising, training or education, interfaces mediation or adoption (Kalika, 2007) and enforcement (Reza Alinaghian, 2008). Monitoring outlines all the processes required in environmental scanning to ensure users' requirements satisfaction and value adding. Monitoring helps measure ICT policy against defined goals and ensures that goals have been achieved. Evaluation enables the measurement and understanding of both internal and external elements and the impacts they have on the policy, such as changes in political landscape, economic issues, social challenges, technological challenges and also internal regulations (Mashinini, 2008). Among these ICT policy formulation steps there is no mention or consideration of an enforcement framework or even properly laid down methods of enforcing the policy. It is at this stage in the implementation process that a lack of enforcement gap is identified, which results in making potential adjustments in order to address problems and close gaps. According to Schwalbe (2006) organizations need to improve the way ICT is invested and exploited, and a mechanism is therefore essential to ensure that ICT investments and operations are acceptable, effective and efficient. That solution lies in ICT policy. According to Mashinini (2008), the management of ICT policy development life cycle provides insightful understanding of issues and risks, and the situation is presented in a dashboard format enhancing interpretation and expediting decision-making processes.

One of the critical dimensions of the ICT policy is ICT use and application. Most government ICT projects fail fully (never implemented in the first place) or partially (implemented but stalled) or succeed (fully implemented and in active use (Heeks, 2003). The Kenya National ICT policy is one such case, a project by the government whose ownership is still being questioned by many.

According to the Kenya Economic Survey (2015), ICT sector expanded by 13.4 per cent in 2014 from 12.3 per cent growth recorded in 2013. Kenya's economy has grown by 3.7% as a result of ICT use. During the first decade of the 21st century, ICT was responsible for the growth of approximately one-quarter of Kenya's GDP. It is evident that ICT plays a large role in our day-to-day lives, addressing challenges facing Kenyans in general. Particular sectors such as finance, health, education, agriculture and the government are quickly embracing technology for dissemination of information, enhancement of service delivery and to reach their customers more effectively and efficiently.

An ICT policy becomes problematic and ineffective when a government fails to take full responsibility of visions attached to ICT and chooses to pass it to the users for as long as they have internet access. The ICT policy once more lacks enforcement and cannot survive an encounter with the users for whom it is made (Olsson, 2006). Mashinini (2008) reiterates that one of the identified ICT policy issues is incomplete formulation of the policy, which points to non-enforcement of the policy and stakeholders fail to get the necessary support in its use and application. Olatokun (2008) adds an ICT policy is very weak where only few users tend to appreciate the importance of an ICT policy as not everybody benefits equally from ICT in conditions where support is not availed. Summarily, the Kenya national ICT policy, just like many other policies, lacks a strong human development emphasis in order to extend modern ICT services to everybody's benefit. According to Mochrie (2005), current ICT policy literature is fragmented and also misses important points. In 2005, *Towards Knowledge Societies*, a world report published by UNESCO clearly indicated the absence of a model to ensure that ICT development is performed in enabling rather than disabling (Binde, 2005) It also stated that further research into user acceptance, adoption and implementation of ICT policy is needed. A policy framework is necessary to provide a route map to guide the process of the policy development life cycle to ensure effective service delivery. A useful framework is required to critique the embedded values in ICT policy, a forward looking research framework to encourage sustainable development. The research has to move beyond simplistic and dualistic thinking and address barriers and opportunities for systematic bottom-up policy formation and implementation (Mansell, 2008). It is explicitly indicated that the failure at the policy level reflects important shortcomings in technology and innovation conceptual framework (Liagouras, 2010).

An enforcement framework for the ICT policy is meant to ensure that policy requirements are adhered to and complied with if the government and the country as a whole is to benefit more

from ICT use. The mechanism to enforce the National ICT policy is lacking leaving a gaping hole that requires urgent attention as different government sectors are left to adopt and apply its contents in their own way and convenience. This paper sought to establish whether any enforcement mechanisms exist and suggests a way forward in their enforcement.

1.2 General Objectives

To find out if the Kenya National ICT policy has been adopted within the various government ministries.

1.3 Specific research objective

To establish whether selected Kenya government ministries have enforced the national ICT policy.

1.4 Research questions

- i. Which sections within the Kenya National ICT Policy, if any, have been complied with?
- ii. What are the factors contributing to non-compliance/compliance
- iii. How can enforcement be achieved or improved?

1.5 Research population

A population is any set of persons or objects that possesses at least one common characteristic (Busha & Harter, 1980). The target population of this study will include the management team and ICT user staff within selected Kenya government ministries.

1.6 Justification for the study

Findings from this study have pointed towards a need to have an enforcement mechanism of the Kenya National ICT policy.

1.7 Significance of the study

ICT policy has attracted little attention among academicians and practitioners. Therefore, it is necessary to recognize and acknowledge the significance(s) of ICT policy which also

reflects on the importance and motivation for future research work. The study would be useful to the parties outlined below:-

The Government

In addressing the extent to which the ICT Policies have been embraced by the various ministries. According to the Australian Standard for Corporate Governance of ICT (AS8015), ICT policy is a system by which the current and future ICT will be directed. ICT governance includes ICT strategy and policy for using ICT in an institution (Calder, 2008). An ICT policy is the instrument of strategy for the government and any other institution. An enforced ICT policy is an underlying structure which ensures proper guidance of different ICT related services.

Kenya's vision 2030

An ICT policy backs up ICT vision (Chini, 2008), which could include quality, efficiency, security, legality and ethics. It is a means of control and standardization (Kalika, 2007).

Ministry of Information and Communications

To shed light on the reasons as to why ICT related projects fail mid- way or after implementation despite the existence of a national ICT policy

Other Researchers

The results of this study would create a platform upon which other research work could be conducted in the area of National ICT Policy enforcement across different government sectors.

1.8 Scope

This study involved selected government ministries where the National ICT Policy has been embraced.

1.9 Assumptions and limitations of the study

Assumptions

It is assumed that the Kenya National ICT policy has undergone all the four major steps of policy development which include development, implementation, monitoring

and evaluation. It is also assumed that adequate awareness and enforcement mechanisms have been put in place within the various government user departments. According to Jorge Carillo, PhD, CISA (IT Policy Framework Based on Cobit 5), "Policies should be communicated, understood, supported and accepted by everybody; otherwise they are meaningless"

Limitations

Many participants feared victimization hence responded in confidence. Time allocated was also short and not enough for the research to cover a bigger sample size

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

A methodological review of past literature is a crucial endeavour for any academic research (Webster & Watson, 2002). The purpose of the review was to collect perspectives and opinions of other scholars and writers, as to what their views are on the enforcement of ICT Policies, with a special consideration of the Kenya National ICT Policy and its adoption by various Kenya government ministries.

According to Pozzebon et al (Pozzebon and Heck, 2006; Gerhan and Mutula, 2007, Best and Kumar, 2008), a lot of the empirical literature has been done with regards to the evaluation of Information and Communications Technologies (ICT) policies.

This chapter focuses on the review of literature related to the issue under study. 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 analysis is limited to the identification of successes and failures of national policies in several countries (Olsson, 2006; Samarajiva and Zainuddin, 2008; Gao & Rafiq, 2009). Building an accountable culture and using policies in daily operations ensures that the organization's goals are met. According to IT Policy Framework based on COBIT 5, an effective policy should be part of the organization's DNA.

Kenya's key policy documents have failed to incorporate the role of ICT as an enabler of various goals included in government plans to transform the country into a Newly Industrialized Country (NIC) by the year 2020, and as an enabler of national programs to reduce poverty and promote economic recovery. The Kenyan government has also been slow to formulate and implement ICT policy and it is only recently that the government announced an e-government strategy. The current policy framework defines the main policy issues in terms of economic impact, liberalization of certain key sectors, e-commerce, e-government and human resource development but does not look at implementation and enforcement of the policies.

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 within 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). 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 ICT policy design, implementation, enforcement and evaluation is valuable for it makes it possible for points within ICT projects that are non-functional to be realised. Kenya is rushing into already galloping towards a complex e-government strategy without having first enforced the national ICT policy while also giving ICT policy an ad-hoc approach to its implementation and eventual adoption.

These glaring moves by the Kenya government leave a lot to be desired as not so many of the intended users ever got to know the contents let alone to use the policy.

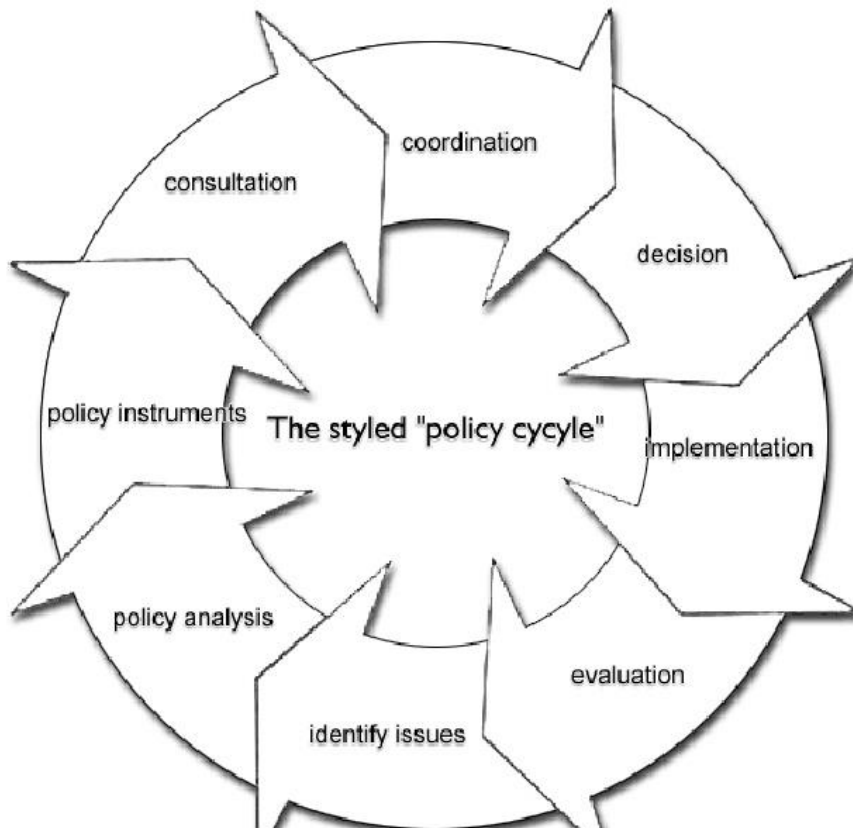
This study therefore looked at the possibility of any enforcement mechanism having been put in place and Viable System Model to propose a framework for enforcing the national ICT policy.

2.2 Theoretical framework

Chini (2008) reiterated that ICT policy research needs to investigate identities, forms of visibility, techniques and government purposes. Visibility meant the ability for the policy to be made effective and therefore generate positive results or record success in its application. According to most ICT policy researches, problems start at the implementation phase where ICT policy is not usually implemented or implemented successfully. Subsequently, the literature indicates that ICT policy monitoring cannot take place if ICT policy is not implemented. ICT policy evaluation is only achieved if ICT policy has been implemented and monitored. In other words, failure at implementation phase stops the ICT policy life cycle. Additionally, according to the literature delay in ICT policy implementation might require policy amendment or re-formulation. Therefore, it is indicated that management of the ICT policy development life cycle provides insightful understanding of issues and risks and the situation is presented in a dashboard format enhancing interpretation and expediting decision-making processes (Mashinini, 2008). Implementation phase, according to Kalika (2007) and Reza Alinaghian (2008), implementation phase interfaces adoption and enforcement. This

theory makes obscures enforcement by trying to make it appear as part of implementation yet it remains key in the application of the ICT policy by most users.

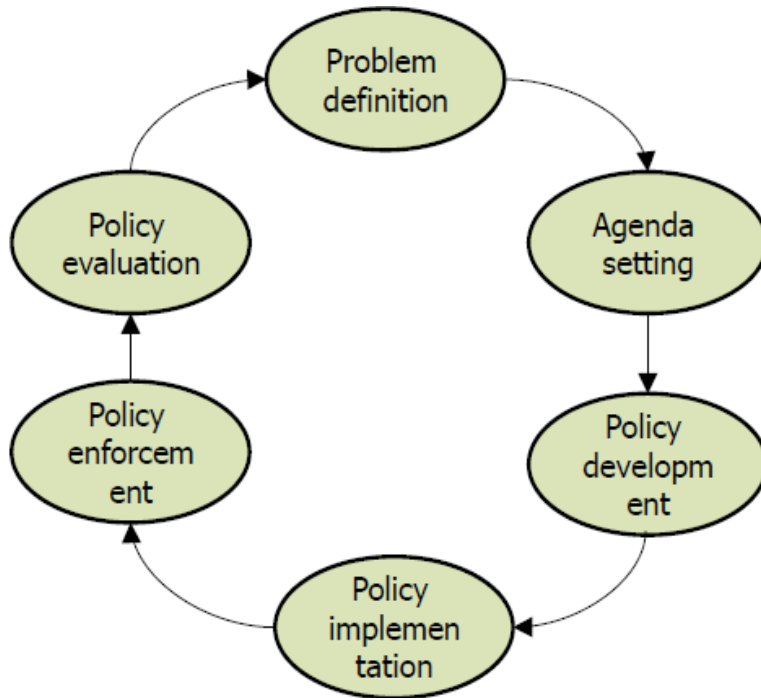
Alien and Glyn Davis (2004) theoretically expresses the policy cycle using a diagram as below:-



From Peter Bridgman and Glyn Davis
The Australian Policy Handbook, 3rd ed. Allen and Unwin 2004, p26

The above theoretical framework describes all the crucial steps of developing any policy, ICT policy included, but is very silent on the enforcement of the policy. Immediately after implementation there is supposed to be a check on enforcement which would pave way for the evaluation process. It is true that a policy which has not been enforced cannot be effectively evaluated. From the theoretical framework above, this skipped stage unfortunately happens to be the one within which most ICT project failures occur. This research project was based on a similar theoretical framework which clearly necessitates that an all-inclusive theoretical framework for the development and eventual adoption of an ICT policy be developed.

Prof. Marijn Janssen (2014) in his talk on "ICT Invading Policy Making", the policy-making cycle seemed to realise the importance of enforcing policies as can be seen in the diagram below:-

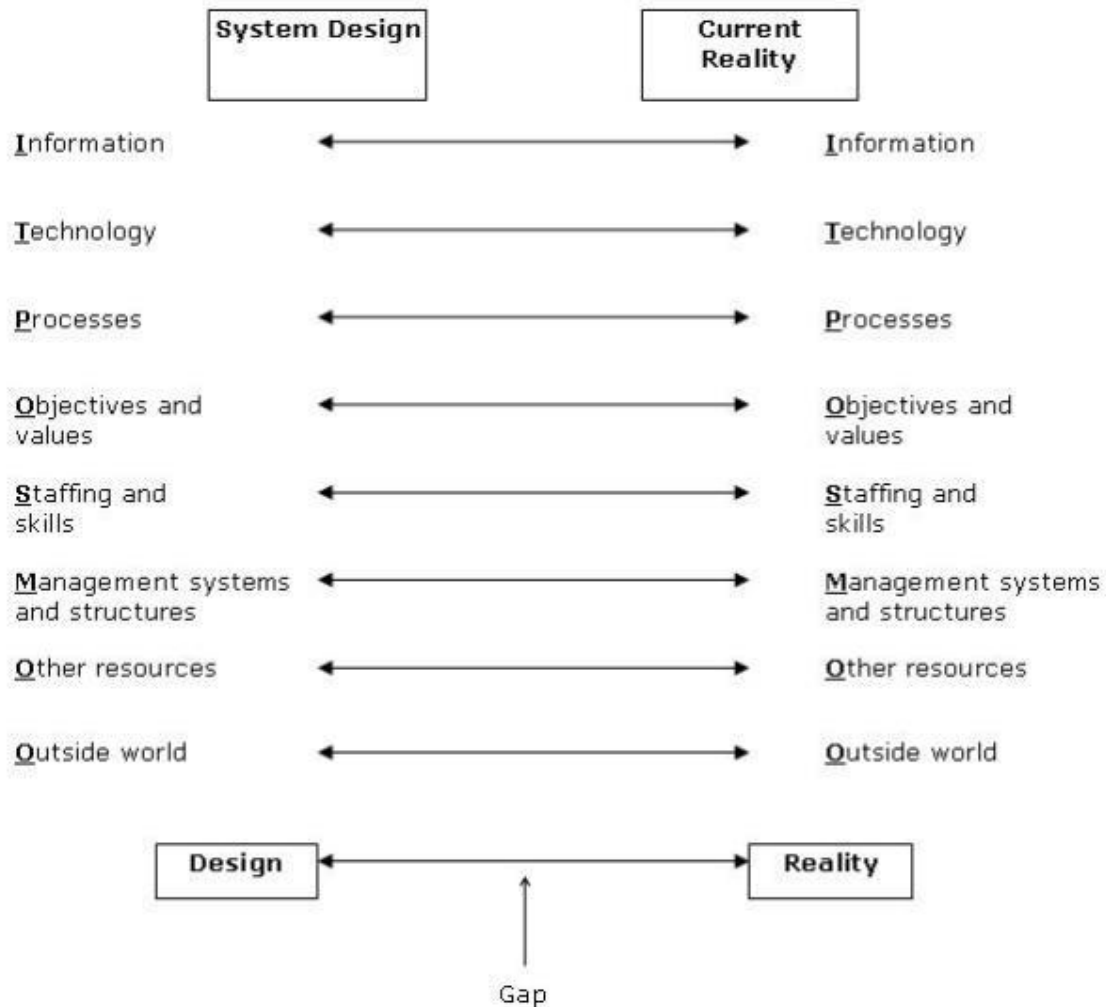


The above framework conceptualises that the government of Kenya's interest, commitment and championing of the implementation of ICT initiatives is indicated by its actions of, for instance, creating the Ministry of Information and Communications Technology, appointment of a Cabinet Secretary for the ministry and the creation of the Kenya ICT Authority whose major objective is to rationalise and streamline the management of all government of Kenya ICT institutions as well as advise the government on sectoral development and ICT Project implementation and investment.

The concept; if therefore the government is committed as indicated and at the forefront in striving to achieve its objectives, a proper ICT policy enforcement procedure must be put in place and strongly advocated for within the Kenya National ICT Policy by borrowing a leaf from the conceptual framework above.

2.3 The Design-Reality Gap (Heeks, 2003)

The design-reality gap framework helps measure any differences that exist between a project's initial design expectations and current implementation realities. It does this along seven dimensions, as shown below.



The design-reality gap model was developed from the literature on social construction of technology and it argues that there are particular assumptions and requirements built into the design of any organisational change. In turn, those design expectations may match or mismatch the real situation found in the context of implementation; hence creating the potential for a gap between design and reality. Where large gaps are found, these highlight the key and specific problem areas for the project.

The Design-Reality Gap Model is applicable in analysing the extent to which the Kenya national ICT policy has been enforced by considering the four major steps of designing and developing the policy then seeking answers on what is actually taking place on the ground. A large gap would indicate the extent of the problem that is causing bottlenecks in the policy enforcement and eventual failed adoption by users. The same model applied on ICT policy development is able to shed light on the current status (design) then compare the status with the reality which is what needs to be done for it to be owned by users in the various government offices.

To make the model systematic and act as an evaluation tool for the implementation process of the national ICT policy, it was necessary to identify a set of key dimensions along which a gap between design and reality might exist.

It is evident that gaps can be identified in relation to:-

- Information - the policy design assumed that its creation would be of value to all government ministries while in reality many stakeholders have not bought the ideas to date.
- Technology ó The development process has skipped salient stages which are likely to determine the degree of success or failure of this policy.
- Objectives and values
- Management systems and structures ó points to a failure to set up proper systems for sensitisation purposes so that all those concerned would understand and appreciate the ICT policy

The larger the assessed design-reality gap, the greater the risk of project failure (Heeks et al, 2010). The smaller the gap, the greater the chance of success.

This framework allows for a greater depth in the assessment process and in identifying ways to bridge gaps by enhancing the design process. Enforcement is a gap that falls within the design and actuality gap analysis as an omission, implying the gap is huge and may even go beyond the ratings stipulated by the design-reality gap analysis model.

The design-reality gap model is an important contribution to the field of ICT4D for it provides a systematic and uniform way to monitor e-government projects and assess their success.

The Viable System Model

ICT policy has fluid and fragmented nature (Chini, 2008) due to the fast speed with which ICT changes. Viable System Model (VSM) has been used as diagnosing tool for re-designing or designing policies in organizations and therefore considered to be the most usable and developed organizational cybernetics expression (Jackson, 1991). The Viable System Model's intention is to develop functions within an organization that enable it to survive in its given environment (Sidney Lockett, 2001). It is recursive, variety reducer, quick on the draw and adaptive. The VSM seizes its opportunities, which guarantees survival. The diagnostic power of the tool has proven it to be worthy, which has been determined through its application to all kinds of organizations (Beer, 1981). The VSM is flexible and robust, the two advantages that are a prerequisite in fast-changing environments. It is flexible because new strategic components are easily inserted into any level without having to make dramatic changes to surrounding structures. It is robust because of having long term focus rooted in the identity of the organization (Espejo, 1989).

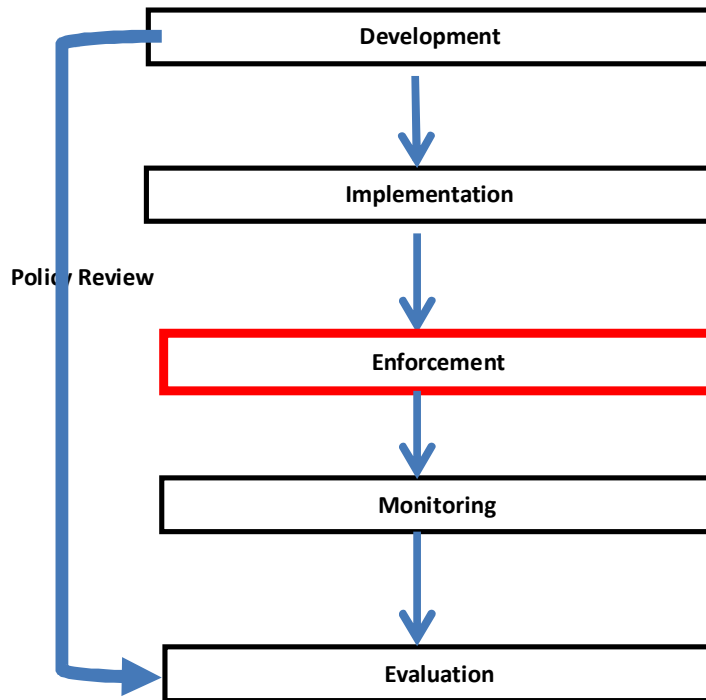
2.3 Conceptual framework

Overview

The government of Kenya is geared to achieving its objectives according to vision 2030 and more so based on the economic pillar's emphasis on ICT adoption. Vision 2030 is one of the major forces behind the development and continual update of the National ICT policy. The government's quest for the many ICT based initiatives and the creation of the ministry for communications and the ICT Authority are strong indicators of the government's commitment to embracing and delivering vision 2030 objectives in line with the National ICT policy.

Much has already been written about ICT policies, their purpose, importance and benefits to various entities. Most of the researchers mention the need of an ICT Policy and its relationships with the existing regulatory frameworks (T. Waema et al, 2012). No much information comes out about the enforcement of these policies. The National ICT Policy for Cambodia proposes the involvement of Women in ICT as a way of enforcing the policy (National ICT Policy September 2009) and goes ahead to emphasize the need to ensure computer literacy among its population (Section 4-1).

Reza Alinaghian (2008) reiterates that one of the major steps towards a successful and effective ICT Policy implementation lies in enforcement, which is lacking not only in the Kenya National ICT Policy but in many other ICT Policies. The diagram below shows clearly the missing link, which is the problem identified and therefore the subject of research in this paper:-



The Kenya National ICT Policy (Information Technology Standards, section 3.3.8) states that “The Government will institutionalise the standardisation of IT products and services for quality assurance and adherence to the national and international standards. The mandates and institutional capacities of Kenya Bureau of Standards (KEBS) and CA will be strengthened to ensure quality and compatibility of IT products and services.” Once more, the policy goes silent after the above clause by failing to show what modes of “strengthening” will be applied and whether enforcement will be part of the “strengthening” process indicated. According to the UN Economic and Social Commission for Asia and the Pacific; “Governments should, of course, aspire to more by putting the policy content into practice and becoming a role model in applying ICT in their own administration and services”, which implies that a government needs not only implement a policy but also ensure it is followed to the letter. This points to a need for an enforcement mechanism as a way of ensuring adoption of the policy.

According to James Njeru (April 2007), the only ICT Policy challenge in Kenya is a lack of adequate infrastructure which has hampered provision of efficient and affordable ICT services. This paper fails to mention that there is no enforcement mechanism of the policy even if the infrastructure existed in its most reliable form. Jorge Carillo, PhD (ISACA Journal Vol.1 2013) on operationalizing an ICT policy reiterates that an effective policy should be part of the organization's central nervous system. Building an accountable culture and using policies in daily operations ensures that the organization's goals are met. In this phase organizations should walk the talk of policy principles.

George Okado (Technobrief 15) highlights the issue of how the policy should be enforced but goes silent immediately after without elaborating on the modes of enforcing an ICT policy.

On the overall, Kenya's National ICT Policy, as good as it may be, stops at the implementation stage, with no proper enforcement methods clearly illustrated. The culture of compliance to the ICT Policy cannot therefore be guaranteed and since enforcement procedures are not mentioned in the policy, compliance remains compromised.

According to Richard Heeks (2003) most Government ICT projects fail either fully or partially or succeed. The Kenya National ICT Policy development up to adoption was a project in itself which seems to have skipped some salient stage of enforcing the policy's contents to the letter.

An analysis of the National ICT policy indicates that four dimensions are necessary and sufficient to provide an understanding of design-reality (what is actually designed and what has already been implemented) gaps:

1. **ICT use:** The objective of ICT use is to increase efficiency, 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.
2. **Knowledge of the existence of a national ICT policy:** The objective is to ensure that all stakeholders are aware that there is a national ICT policy in place implying that it has already been shared with the various staff.
3. **Understanding of the contents of the national ICT policy:** Staff need to appreciate and understand the contents of the national ICT policy. This way they will buy the ideas in the policy and eventually adopt the contents.

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

2.4 Research gap

Previous researchers in this area have gone as far as the implementation leaving a gaping hole where enforcement is concerned and only proceeding to monitor and evaluate a system that has not yet been enforced. This means the results of an evaluation leave a lot to be desired in terms of accuracy and reliability as more accurate and informative data would have been available only if enforcement had been considered. This area on enforcement is what this paper seeks to unearth and recommend ways of enforcing the policy.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter addresses the methodology used in collecting and analysing data. It further outlines the procedures and methods used in the exercise. The intention is to maximize chances of collecting irrelevant and haphazard data as well as ensure that the data collected meets the research objectives. The research design, methodology, target population, sample size, data collection methods as well as data analysis methods are outlined in the following sections where 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 are adequately elaborated.

3.2 Research Design

According to Galit Cohen-Blankshtain (2004), policy research is usually undertaken with qualitative research methods that can provide a profound insight into a complicated phenomenon. Therefore this study will use qualitative research approach. This allows close interaction with the users and it is more reflective of reality especially on the current challenges regarding the status of ICT policy (Mashinini, 2008). It also assists researchers to be collaborative and discursive in nature, being in continuous interaction with ideas and in the generation of ideas through constructive criticism and discourse. It also has no preconceived ideas as it is shaped and detected by the data from the respondents. Mashinini (2008) adds that qualitative research is not rigid but flexible as the situation changes. In fact, interview is one of the most suitable techniques of data collection. It also helps identify different properties and dimensions with their relationships and connections for the purpose of analysis.

The tools that will be employed are observational interviews, individual interviews and questionnaires. According to Kothari (1990), personal interview methods are also suitable for intensive investigations.

3.3 Study Population

According to *Burns and Grove (1993:779)*, a population is defined as all elements (individuals, objects and events) that meet the sample criteria for inclusion in a study. The

study population consists of major government ministries where ICT has been adopted and is likely to enable progression to the future and towards achievement of vision 2030 objectives. Selection of the different categories of Kenya Government ministries is based on their involvement with ICT as an enabler. Much care will be taken during the study to achieve a truly representative sample such that the results of the sample study can be applied, in general, for the government with a reasonable level of confidence (Kothari, 2004).

3.4 Sample Size and Sampling techniques

Sampling, as it relates to research, refers to the selection of individuals, units, and/or settings to be studied. Qualitative studies often use purposeful or criterion-based sampling, that is, a sample that has the characteristics relevant to the research question(s). The goal of qualitative research can be stated as 'in-depth understanding.'

A combination or mixed purposeful sampling strategy was used to undertake this study. This type of sampling met multiple interests and needs during the study. It involved use of the following strategies:-

- Critical Case Sampling - this method permitted logical generalization and maximum application of information to other cases because if it's true of this one case, it's likely to be true of all other case. What constituted a critical case was the failure to use the ICT policy even though respondents had it with them.
- Homogeneous Sampling - this technique enabled bringing together people charged with the application of the national ICT policy's requirements and their main jobs require that they use ICT to achieve their objectives. It reduced variation, simplified analysis, and facilitated group interviewing.

These will be administered to the following selected five Kenya Government ministries thus:-

1. Ministry of Information, Communication and Technology
2. Ministry of Education
3. Ministry of Health
4. Ministry of Transport and Infrastructure

3.5 Research Instruments

Data collection instruments refer to devices used to collect data such as questionnaires, tests, structured interview schedules and checklists (Seaman 1991:42). Polit and Hungler (1997:466)

define a questionnaire as "a method of gathering information from respondents about attitudes, knowledge, beliefs and feelings". A questionnaire was designed to gather information about the extent of ICT policy enforcement within the Kenya government.

According to Brink and Wood (1998:293-298) a questionnaire is preferred because:

- Each participant enters his/her responses on the questionnaire, saving the researcher's time.
- It is less expensive than conducting personal interviews.
- Respondents feel that they remain anonymous and can express themselves in their own words without fear of identification. This aspect was very important in this study where the government appears to be under "watch".
- Data may be collected within a limited period.
- The format is standard for all subjects and is independent of the interviewer's mood

Therefore this research has made use of questionnaires as the mode of gathering data.

3.6 Validity and Reliability of Instruments

Validity is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform. It involves collecting and analysing data to assess the accuracy of an instrument. According to Mugenda and Mugenda (2003) validity of the instruments represents the degree to which a test measures accuracy and relevance of inference made based on research results.

Reliability can be thought of as consistency. Through the use of questionnaires whose questions are similar ensures that consistency is maintained. The concept of Parallel-Forms Reliability has been considered while checking on the reliability of the instrument used as several different participants are given the same content to answer.

3.7 Data Collection

The use of questionnaires, made up of questions that were both open-ended and closed-ended, was appropriate for the study as the respondents had adequate time to give well thought out answers to questions while being free from the interviewer's bias.

Administration of the questionnaires was through a drop and pick method, where the researcher personally delivered them to the selected destinations and picked after some agreed time. At the time of dropping these questionnaires a meeting was held with the senior individuals in charge to explain the purpose of the study. Various government reports provided more data about the study.

3.8 Data Analysis

The analysis of qualitative research involves aiming to uncover and / or understand the big picture - by using the data to describe the phenomenon and what this means. Tabulation of the data was done and a model developed that would represent the results in a format which would draw its descriptions from the research objectives. A customized method (bespoke) of identifying and labelling or coding data using MS Excel was developed (content analysis).

Content analysis is a procedure for the categorisation of verbal or behavioural data, for purposes of classification, summarisation and tabulation. It is normally used when data has been collected through administration of questionnaires, observations and interviews alike. It involves coding and classifying data, also referred to as categorising and indexing and the aim of context analysis was to make sense of the data collected and to highlight the important messages, features or findings.

The content was analysed on two levels:

1. Basic level or the manifest level: a descriptive account of the data i.e. this is what was said, but no comments or theories as to why or how
2. Higher level or latent level of analysis: a more interpretive analysis that is concerned with the response as well as what may have been inferred or implied

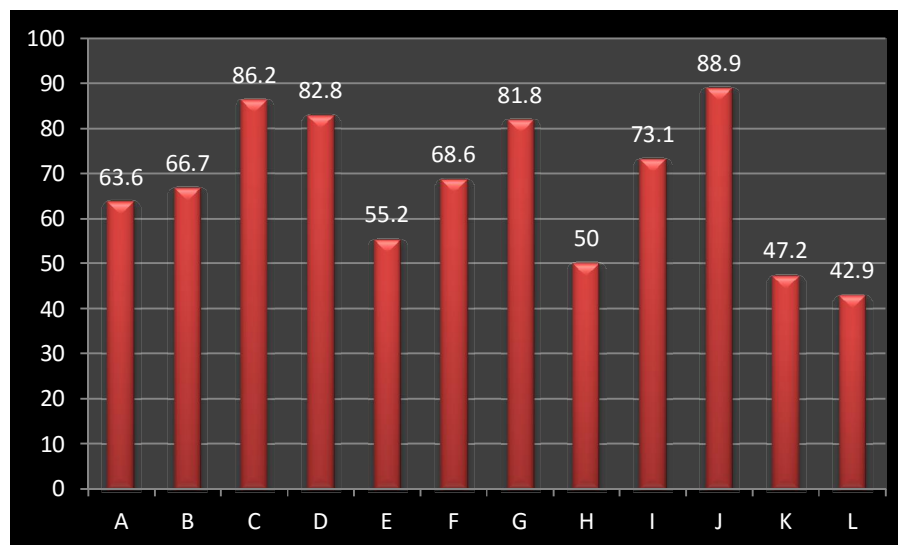
4.0 DATA ANALYSIS AND PRESENTATION OF FINDINGS

Data gathered was analysed using Microsoft Excel as a tool for carrying out the various tabulations. Each questionnaire response was associated with the respective question and a link established between similar responses from respondents. The outcome was then converted to a percentage of the total number of respondents in order to create a relationship between the findings and the research objectives.

The table below shows the outcome of the survey.

Survey question	Value (%)
All staff are aware of the existence of the national ICT policy	63.6%
Every staff within the ministry has access to the policy	66.7%
Sensitization of the ICT policy has been undertaken on all staff	86.2%
Training on its application has been done	82.8%
Policy is appreciated across the ministry	55.2%
Who is in charge of the ICT Policy	68.6%
You have complied with all the clauses of the ICT policy	81.8%
A majority of the clauses are not applicable	50%
None of the clauses has been complied with fully	73.1%
Staff need more training	88.9%
Overhaul entire national ICT policy	47.2%
Policy is a bottle neck to the operations of the ministry, do away with it	42.9%

Graphically,



Key:

All staff are aware of the existence of the national ICT policy	A
Every staff within the ministry has access to the policy	B
Sensitization of the ICT policy has been undertaken on all staff	C
Training on its application has been done	D
Policy is appreciated across the ministry	E
Who is in charge of the ICT Policy	F
You have complied with all the clauses of the ICT policy	G
A majority of the clauses are not applicable	H
None of the clauses has been complied with fully	I
Staff need more training	J
Overhaul entire national ICT policy	K
Policy is a bottle neck to the operations of the ministry, do away with it	L

From the table and the graph, it is evident that the national ICT policy has fallen short of what it was intended to achieve. Responses point to a need to change the method of ensuring that the policy is owned and adhered to by government employees. Each of the above table items has its data and explanations shown in the following sections. The survey question, results in a table format and a detailed explanation is given for each result from the tables.

A. Survey question: All staff are aware of the existence of the national ICT policy?

Results table:

	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
All staff are aware of the existence of the national ICT policy	0	0	1	4	2
	0	0	1	1	3
	0	0	0	2	7
	0	0	1	2	9
Totals	0	0	3	9	21
Response as a %age of total (33)	0	0	9.1	27.3	63.6

Explanation:

63.6% of the respondents did not agree with the fact that staff were aware of the existence of a national ICT policy.

B. Survey question: Every staff within the ministry has access to the policy

Results table:

	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
Every staff within the ministry has access to the policy	0	1	1	5	0
	0	0	0	2	3
	0	0	0	0	9
	0	0	0	2	10
Totals	0	1	1	9	22
Response as a %age of total (33)	0	3	3	27.3	66.7

Explanation:

A majority of the staff interviewed did not have access to the policy.

C. Survey question: Sensitization of the ICT policy has been undertaken on all staff

Results table:

	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
Sensitization of the ICT policy has been undertaken on all staff	0	0	1	1	8
	0	0	0	1	4
	0	0	0	0	9
	0	0	0	1	4
Totals	0	0	1	3	25
Response as a %age of total (29)	0	0	3.4	10.3	86.2

Explanation:

86.2% of the staff interviewed have not been sensitized about the national ICT policy.

D. Survey question: Training on its application has been done

Results table:

	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
Training on its application has been done	0	0	0	2	8
	0	0	1	0	4
	0	0	0	1	8
	0	0	1	0	4
Totals	0	0	2	3	24
Response as a %age of total (29)	0	0	6.9	10.3	82.8

Explanation:

82.8% of the respondents denied having been trained on the application of the ICT policy which hindered the extent to which the staff could use the policy.

E. Survey question: Policy is appreciated across the ministry

Results table:

	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
Policy is appreciated across the ministry	0	0	0	1	9
	0	0	0	2	3
	0	0	6	2	1
	0	0	0	2	3
Totals	0	0	6	7	16
Response as a %age of total (29)	0	0	20.7	24.1	55.2

Explanation:

55.2% of those interviewed strongly disagreed with the fact that the policy is highly appreciated. This pointed to a situation whereby the staff could even fight to bring down the policy.

F. Survey question: Who is in charge of the ICT Policy?

Results table:

Who is in charge of the ICT Policy	Head of ICT	ICT staff	Users	None
	8	1	0	0
	5	0	0	0
	7	2	0	0
	4	8	0	0
Totals	24	11	0	0
Response as a %age of total (35)	68.6	31.4	0	0

Explanation:

68.6% showed that the head of ICT was in charge of the policy instead of allowing ownership to move to the respective staff. Such a policy cannot therefore be used.

G. Survey question: Have you complied with all the clauses of the ICT policy?

Results table:

	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
You have complied with all the clauses of the ICT policy	0	0	0	1	6
	0	0	0	0	5
	0	0	0	1	8
	0	0	1	3	8
Totals	0	0	1	5	27
Response as a %age of total (33)	0	0	3.0	15.2	81.8

Explanation:

81.8% have not complied with all the clauses of the policy. Most probably this emanates from the fact that they have not been taken through the policy for them to appreciate its contents and use.

H. Survey question: Majority of the clauses not applicable?**Results table:**

	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
Majority of the clauses are not applicable	0	6	0	0	0
	0	0	0	1	4
	0	0	2	1	6
	0	0	2	4	6
Totals	0	6	4	6	16
Response as a %age of total (32)	0	18.8	12.5	18.8	50

Explanation:

Only 18.8% believed that a majority of clauses were not applicable. 50% indicated that a majority of the clauses were applicable as much as they were not applying them.

I. Survey question: None of the clauses has been complied with fully**Results table:**

	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
None of the clauses has been complied with fully	0	7	0	0	0
	0	0	0	0	5
	0	0	0	0	9
	0	0	0	0	5
Totals	0	7	0	0	19
Response as a %age of total (26)	0	26.9	0	0	73.1

Explanation:

26.9% of the respondents agree that none of the clauses have been complied with fully while 73.1% indicate that this may not be true as there could be some clauses which have been fully complied with.

J. Survey question: Do staff need more training?

Results table:

Staff need more training	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
	8	1	1	0	0
	5	0	0	0	0
	9	0	0	0	0
Totals	10	1	0	1	0
Response as a %age of total (36)	88.9	5.6	2.8	2.8	0

Explanation:

88.9% of the respondents suggested that training is required for staff on the ICT policy.

K. Survey question: Overhaul entire national ICT policy?

Results table:

Overhaul entire national ICT policy	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
	1	1	8	0	0
	0	0	1	4	0
	0	0	5	4	0
	0	0	3	4	5
Totals	1	1	17	12	5
Response as a %age of total (36)	2.8	2.8	47.2	33.3	13.9

Explanation:

33% disagreed with the suggestion that the ICT policy needed an overhaul. This could have been a reaction to the fact that one exists which they have never tried their hands on, hence not agreeable to overhauling a policy which they have never come across.

L. Survey question: Policy is a bottle neck to the operations of the ministry, do away with it?

Results table:

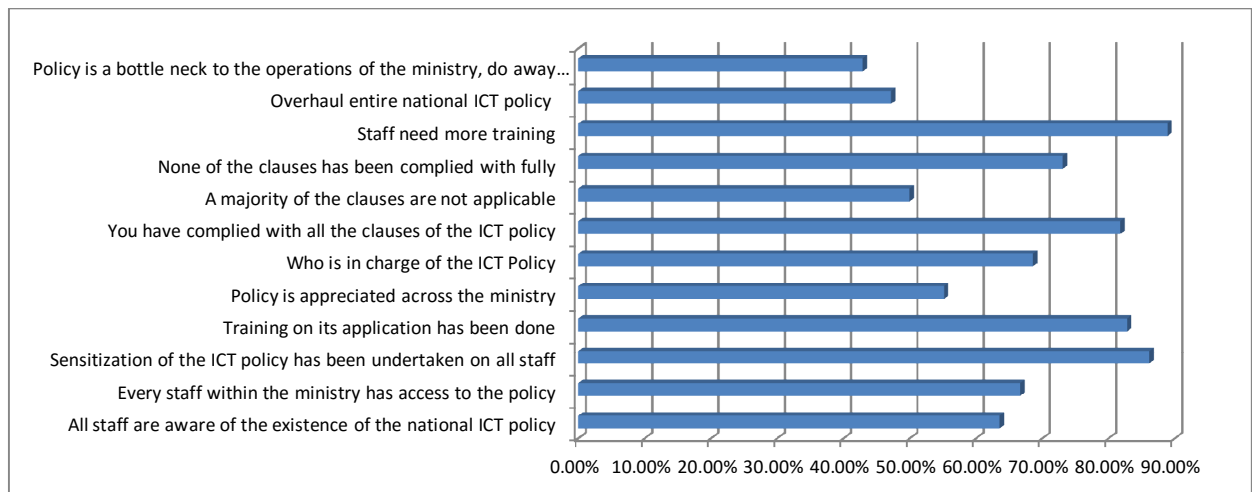
	Strongly Agree	Agree	Not Sure	Disagree	Strongly disagree
Policy is a bottle neck to the operations of the ministry, do away with it	0	1	2	4	3
	0	1	0	2	2
	0	0	0	3	6
	0	0	2	5	4
Totals	0	2	4	14	15
Response as a %age of total (35)	0	5.7	11.4	40	42.9

Explanation:

A bigger percentage of the respondents (42.9%) felt there was no need to do away with the policy.

The Design-Reality Gap

The graph below shows that the largest gap between design and reality is on the need for more training with the least gap suggesting that the policy is a bottleneck in the operations of any ministry. In all cases however all the gaps can be regarded as big hence the need to close them by using a viable system model which addresses each of these gaps and offers a solution plus a way forward.



Chapter Five

5.0 DISCUSSION, RECOMMENDATION AND CONCLUSION

5.1 Discussion

The survey conducted identified major loopholes that have prevented and may continue to prevent the Kenya national ICT policy from being adopted by the various stakeholders.

From the results of the study, it became clear that a majority of the staff (63.6%) for whom the policy is intended were not aware of the existence of a national ICT policy. In addition many of the staff did not have access to the policy implying that there was a serious problem with the way the distribution of the policy was done.

On the other hand sensitization did not seem to have taken place as a whole 86.2% of the respondents were concerned that no sensitization had taken place before or even after the policy had been distributed to the various stakeholders. A lack of sensitization pointed to a lack of training and this was evidenced from the 82.8% of the respondents who claimed not to have been trained on the policy. This limited the staff ability to use the policy in their day to day ICT related duties.

Possibly due to lack of training and sensitization alike, appreciation for the existence of the policy was not shown as 55.2% did not appreciate the policy and obviously its contents. Lack of appreciation of the policy could easily lead the staff to bringing down the whole idea of a policy.

The head of ICT seemed to be the owner of the policy and possibly the one who understood the essence of the policy. In fact 68.6% of the respondents pointed out that the ownership of the policy was in the hands of the head of ICT. Ideally ownership of the policy should have been transferred to the staff as they needed to apply the policy requirements more than the head of ICT.

81.8% of the respondents had not complied with all the clauses of the policy mainly due to the fact that they have not been taken through the policy for them to appreciate its contents and use.

Training of staff on the policy became very important as 88.9% of the respondents indicated a need to be trained on its application and use.

5.2 Recommendations

In 2005, *‘Towards Knowledge Societies’*, a world report published by UNESCO clearly indicated the absence of a model to ensure that ICT development is performed in enabling rather than disabling (Bindé 2005). It is also stated that further research into user acceptance, adoption and implementation of ICT policy is needed. A policy framework is necessary to provide a route map to guide the process of the policy development life cycle to ensure effective service delivery. The framework needs to be flexible in order to accommodate environmental dynamism (Mashinini 2008). One of the risks is that many countries spend significant time, energy and resources to develop ICT policies that remain blue prints or *‘white elephants’* because no systematic set of indicators are agreed and established to monitor and evaluate their implementation (Techno Policy Brief 6 15). The results obtained from the study have indicated that the negative reaction to the national ICT policy is the result of a poorly developed and delivered policy.

This study sought to establish the extent of enforcement of the Kenya National ICT policy and the following framework has been proposed for adoption by the Kenya Government in order to effectively enforce the National ICT policy. It seeks to introduce additional and crucial steps during the process of developing an ICT policy.

5.3 ICT policy enforcement framework – The Viable System Model

The proposed framework is based on the works of Stafford Beer’s Viable System Model (VSM). Stafford Beer is one of the leading figures in the science of cybernetics, which concerns itself with the underlying laws which govern how organisms, machines and organizations maintain their identity, and fulfil their purposes within their environment. Cybernetics claims that there are underlying laws which apply equally to the manner in which the nervous system of an animal maintains control over its actions, to the way in which a species maintains itself within its ecosystem, and to how a corporation maintains its existence in its marketplace. The VSM provides a notation which can be applied by non-mathematicians to help them understand and apply these general laws.

Stafford Beer developed the VSM over a period of over thirty years as an aid to the practical process of diagnosing problems in human organizations, and helping to improve their functioning. Stafford believed that effective organizations should maximize the freedom of their participants, within the practical constraints of the requirement for those organizations to fulfil their purpose. He believed that the science of cybernetics could be used to design

organizations which fulfil these objectives. The VSM is intended to act as an aid to the process of diagnosis of organizational problems, and the subsequent process of organizational re-design. The redesigning process should use technology, particularly information technology, to assist in providing organizations with a nervous system which supports their aims, without the burden of bureaucracy.

IT systems are often designed without a clear examination of the workings of the organization which they are intended to serve. This can easily lead to the automation of processes which do not meet the needs of that organization. Software projects often involve the management of a very high degree of complexity. All too frequently, complex issues are oversimplified to fit assumptions about how projects need to be structured. Once broken down into "simple" parts, work can proceed, with apparent progress. Unfortunately, when the attempt is made to integrate the parts together near the end of the project, the discovery is made that "the sum of the parts does not equal the whole". The Viable System Model provides a useful framework for an understanding of how to overcome these common difficulties by offering a set of "thinking tools" which facilitate this process. It may also be possible to use the Viable System Model to automate the process of designing the "nervous systems" of the new types of organizations which are now evolving.

Self-organizing systems have many purposes, some of which may not be at all obvious. However, they all share the need to remain Viable. This simply means that they share the aim of continuing to exist, at least until the time when their purpose has been achieved. Since this is a characteristic shared by all self-organizing systems, it makes sense to focus on this, and to examine what elements are necessary in order for a system to remain viable. The Viable System Model claims to reveal the underlying structures necessary for a system to meet this criterion of viability. The VSM's proponents claim that all self-organizing systems conform to this model, even if the participants are unaware of this. However, understanding the VSM, and applying it, should make it possible to improve the organization's effectiveness, since it may currently only be viable by accident, rather than design.

Uses of VSM

- Aid to diagnosing organizational problems
- Framework for Business Process Reengineering
- Basis for new Information Technology Tools

VSM five systems

System 1 ó The entire Operation

System 2 ó Resolution of conflict. Stability - keeping the peace.

System 3 ó Overview of entire Operation, optimisation, synergy, imposition of policy when necessary.

System 4 ó Environmental scanning, strategy, planning, innovation

System 5 ó Closure, policy, identity, ultimate authority

The proposed model makes use of the first three systems of VSM as system 3 completes the process by enforcing the policy to the users after having curved a definite method of achieving that.

System 1 is managed by òDivisional Directorateö through its management tool; òDivisional Regulatory Centerö. It contains components which involve:

- Organization of the ministry
- Control routine responsibilities and activities of each ministry
- Implementation or operation of ministry's processes and activities (Beer 1979; Beer 1981; Beer 1985).

In order to operate and organize the ICT use within the ministries, ICT policy must be implemented. To achieve control over the ICT activities and operation, the ICT policy has to be monitored. If the ICT policy is developed at this system, other ministries may refuse to adopt because it may not address their ICT issues and / or requirements. To review or evaluate the ICT policy, feedbacks are needed from the whole organization, and not only from that of a particular ministry. Therefore, the main processes that have to be performed at system 1 are implementation and monitoring. It is important to note that it will be at this point when enforcement needs to be addressed so that monitoring can be performed on an already enforced system that is in use. The top level is made of the Head of ICT within the ministry whereas the ICT section within the ministry makes up the ICT Management tools. The ICT section is responsible for managing all ICT related affairs of the ministry and its departments.

The ICT section is formed by an ICT manager and an ICT officer who is a technician to assist the ICT manager.

However, management always plays a very important role in any activity. They have jurisdiction to assign accountability, provide human and financial support, and supervise. Therefore, the Head of ICT within the ministry is the key success at the ministry level and sensitizing or educating the Head of ICT is the building block. Through education, management's ICT interest is attracted, innovation is enhanced, effective and efficient decision-making is created. Management at this level also requires the necessary and good tool(s) in order to perform excellently. To achieve expected and desired outcome, a standard and robust ICT management tool (ICT unit) is essential. Therefore, the ICT manager's proper and careful selection and preparation is a pre-requisite.

First, it is very important to select ICT managers based on their qualifications.

Second, it is necessary to create incentives for the position. However, motivation is provided through considering ICT manager's administrative obligation and effort in their appraisal. These may include awarding extra fixed monthly payment and additional awards and rewards for outstanding performance, in addition to lowering the academic work load assigned to ICT managers.

Third, educating ICT managers on the appointment positively impacts on their ICT performance. They need to be educated and skilled in administration and ICT. Therefore, they can handle situations professionally, in addition to understanding and appreciating ICT roles and its importance.

Fourth, ICT officers have to possess technical skills and knowledge in order to assist ICT managers technically.

The ministry's ICT section is supposed to be visible at the section level. There are positive aspects in shifting ICT managers from their offices to the ministry's administration section.

Constant and extensive interaction and communication with the Head of ICT is established. Second, impression is created among staff to consider the ICT manager as a member of the administration. Third, the Head of ICT's clerical staff can assist the ICT manager in performing ICT administrative activities in addition to providing constant and comprehensive access and communication channel to the ministry via assistant personnel. Consequently, the ICT help desk is officially established in the ministry. The ICT help desk creates a positive impression within the staff in the ministry. The ICT help desk can support and encourage the staff in their ICT affairs. Subsequently, the staff in the ministry also perform differently when it realizes that the ICT help desk can support and observe their ICT exploitation. On the other hand, accountability is a crucial factor in successful ICT governance in general, and ICT policy management in specific. Accountability is imposed through official assignment of the roles, responsibilities and / or job specifications. Assigning accountability to ICT managers holds them officially answerable to superiors and makes them able to gain a clearer picture or understanding the position's entire responsibilities especially those that concern the adoption of the ICT policy. Some of the responsibilities include:

Planning and distribution of ICT policy and related tasks improves ICT governance and policy management. In addition ICT policy awareness raising campaign in addition to ICT education is more effective at this level since it is close to the staff. Also, effective and efficient identification and collection of ICT issues and requirements from the base of ministry or directly from the users is best performed at this level. However, comprehensive identification and collection of ICT issues and requirements results in the formulation of all-inclusive, effective and accurate ICT policy or careful evaluation of the current ICT policy. Lastly ICT policy enforcement, adoption and monitoring returns a more reliable outcome since this level is close to the users.

ICT issues and requirements are the main building blocks of ICT policy. They are the inputs to ICT policy development, enforcement, implementation and evaluation. Through identification of ICT issues and requirements, authorities are able to verify ICT policy effectiveness, accuracy and methods of enforcement. Subsequently, ICT policy is evaluated or formulated based on identified and collected ICT issues and requirements. It is important to provide a convenient and stable mechanism close to users in order to identify and collect ICT issues and requirements extensively. This is already a mechanism of enforcing adoption of the policy at an early stage as users get to know of its existence. ICT service and communication platforms provided play a very important role in this matter. ICT policy awareness and education is conducted, partial monitoring is performed and ICT issues and requirements are identified. Subsequently, ICT exploitation and operation are enhanced in the ministry.

The ICT service and communication platform(s) at the ministry can be established through various means such as ICT help desk and also by creating ICT discussion group on any of the social-networking websites. Creating an ICT discussion group on social-networking websites managed by the ICT section staff has advantages in that it is free of charge, constant and reliable. It can cover the entire ministry staff as the entire staff fraternity is able to interact conveniently. Continuous and frequent ICT policy awareness raising and education are conducted with almost no cost and effort whereas ICT services, facilities and policy issues, requirements or feedbacks are identified and discussed. The ICT section can provide ICT advice and consultation to staff in the ministry via ICT platforms.

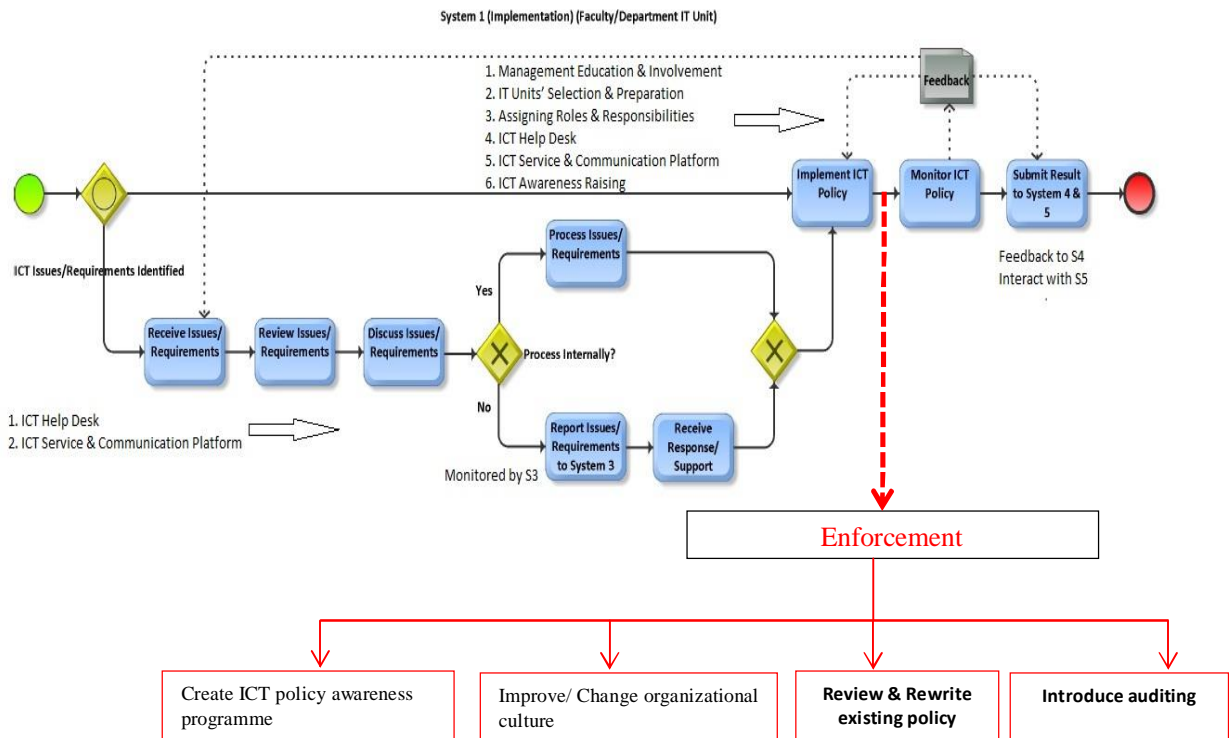
Additionally, as a way of ensuring almost guaranteed adoption of the ICT policy, conducting occasional ICT meetings among ministry staff chaired by an ICT manager and supervised by the Head of ICT helps identifying ICT issues and requirements as well as discusses and exchanges ICT services, facilities and policy feedbacks. Moreover, an ICT workshop

conducted by the ICT section annually is very effective and efficient. It can include introduction and information on the ICT policy. New staff can be introduced to the ministry's ICT services and facilities' features, objectives, acceptable behaviour and usage; advantages that ICT policy could deliver, in addition to disadvantages that potential breach on the ICT policy could have on the staff. Conducting an annual ICT workshop is cost-effective and covers the entire ministry in a long term. It also helps authorities ensure that all the staff in the ministry is kept aware of the ICT policy and educated on proper, acceptable and professional ICT exploitation. Furthermore, through ICT meetings and workshops, authorities are able to identify new ICT issues and requirements that lead to evaluate, update or improve ICT services, facilities and policy.

Producing ICT reports at System 1 also helps management to gain broad ICT feedback or input that assists them to monitor ICT and correspond accordingly. Therefore, frequent ICT reports from computer laboratory technicians, network administrators, ICT officers addressed to ICT manager and / or Head of ICT are necessary to be generated at this level. The reports are appended with additional supporting information and directed to ICT Technical Committee (System 4). Thus, ICT reports ascend the ministry's management hierarchy where all management levels are kept informed and participated.

Figure 1 presents System 1's process diagram. The process diagram summarizes the proposed ICT policy management model by providing a brief and general view of the entire process that can also be used as a quick reference. It is a complementary guide in understanding the entire proposed model for system one.

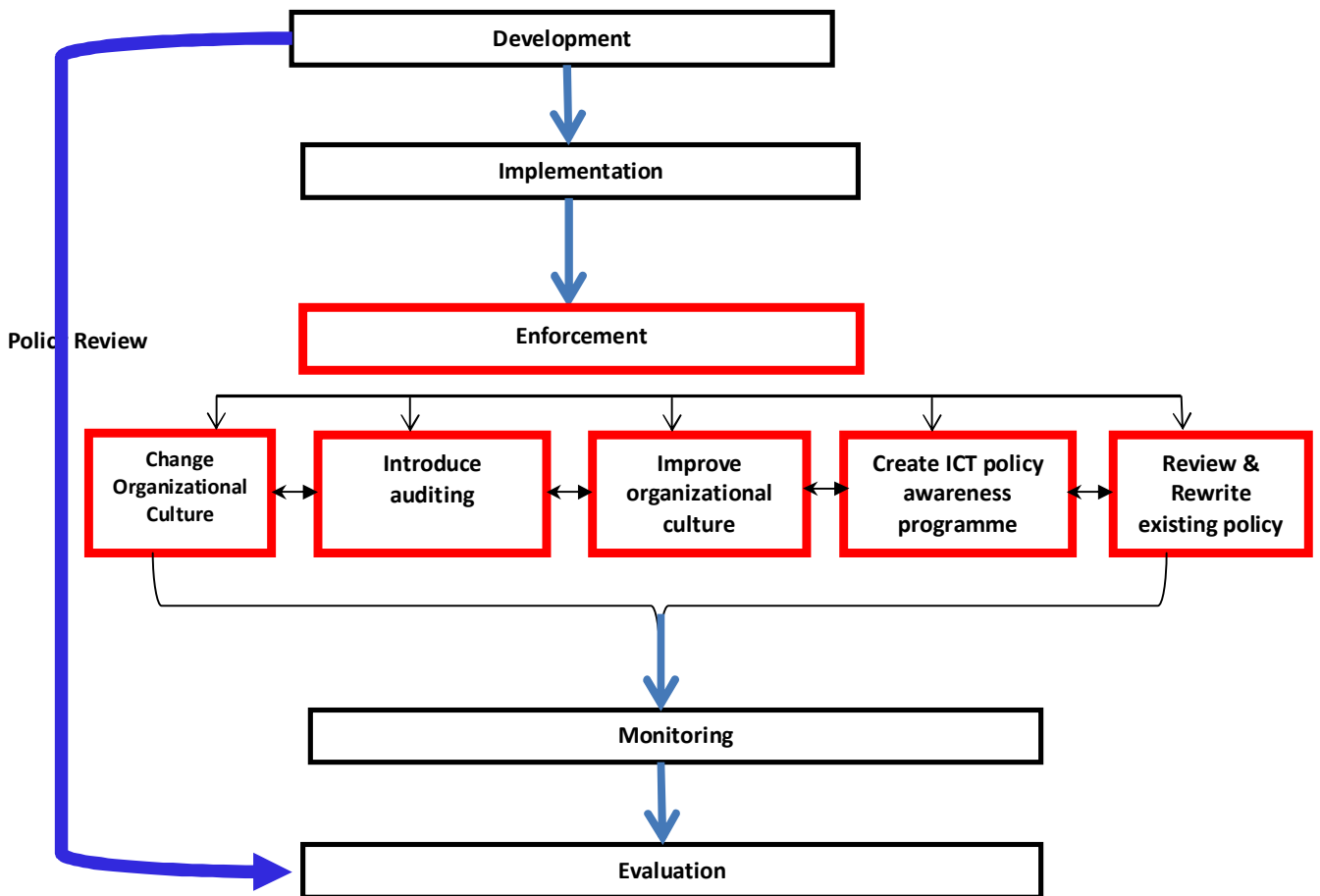
Process Diagram 1



The following scenario explains the diagram. There are two main routes in the diagram. Both routes are traversed concurrently. In addition, level one is in continuous communication with levels three, four and five through the ICT manager and Head of ICT. However, the first route is where the ICT policy implementation and monitoring are continually performed. The ICT policy feedbacks are collected through the path via ICT policy monitoring. The ICT policy feedbacks can be considered as input to the ICT policy implementation, or as newly identified ICT issues and requirements. Additionally, results of the performance are regularly submitted to level four and / or five. The second route is when new ICT issues and requirements have been identified and collected. ICT issues and requirements have to be reviewed, discussed and analyzed by the ICT section and Head of ICT. As a result, ICT

issues and requirements are either feasible to be processed internally at the faculty or have to be addressed to System 3 for further considerations. Firstly, ICT issues and requirements are processed internally if feasible. ICT issues and requirements are reported to System 3 if it is beyond the scope of the faculty ICT section.

The diagram below further shows a different but related method of ensuring that enforcement is included as a major step to developing and eventually implementing an ICT policy.



Description of the proposed changes

Change of Organizational Culture

The government has to change the existing culture of ignoring policies or viewing them solely as a means of dismissing personnel to a more positive one.

Introduce auditing

The government should utilise existing internal audit team to audit the ICT policy implementation. Included in the audits can be the process for refreshing policy awareness, current state and correctness of the policy suite, compliance checking and non-compliance reporting.

Create an awareness mechanism for the national policy

While the intranet is also an instrument for making staff aware of the existence of a policy it may not be effective. Awareness is to include a means to confirm that personnel have been made aware of the ICT policy.

An automated system that informs personnel whenever changes are made to the policy is also important. An e-learning package which uses the ministry's network and domain authentication is a good solution. Periodic meetings should embrace the ICT policy as a tool to ensure personnel are made aware.

Improving the organization culture

There is need to change personnel attitude, beliefs and behaviour to one that aligns with the business requirements (Didier, 2008). An education programme would assist the ICT team in achieving this. ICT team should on the other hand adopt a less judgemental, more objective mentality to communicating and enforcing the policy as this will improve the impact of the national ICT policy. Changing the existing beliefs and attitude towards ICT policy to a more positive one should be beneficial when it comes to ICT policy awareness and other supporting documents supported by the policies i.e. standards and procedures.

Review and rewrite existing national ICT policy

Reasons to update the national ICT policy include deployment of new technology, decommissioning of old software and hardware or the introduction of new or updated regulatory requirements. Failure to review and / or update could result to the government's failure to address risks associated with non-use of the policy.

An automated system of review scheduling with time alerts will assist, however the policy should be reviewed or amended when a significant change in the existing practices that are likely to affect the policy occurs. The Kenya national policy has not been amended with the result that the contents are difficult to enforce.

According to Chuvakin (2008), policies should be written such that they are clear and concise as ambiguity and doubt can result in the policy being ignored or un-enforceable.

5.4 Conclusion

The findings from this study showed that the national ICT policy lags behind in terms of adoption and hence not effectively serving its intended purpose. The method used to develop the policy failed to address the issue of enforcement and only managed to skip to evaluation while not being sure whether the policy had been adopted by the intended users. A big gap was noted to exist between the design and the enforcement for use of the policy, the reality being that a majority of the staff within the sampled ministries lacked even the basic knowledge about the policy. Requests for training on the national ICT policy as well as a mechanism of informing staff about the policy while allowing them to own it were noted. All those findings can be used to even come up with a better framework for ensuring that the national ICT policy is adopted and owned by the intended stakeholders.

5.5 Recommendations for Further Studies

This research project came up with findings that will enable other researchers to come up with specific frameworks for each of the shortcomings identified. Policy enforcement agencies, researchers and any other interested parties can take up the specific areas that were assessed and find specific methods of addressing each of them.

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7.0 APPENDICES

Appendix - A

Project Schedule

No	Event	Sept 2014	Oct 2014	Nov 2014	Dec 2014	Jan 2015	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sept 2015	Oct 2015
Start of Project															
1	Identify project title														
2	Present title for approval														
3	Working on Introduction, Literature review, Research Methodology, References														
Milestone 1															
4	Milestone 1 presentation														
5	Outcome of Milestone 1 Presentation - address areas of concern														
7	Consult with Supervisor on issues raised														
Milestone 2															
8	Working towards Milestone 2														
9	Milestone 2 presentation														
	Outcome of Milestone 2 Presentation - address areas of concern (consult with supervisor)														
Milestone 3															
10	Working towards Milestone 3														
11	Milestone 3 presentation														
Presentation of Final Report															
12	Preparation of final Report and seeking approval														
13	Project close out & hand over of approved project to Supervisor														

Budget for the project

No.	Activity	Cost (Kshs)
1	Data collection	15,000
	Data analysis	25,000
2	Documentation	10,000
3	Communication and Internet access	5,000
4	Travel costs	10,000
5	Miscellaneous	10,000
	TOTAL	75,000

Appendix – B

Cover Letter for Surveys



School of Computing and Informatics Master of Science in Information & Technology Management

4th June 2015

Dear Sir/Madam,

I am a Master of Science student at the University of Nairobi, taking I.T Management under the supervision of Dr. Agnes Wausi. I am currently undertaking a research that considers the degree of enforcement of the Kenya National ICT Policy by the government within its ministries.

As owners of the national ICT policy, it is important to know your views regarding the extent to which the policy has been enforced within your section in the ministry. Results from this research will yield valuable information to the government and researchers alike.

I am writing to request for your co-operation as I would be grateful if you could complete the short questionnaire and return it to me in the enclosed envelope within one week of receiving the questionnaire.

I assure you that the data and information provided will remain strictly confidential and will be used only for the purpose of this research.

Thank you for your assistance.

Yours faithfully,

Daniel Kiveli

Appendix C – Interview Consent Form



**School of Computing and Informatics
Master of Science in Information & Technology Management**

4th June 2015

Dear Sir/Madam,
I am a Master of Science student at the University of Nairobi, taking I.T Management under the supervision of Dr. Agnes Wausi. I am currently undertaking a research that considers the degree of enforcement of the Kenya National ICT Policy by the government within its ministries. I would be very grateful if you could participate in an interview regarding this research.

Please indicate your willingness to participate in this exercise by signing and returning the declaration below. Thank you.

Yours faithfully,
Daniel Kiveli
(M.Sc student)

Declaration:

I wish to be interviewed. I understand that any information I provide will remain strictly confidential and only for the purpose of this research.

Signature í í í í í í í í í í í í í í ...
Ministry í í í í í í í í í í í í í í í .
Departmentí í í í í í í í í í í í í í í í

Thank you for your assistance.

Yours faithfully,
Daniel Kiveli

Yes No

3. Please indicate your appreciation of each factor by putting a tick (/) at the appropriate box ranging from strongly disagree to strongly agree

a) Knowledge of the existence of a national ICT policy

Statements	Please tick the most appropriate answer				
	Strongly Agree	Agree	Not sure	Disagree	Strongly disagree
All staff are aware of the existence of the national ICT policy					
Every staff within the ministry has access to the policy					
No knowledge of the existence of the policy					

b) Understanding of the contents of the national ICT policy

Statements	Please tick the most appropriate answer				
	Strongly Agree	Agree	Not sure	Disagree	Strongly disagree
Sensitization of the ICT policy has been undertaken on all staff					
Training on its application has been done					
Policy is appreciated across the ministry					

c) Ownership and compliance to the policy

Statements	Please tick the most appropriate answer			
	Head of ICT	ICT staff	Users	No one
Who is in charge of the ICT Policy				

d) Clauses complied with

Statements	Please tick the most appropriate answer				
	Strongly Agree	Agree	Not sure	Disagree	Strongly disagree
1. You have complied with all the clauses of the ICT policy					
2. A majority of the clauses are not applicable					
3. None of the clauses has been complied with fully					

e) Appreciation of the national policy

