ICT INFRASTRUCTURE AND E-GOVERNMENT ADOPTION AMONG LOCAL AUTHORITIES IN KISUMU COUNTY, KENYA

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DECLARATION

Student Declaration

This is my original work and has not been presented to any institution of higher learning for academic purposes.

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DEDICATION

I dedicate this project to my family for their moral and financial support.

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ABSTRACT

Information and Communication Technologies (ICTs) plays a critical role in sustainable human development and governance. ICT is a powerful enabler of development goals because of the way in which it improves communication and the exchange of knowledge and information necessary for development processes. ICT is pervasive and cross-cutting, impacts the full range of human activity and will become one of the main enablers in the pursuit of poverty alleviation and wealth creation in developed and developing countries. ICT infrastructure and E-Governance adoption has been a source of concern for the local authorities in Kisumu. The government has been relying heavily on local means of communication like local gatherings, or had challenges with the existing ICT infrastructure whereby information cannot be accessed online; this has made the government unable to offer country wide services to its citizens. The study aimed at investigating ICT infrastructure and e-government adoption among local authorities in Kisumu county, Kenya. The study was guided by the following objectives: To establish the level of e-government adoption among local authorities in Kisumu County; To establish the extent of ICT Infrastructure deployment at the Local authorities of Kisumu County; To establish the effect of ICT infrastructure on e-government initiatives. To study employed the use of questionnaires and interview schedules. The study used descriptive and inferential analysis techniques to analyze data. The descriptive statistic included mean and the standard deviations, which indicated the average performance of a group or a measure of some variable. The study used inferential statistics in multiple regressions. Tables and percentages were used in data presentation. This was done with the aid of a computer programmes - Statistical Package for Social Sciences (SPSS) version 17.0 for windows. Findings of the study concluded that Effective penetration and utilization of ICT in the public service for high-end value-adding operations in local government is crucial to enhance effective and efficient services that satisfy the citizens and other stakeholders. ICT penetration and utilization in the local government has not reached the levels necessary to reap the benefits of ICT in service delivery, the study recommends that the government should adopt the use of cyberspace as the new space for social and political organization. This will enable the government in re-organization of the social, political and economic affairs of their government through popular uprisings organized and coordinated using the power of social media.

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G2C	Government to Citizen
G2B	Government to Business
G2G	Government to Government
ICT	Information Communication Technology
UNDP	United Nations Development Programme
COTS	Commercial Off-the-Shelf
WAN	Wide Area Network
LAN	Local area Network
ISPs	Internet Service Providers
GDP	Gross Domestic Product

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Information and Communication Technologies (ICTs) plays a critical role in sustainable human development and governance. ICT is a powerful enabler of development goals because of the way in which it improves communication and the exchange of knowledge and information necessary for development processes. ICT is pervasive and cross-cutting, impacts the full range of human activity and will become one of the main enablers in the pursuit of poverty alleviation and wealth creation in developed and developing countries. As accelerator, driver, multiplier and innovator, ICTs are powerful if not indispensable tools in the massive scaling up and inter linkage of development interventions and outcomes. (Allen,2001).

In the recent decades, there was a witness of an extensive use of Information and Communication Technologies (ICTs) by national and local governments worldwide to enhance the efficiency of governments and bring them closer to citizens' demands. Evidence from numerous projects and initiatives worldwide shows that, well used, ICTs offer new possibilities for improved governance efficiency, new ways of citizens' engagement and their more active participation in policy-making, resulting in re-building of trust and transformation of relations between governments and their citizens. Experiences from countries in Latin America explores the potential of ICTs to enhance local economic and social development, improve relations between governments and citizens and foster overall capacity-building in developing countries, based on

experiences of UNESCO's project "ICTs as Tools for Improving Local Governance" and other relevant initiatives. (Burn, 2001).

Many government agencies in developed countries of Africa have taken progressive steps toward the web and ICT use, adding coherence to all local activities on the Internet, widening local access and skills, opening up interactive services for local debates, and increasing the participation of citizens on promotion and management of the territory. The potential for eGovernment in developing countries, however, remains largely unexploited, even though ICT is believed to offer considerable potential for the sustainable development of eGovernment. (Burn, 2001).

1.1.1 ICT Infrastructure

Information and Communication Technology, usually abbreviated as ICT, is often used as an extended synonym for information technology (IT), but is usually a more general term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as necessary enterprise software, middleware, storage, and audio-visual systems, which enable users to create, access, store, transmit, and manipulate information. In other words, ICT consists of IT as well as telecommunication, broadcast media, all types of audio and video processing and transmission and network based control and monitoring functions. The expression was first used in 1997 in a report by Dennis Stevenson to the UK government and promoted by the new National Curriculum documents for the UK in 2000. The term *ICT* is now also used to refer to the merging (convergence) of audio-

visual and telephone networks with computer networks through a single cabling or link system. There are large economic incentives (huge cost savings due to elimination of the telephone network) to merge the audio-visual, building management and telephone network with the computer network system using a single unified system of cabling, signal distribution and management. This in turn has spurred the growth of organizations with the term ICT in their names to indicate their specialization in the process of merging the different network systems (Fountain, 2002).

Currently there is heavy presence of ICT use in sectors such as the financial sector (both bank and non-bank financial institutions). However, there is vast potential in other critical sectors of the economy in which ICT's role as a catalyst of development can be brought to bear better sector management and development. In order to raise the level of ICT uptake in the economy and to stimulate growth in the critical sectors,the Government will over the plan period encourage initiatives that will facilitate collaborative working between not only stakeholders within a particular sector but across critical sectors in order to secure synergies in the use of ICTs(Abramson, 2001).

The infrastructure will enable citizens and businesses to access Government information and services without traveling long distances and queuing at government offices. Ideally, it is required that the ICT infrastructure in place encompasses all the aspects of information technology which involves the legal and policy framework, the physical ICT infrastructure and human aspect in order to achieve the e government initiatives such as government to consumer initiatives, government to government initiatives and government to business initiatives (Abramson, 2001).

1.1.2 E-government

According to the Kenya Government, E-government Strategy Framework blueprint, e-government is the use of a range of information technologies such as the wide area networks, internet, and mobile computing by government agencies to transform government operations in order to improve effectiveness, efficiency, service delivery and to promote democracy. An e-government strategy is a fundamental element in modernizing the public sector, through identifying and developing organizational structure, the ways of interactions with citizens and business, and reducing cost and layers of organizational business processes (Graham, 2007).

One of the basic policies for democratic governance around the globe is to decrease the administrative size and costs and to increase the functionality of government body. This is the motivation behind research activities within governments for utilizing them to new methods and technology. Based on this fact, the target point for this kind of governments can be considered as proper use of information and communication technology in public administrations combined with an organizational change and new skills in order to improve public services and strengthen support to public policies. This will lead us to the E-Government concept which is commonly defined as "continuous and safe execution of the mutual duties and services between government and citizens in the environment of electronic communication and transaction". Obviously, based on these definitions, one can consider E-Government concept as a proper basis of good and efficient governance, keeping in mind that E-Government is more about government than about electronics (Fountain, 2002).

E-Government or electronic government, also known as e-government, digital government and online government is a governance method based on use of internet technology as a platform for exchanging information, providing services and transacting with citizens, businesses, and other arms of government. The primary models for E-Government are: Government-to-Citizen or Government-to-Customer (G2C) model which is the online non-commercial interaction between local and central Government and private individuals, rather than the commercial business sector (G2B). For example Government sectors become visibly open to the public domain via a Web Portal. Thus making public services and information accessible to all is the main goal of this model. Government-to-Business (G2B) model which is the online non-commercial interaction between local and central government and the commercial business sector, rather than private individuals (G2C). Government-to-Government (G2G) & Government-to-Employees (G2E) model which is the online non- commercial interaction between Government organizations, departments and authorities with other Government organizations, departments and authorities (Caine, 2004).

The importance of the Internet has grown exponentially over the last decades, the government and citizens will be able to easily find relevant, accurate, and up-to-date information; understand information the first time they read it; complete common tasks efficiently; get the same answer whether they use the web, phone, email, live chat, read a brochure, or visit in-person; provide feedback and ideas and hear what the government will do with them; access critical information if they have a disability or aren't proficient

in English, and therefore government agencies should be required to fund their "virtual" office space as part of their critical infrastructure, in the same way they fund their "bricks and mortar" office space. Agencies should be required to appoint an editor-in-chief for every website they maintain, as do the top commercial websites. This person should be given appropriate funding and authority to develop and enforce web policies and publishing standards, including ensuring that prime real estate on government websites is dedicated to helping people find the information they need.

1.1.3 Local authorities in Kisumu county

Kisumu County consists of 14 local authorities which include Ahero town council, Kendubay town council, Kisumu County council, Muhoroni town council, Nyando county council, Oyugis town council Rachuonyo county council, Kisumu rural, Kisumu Town East, Kisumu Town West, Muhoroni, Nyakach and Nyando.

Local authority administration consists of a mayor, town clerk and councillors. The number of councillors depend on population and area of each authority and they are elected by the public during the Kenya general elections held every five years or by-elections held in between. Authorities are divided into wards and each ward elects only one councillor. Wards have often common boundaries with administrative locations.

1.2 Problem Statement

ICT infrastructure and E-Governance adoption has been a source of concern for the local authorities in Kisumu. The government has been relying heavily on local means of communication like local gatherings, or had challenges with the existing ICT

infrastructure whereby information cannot be accessed online; this has made the government unable to offer country wide services to its citizens. (Fountain, 2002).

Ideally, the government agencies should be communicating with citizens via many different delivery channels, including web, email, publications, live chats, blogs, podcasts, videos, wikis, virtual online worlds, and more to ensure timeliness and consistency when various delivery channels are managed by different divisions within an agency. They should provide multiple ways for people to contact them and ensure that information is consistent across all channels considering the cost of ICT infrastructure which is currently affordable and the numerous ICT technologies available in the country.

This has not been the case in many government initiatives as many government bodies have not been able to effectively utilize ICT infrastructure as the potential for eGovernment in the country remains largely unexploited, even though ICT is believed to offer considerable potential for the sustainable development of eGovernment in the local authorities of Kisumu. Different human, organizational and technological problems persist in the County Council as a result of ineffective ICT infrastructures which has caused the local authority to suffer competitive disadvantages. (Amit, 2001).

The lack of adequate information or proper insight of the existing ICT technologies which would have been important in guiding the local authorities and ICT implementers on the various suitable strategies and aspects to focus on, has let to the poor ICT infrastructure in the local authorities. It is against this background that the study seeks to

analyze ICT infrastructure and E- Government adoption among local authorities in Kisumu County.

Previous studies which have been conducted in the field of ICT for example (Gaindo, 2002) conducted a preliminary study on the significance of ICT infrastructure in public institutions have not been sufficient enough to shed light on the issues pertaining the implementation of the initiatives in public service sectors. On the other hand, (Troy et al. 2005) tried to analyze the implementation of the initiatives in the public service but the report does not show the relevance of these initiatives in relation to ICT and e Governance.

1.3 Objectives

i. To establish the level of e-government adoption among local authorities in Kisumu County.

ii. To establish the extent of ICT Infrastructure deployment at the Local authorities of Kisumu County.

iii. To establish the effect of ICT infrastructure on e-government initiatives

1.4 Value of the Study.

This study is set to be of great importance in the government agencies of Kenya through the local authorities is likely to get an insight on the importance and effects of ICT infrastructure on the eGovernment initiatives which might enable them to come up with suitable measures including policies to ensure efficiency of the ICT in the government.

This may help to boost the Counties' Management Agenda which involves: strategic management of human capital, budget and performance integration, competitive sourcing, expanded use of the internet and computer resources to provide Government services, and improved financial management. Effective implementation of E-Government is therefore important in making the Government more responsive and cost-effective.

Other students carrying out studies either in the same or related areas of study are likely to benefit from this study by using the study findings as a knowledge base to derive their research topics. The students may also review the literature of this study to find relevant information to help in guiding their researches through a critical analysis of the recommendations provided in the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Information Systems

The recent rapid and ongoing advent of information infrastructure and superhighways in many nations is prompting fast transformation of organizations toward the e- workplace. As the growth in the e-workplace and e-working accelerate, organizations and companies no longer talk about work at home programs. Rather, they are speaking about working anywhere, anytime, and with anyone. The concept is fast becoming a reality where the use of information technologies makes connectivity, collaborations, and communication easy. Does it matter whether that critical voice-mail or message comes from the home office, the client's office, the airport, or the middle of a traffic jam. The workplace environment is changing. These changes may have minimal effects on some people, yet, for others, they may bring about radical changes in their workspace, and in their life-styles and habits. (Olsen, 2005)

2.1.1.1 Task-Technology theory

Task-Technology theory states that information technology capabilities must match user tasks in order for the technology to have a positive impact. Ray (2008), in his theory relates ICT in governance and enumerates that government agencies use ICT to promote more efficient and effective government, facilitate more accessible government services, allow greater public access to information, and make government more accountable to citizens. E-government has emerged beyond electronic service delivery and is part of the ongoing reform and transformation of government enabling participatory governance and partnerships to improve efficiency and effectiveness.

ICT plays a critical role in speeding up the flow of information and knowledge between government and citizens and transforming the way in which governments and citizens interact. According to the United Nations Development Programme (UNDP) the challenge for all countries is to create and develop a system of governance that promotes, supports and sustains human development. Governments in many parts of the world have made huge ICT investments aimed at improving governance processes (John, 2002).

E-governance is regarded as the ICT-enabled route to achieving good governance since it integrates people, processes, information, and technology in the service of governance initiatives. The expected benefits of such public sector reforms have been identified as an increase in the efficiency of government operations, strengthening democracy, enhancing transparency, and providing better services to citizens and businesses. Defined broadly, e-government is the use of ICT to promote more efficient and effective government, facilitate more accessible government services, allow greater public access to information, and make government more accountable to citizens. E-government has emerged beyond electronic service delivery and is part of the ongoing reform and transformation of government enabling participatory governance and partnerships to improve efficiency and effectiveness (Olsen, 2005).

E-government is about transforming government to be more citizen-centered. Technology is a tool in this effort. E-government successes require changing how government works, how it deals with information, how officials view their jobs and interact with the public. E-government is also within the South African context split up into different sectoral areas such as e-health, e-education, SMME (Small and Medium Enterprises) and local

content. Achieving e-government success also requires active partnerships between government, citizens and the private sector. The e-government process needs continuous input and feedback from the "customers"— the public, businesses and officials who use e-government services. Their voices and ideas are essential to making e-government work. E-government, when implemented well, is a participatory process (Wollcot, 2005).

E-government and ICT are seen as elements of a larger government modernization program. It is well understood that simply adding computers or modems will not improve government, nor will only automating the same old procedures and practices. Making unhelpful procedures more efficient is not productive. Focusing only on the computers will not make officials more service-oriented toward government's "customers" and partners. Leaders should think about how to harness technology to achieve objectives for reform. ICT is an instrument to enable and empower government reform (Wolcott, 2005).

In South Africa, the Vision 2014 describes an inclusive Information Society, one in which the use of ICTs will be harnessed to ensure that everyone has fast, reliable and affordable access to information and knowledge that will enable them to participate meaningfully in the community and economy. The Vision further aspires to move the country from being a consumer of ICT products and services to being a major player in the production and innovation of these products and services. The cornerstones of this Inclusive Information Society are a vibrant and thriving ICT sector, an enabling policy and regulatory environment, accessible ICT infrastructure and broadband connectivity, and an appropriately skilled and knowledgeable citizenry. The vision for e-Government expressed in the approved E-Government Discussion document entitled, "Electronic

Government, The Digital Future: A Public Service IT Policy Framework", published in 2001 by the Department of Public Service and Administration recommended that an e-Government initiative should address three main domains. The vision of e-government is the optimization of services so that government can achieve its goals. One especially sensitive issue, which may prevent or delay service delivery, is the issue of fraud. Within the e-government policy and strategic framework, there is no particular focus at how government will address the issue on non-delivery of services or inefficient service delivery to citizens (Wolcott, 2005).

Although there is no explicit reference to corruption in the South African E-government vision, a number of important strategies are in place. To address the specific problems of corruption, Government launched South Africa's National Anti-Corruption Programme followed by Public Service and National Anti-Corruption Summits. Late in 1999, Government also co-hosted the 9th International Anti-Corruption Conference. At the beginning of 2002, Government adopted the Public Service Anti-Corruption Strategy. The e-government vision is informed by the growth and development priorities expressed in Vision 2014 as well as the Millennium Development Goals whereby ICT's are regarded as an enabler for the achievement of these goals within a broad and integrated developmental approach, rather than just as an infrastructure. E-government is firmly seen as an integral pillar for developing a South African Information Society and within this, e-education, e-health, and the development of small and medium enterprises within the ICT sector (Wolcott, 2005).

2.2 ICT Infrastructure

A nation-wide e-Government ICT infrastructure is necessary for the local authorities to be able to offer country-wide services to citizens. The infrastructure enables clients, citizens and businesses to access information and services without traveling long distances and queuing at their offices. The envisaged ICT infrastructure is confined to government connectivity through LANS and WANS, internet connectivity through use of ISPs. Operational processes like client computing and data center/servers costs comprise the highest IT spending in the local authority where common applications like desktop applications, anti- virus applications, e-mail systems as well licensing of robust database and web services applications is managed in silos. This has been compounded by individual local authority running its own procurement processes and executing their own IT projects leading to inefficient use of personnel, procurement capacity, and common services across the local authority (Graham, 2007).

ICT acts as a tool for bringing openness and effectiveness to local administration. Conducting transactions openly has proved to be very effective at fighting corruption. This is crucial for all those countries, where levels of corruption are still high. An example of the efficient use of ICTs to fight corruption is the launching of the Electronic Graft Management (EGM) project in Kenya. The EGM project offered a corruption reporting facility in six towns with existing Internet infrastructure. Anonymity of users was ensured and reports were transmitted to EGM centers for analysis and follow-up with relevant authorities. (Freeman, 2004)

ICT helps to enhance service delivery by providing the citizens with services that are cheaper, more efficient and faster. Electronic services have the advantage of enabling the

citizens to obtain information and to carry out transactions 24 hours a day, seven days a week, and are particularly suitable for simple administrative transactions, such as requests for permits, or submissions of tax files. (Onunga, 2002)

ICT helps to foster citizen consultation and participation in policy-making, by providing new possibilities for citizen involvement. A significant example on the use of ICTs for civic consultation is the "Today I decide" (TOM) portal launched by the Estonian government in 2001. TOM provided an opportunity for citizens to become involved in policy-making and to comment on draft laws that are published on the portal. The public can also submit their own proposals for laws or policies, which are taken into consideration by the government.(Wolcott, 2005).

2.2.1 ICT Legal and Policy Framework

The way of carrying out business in the world today is changing at very high speed with new technologies taking a center stage. Both government and the private sector have no alternative other than to move in that direction and adopt the emerging new technologies to modernize their service delivery. The advent of Information and Communication Technologies (ICT) is fundamentally changing the way we work, learn and interact. It is the belief of the Governments that ICT should be utilized to move into the era of electronic Government (e-Government) aimed at demystifying the role of Government, simplifying procedures, bringing transparency, accountability, and making credible timely information available to all citizens and at the same time providing all services in an efficient and cost-effective manner (Freeman, 2004).

With this in mind, the governments of the various countries should draw documents which clearly identifies the goal of e-Government and spells out its core pillars, critical success factors and a roadmap which will be adopted to achieve it. The Government should be aware that the path to achieving effective e-Government is a big challenge and as such, it will require focused political will, a change of mindsets at all levels of Government and entire citizenry, a strategic partnership with the Private Sector, Civil Society, Academia, Development Partners and participation of citizens as stakeholders. Inter-alia, it will involve thorough examination of existing government functions, simplification, and re-engineering of procedures (Freeman, 2004).

Seamless communication and information flow and data management are the primary preconditions of an effective e-government structure. It requires reasonable assurance of not being affected by illegal activities undertaken by computer hackers and cybercriminals. In this regard, it is important that sufficient safeguards are in place in order to ensure security and privacy of information and data management. Therefore, a strong administrative framework together with the ability to enforce law is an important precondition for a country's economic development and stability. Appropriate laws need to be enacted to address the legal needs of specialized, complex and highly technical ICT sector. Any obstacles, either legal or administrative, may hinder the implementation and progression of e-government activities (Caine, 2004).

A country must prepare itself in order to overcome any such obstacles and embrace e-government. In this regard, Bhatnagar (2004) opines, a country becomes ready to adopt e-government when there is an 'existence of an enabling legal framework encompassing

privacy and security of data, legal sanction of new forms of storage andarchiving, and laws that accept paperless transactions' (Graham, 2007).

Dave (2005) argues the lack of authenticity and reliability, lack of accountability, redundancy of data, improper identification of user such as citizens, lack of accountability due to inappropriate delegation of authority, cyber crimes like fraud, theft, virus and incompetent security of on-line data transaction on Internet are the leading barriers to implement e-government from a legal perspective. Dave (2005)further argues, as 'governance' itself is a term used to imply public administration through government mechanisms under laws and conventional procedures, 'e-governance' could not be conceptualized from an alien perspective by ignoring the basic theme of governance. Legal provisions are, therefore, important in e-government to have citizen's faith and confidence on government system, to avoid vulnerability of electronic system from cyber crimes and to have acceptance from targeted groups of e-governance (Dave, 2005).

2.2.2 ICT Physical Infrastructure

Governments all over the world have started resorting to the newly found information and communication technology (ICT) to establish a citizen-centric, more transparent and more accountable government mechanism. While some developing countries have taken steps in this regard, they often fall short of expectations in improving their governance structure and relevant outcomes. In this regard, a number of barriers exist that need to be understood and tackled by developing countries in pursuing e-government objectives. These include, lack of ICT resources and infrastructure such as high-speed broadband network connections, unequal access to technology resulting into 'digital divide' (Burn, 2001).

The Government of Saint Lucia has embarked on several innovative Information and Communications Technology (ICT) implementation projects over the last decade. Computer technology plays an increasingly significant role at the operational levels of many government Ministries and Departments. More recently, several Reform and changes initiatives, at the organizational and sectoral levels have also been undertaken. The Web Measure Index is a quantitative index to measure the generic aptitude of governments to employ e-government as a tool to inform, interact, transact and network. It is an indicator based on the presence/absence of specific electronic facilities (Barker, 2002).

The modern world has been pursuing these gains by building technology infrastructure, services and skills within set budgets and timescales for the past three decades. A crucial lesson learnt from this experience is that ICT implementation is an on-going process. The selected architecture must be robust, to solve today's problems, and adaptable, to support the goals of tomorrow. Industry collaborations bring a wealth of best practice experience as well as industry vision to formulate e-Government strategies that will achieve policy goals. Governments are assimilating industry experience and best practices in implementing processes and technologies that will modernize e-Government initiatives. The development of operational efficiency means that greater value on investment must be realized. Delivering higher quality services without increased budget requires that the ICT environment uses Commercial Off-the-Shelf (COTS) components that can offer cost-effective scalability. Through the use of COTS it is possible to reduce the time delay between successful pilot initiative and full system roll-out. Using open industry standard

architecture means that governments can select from the widest range of application solutions, be they publicly available or customized for specific functions, and deploy and scale e-government services faster than with proprietary systems(Galindo, 2002).

Internally governments suffer when the processes that exist do not offer easy collaboration among agencies or departments. Departments need to share information, workers need real-time access to case records and governments need to collaborate on national and international initiatives in order to significantly reduce costs, help to drive economic development and to provide public safety. Through the implementation of integrated technology, it is possible to simplify these processes within a consistent workflow (Fang, 2002).

2.2.3 ICT Human Components

One of the main factors affecting the roll out of e-government in a country is the level of human capacity. The issue of human capacity is two-fold: on the one hand it refers to the skills and capacities within the public administration needed to implement e-government projects; on the other it refers to the broader community – citizens that need to possess IT literacy to fully benefit from e-government applications; the business sector that has to incorporate IT to take advantage of the G2B applications; and specifically points to the need of a vibrant local IT business community with the skills necessary to partner in e-government(Bakry, 2004).

E-government has several dimensions. Every dimension requires leadership, cross-coordination and knowledge, all integrated with an ICT strategy to achieve the vision

(Bakry, 2004.). The availability of an e-government framework for assessing the ICT readiness in public sectors is critical in developing effective e-government policies and strategies. While there are many e-readiness assessment tools, there is a need for fixed guidelines on how these tools can be shaped as frameworks in implementing assessment in particular e-government contexts (Crede, 2008). The design of e-government readiness assessment frameworks requires comprehensible measurement of the assessment design that determines factors clearly derived from information needs (Bakry, 2004).

Building a national vision of e-government should be structured from the bottom up. In other words, it is based on the establishment of concrete multi-sectoral consultation and participation mechanisms, which formulate and implement a flexible strategy that is in sync with the political, economic, social and cultural realities of each country through training of effective personnel. It is a continued and slow process in which all the interested parties should join-up, drawing thus on small initiatives and lessons learned (such as those of local government, for example) and fomenting innovation and creativity from the personnel (Alkibsi, 2001).

In view of the e-Government initiatives at different levels, most of the government universities and higher educational institutions have started focusing on the awareness and channelizing their human resource in the field of ICT. The ICT integration programmes have been taken up in almost all the universities of the western Himalayan region. Owing to rough terrains and difficulties in physical access, ample use of ICTs has been observed in carrying out traditional activities in a these Universities. Funds are

being spent copiously in purchase of ICT solutions without any post implementation academic audit of returns/ increase in human productivity in mind. Initiatives as to assess the ICT projects from a viewpoint of ICT utilization and performance enhancement of human resource are essential in evaluating the vision, policies and strategies. Mohamed (2008) describes two such initiatives taken up in one of the developing countries namely Malaysia, in its government institutions to promote e-Government initiatives through the effectiveness of the employed, trained human personnel (Ray, 2008).

2.2.4 ICT Software Systems and Data on E-Government Initiatives

ICT software allows local, state and national governments to improve the quality and effectiveness of their interactions with individual citizens and businesses, as well as between various government agencies and other governments. These software solutions address governments' need to streamline processes by connecting disparate information systems and improving access to public services for citizens and businesses. They also improve inter-agency communication by implementing solutions based on open industry standards-based platforms. States, national governments, cities and towns can reach citizens and residents in new ways, making information readily available and accessible to the entire population and creating new interactions such as hosting online community meetings. Establishing online systems provides a convenient way by which citizens can interact with the government for routine business such as payment of fines, obtaining licenses, filing tax returns and accessing and submitting forms easily. Online services can be accessed 24 hours a day, 7 days a week without additional overhead in administrative costs to government and results in time-savings to the general public, who can avoid traffic, parking and waiting in line to transact routine business, while eliminating reams

of paper. National governments are using new methods to simplify purchasing through e-Procurement (Heeks, 2006).

Intel works with government administrations, sharing invaluable commercial experience as well as advice on software designed to accelerate successful technology expansion policies. Market leadership, investment in research and development, and knowledge of technical best practices mean that Intel can provide guidance to many of the leading edge public sector programs. As one of the principal movers in the field of ecologically sound technology development, Intel displays corporate responsibility as well as technological direction. Intel architecture-based solutions support data interchange and integration with legacy systems, using XML/web services. This is particularly relevant to automating forms processing in order to eliminate redundant data entry and administrative overhead – from filing taxes to renewing passports and driver licenses. Reducing redundant data entry can significantly reduce errors, in turn driving down processing costs and improving constituent satisfaction (Gronlund, 2002).

The right software platform lets governments think big and yet start small to deliver results quickly, and scale fast as momentum builds. High-performance, standards-based products, built on Intel technology, are deployed throughout the Internet infrastructure, from edges to the core, from servers to desktops, laptops and handheld devices. Building e-Government systems on Intel technology provides outstanding and proven flexibility for implementing sophisticated solutions that can scale as demand for online services grows. This maximizes efficiency and benefits to citizens, businesses and governments. It

is vital that IT systems put in place today can be efficiently upgraded and scaled over time as demand increases and as new technologies and processes are introduced and adopted. The costs of upgrading extensible systems to address growing demand is less than the maintenance burden of prolonging the life of legacy systems that cannot be upgraded (Gronlund, 2002).

2.3 E- Government Adoption

E-government is the use of information and communications technology, such as the Internet, to improve the processes of government. Governments were among the first users of computers. But the global proliferation of the Internet, which effectively integrates information and communications technology on the basis of open standards, combined with the movement to reform public administration known as New Public Management, has for good reason generated a new wave of interest in the topic. E-government promises to make government more efficient, responsive, transparent and legitimate and is also creating a rapidly growing market of goods and services, with a variety of new business opportunities. (Galindo, 2002).

To some, e-government might seem to be little more than an effort to expand the market of e-commerce from business to government. E-commerce is marketing and sales via the Internet. Since governmental institutions take part in marketing and sales activities, both as buyers and sellers, it is not inconsistent to speak of e-government applications of e-commerce. Governments do after all conduct business. (Burn, 2001).

The core task of government is governance, the job of regulating society, not marketing and sales. In modern democracies, responsibility and power for regulation is divided up

and shared among the legislative, executive and judicial branches of government. Simplifying somewhat, the legislature is responsible for making policy in the form of laws, the executive for implementing the policy and law enforcement, and the judiciary for resolving legal conflicts. E-government is about improving the work of all of these branches of government, not just public administration in the narrow sense. (Heeks, 2006).

E-government gives New Public Management fresh blood. Not only does information and communications technology provide the infrastructure and software tools needed for a loosely coupled network of governmental units to collaborate effectively, the infiltration of this technology into government agencies tends to lead naturally to institutional reform, since it is difficult to maintain strictly hierarchical channels of communication and control when every civil servant can collaborate efficiently and directly with anyone else via the Internet. (Galindo, 2002).

Orthogonal to the division of power among the branches of government is the hierarchical organization of supranational (eg, European), national, regional and local governments bounded by geographical territory. Information and communication technology creates a 'new accessibility', overcoming temporal, geographical and organizational boundaries. Thus e-government can facilitate new forms of collaboration among governments which cut across and diminish such boundaries. (Heeks, 2006).

e-government is not only or even primarily about reforming the work processes within and among governmental institutions, but is rather about improving its services to and collaboration with citizens, the business and professional community, and nonprofit and

nongovernmental organisations such as associations, trade unions, political parties, churches, and public interest groups. Using World Wide Web portals to create one-stop shops is one currently popular e-government approach to improving the delivery of public services to citizens. The basic idea of these portals is to provide a single, convenient place to take care of all the steps of a complex administrative process involving multiple government offices, bringing the services of these offices to the citizen instead of requiring the citizen to run from office to office. (Burn, 2001).

Web portals can deliver government services with various levels of interaction. Three levels are usually identified: information, communication, and transactions. Information services deliver government information via static web pages and pages generated from databases to citizens, tourists, businesses, associations, public administration, and other government users. Communication services use groupware technology such as e-mail, discussion forums and chat to facilitate dialogue, participation and feedback in planning and policy-making procedures. Transaction services use online forms, workflow and payment systems to allow citizens and business partners to take care of their business with government online. Typical applications of transaction services for citizens include applying for social benefits, registering automobiles, filing changes of address or applying for building permits. For businesses, perhaps the application of greatest current interest is the online procurement of government contracts. (Heeks, 2006).

Often one reads that these three levels of interaction are ordered by complexity, with transactions being the most complex. Presumably this is because of the apparent and challenging security and business process reengineering issues of online transaction

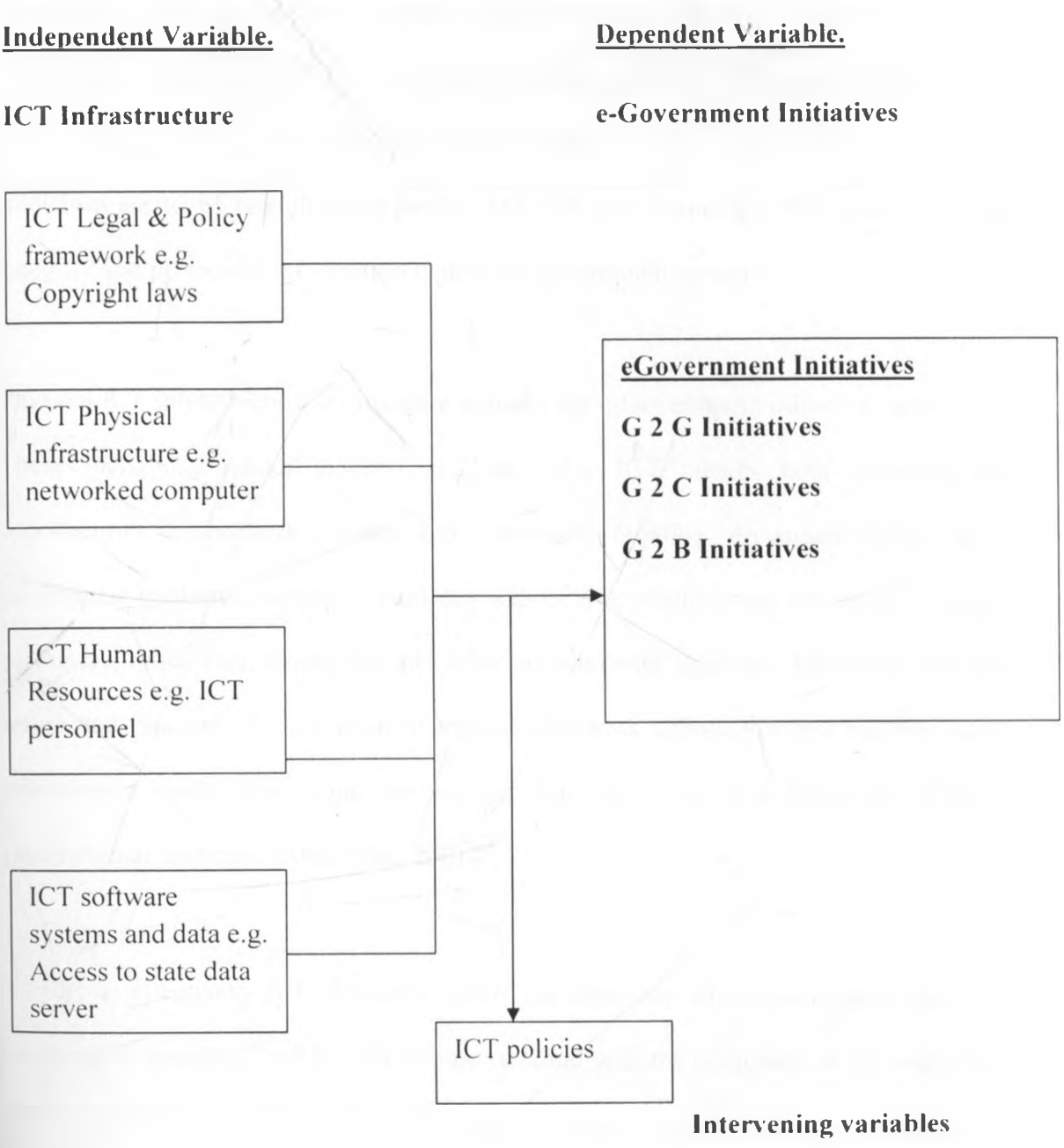
processing. Providing high quality information and communication services, however, is no less challenging. Information services need to evolve into knowledge management services and become adaptive, personalized, proactive and accessible from a broader variety of devices. Communication services need to evolve into collaboration services providing better support for argumentation, negotiation, deliberation and other goal-directed forms of structured discourse. (Galindo, 2002).

Among the most interesting and challenging socio technological issues of e-government are in the area of e-Democracy, which aims to apply information and communication technology to improve the public opinion formation process central to government's primary regulatory function. Here the ambition is to broaden actual public participation, not just the technical possibility, and counter political apathy without disenfranchising the poor or poorly educated.

Together with the trend towards outsourcing tasks and working with industry in private-public partnerships, this is likely to lead to rapid growth of the e-government market and create plentiful business opportunities, also for small and medium-size enterprises. Viewing e-government projects as mainly an investment in public infrastructure is too restricted, since the investment is also aimed at reducing the size and costs of government while accelerating the growth of the e-government market, helping to create new businesses and jobs in the private sector. (Heeks, 2006).

2.4 Conceptual Framework.

Figure 2.1: ICT infrastructure on E-Government initiatives



Source: Own Compilation

In order to make the ICT infrastructure to be effective in enhancing the e-Government initiatives, a proper regulatory framework is needed in order to enable secure information exchanges within government and between government, citizens and businesses. It is also needed to create the economic conditions for accessible ICT infrastructures, services, and equipment. This will ensure that the information within the ministry is safe from malicious access by unauthorized parties. This will also ensure that ICT does not breach integrity and privacy of information within the government agencies.

Physical ICT infrastructure is important to make the e-Government initiatives achievable. These include computer systems and networks. ICT creates both pressures and opportunities for network creation and community building. As argued before, an e-government initiative requires a complex web of interrelationships among government, customers, businesses, employees and other governmental agencies. Moreover, the very nature and function of e-government require a network approach to put together skills, technologies, information and knowledge that span the boundaries of different governmental agencies. (Abramson, 2001).

In order to effectively and efficiently realize the objectives of e-Government objectives Government personnel and human resource dealing with the equipment at all levels have been and are continuously being adequately equipped through relevant training to effectively carry out this initiative. This has called for a change in the way Government carries out its operations and has enhanced training in change management. In order to ensure a continued pool of IT knowledge within Government, all training programmes

now have an ICT component. Positive attitudes, knowledge and skills need to be in place – especially within the public sector – to initiate, implement and sustain e-government. Cultural aspects may cause general resistance to change and information-sharing. Inadequate human resource capacity may lead to lack of customer-orientation and overall commitment. Management systems, records and work processes must be in place to provide the necessary data to support the move to e-government.

2.5 Summary

Full and effective participation in the emerging global information network is of fundamental importance for a country that wants to avoid marginalization from the globalization process and is essential for the full participation of its citizens in all spheres of life. Information and communication technology (ICT) can contribute to integration of developed and developing countries in the world economy, and it can create the conditions for information and knowledge exchange and utilization. ICTs offer tremendous potential to raise standards of living and enlarge opportunities for individuals, communities, countries and regions. While many in the world still remain directly untouched by the information revolution, one cannot deny the transformative effect they already had on our global society.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter discussed the research design that will be applied in carrying out the study. It shall also describe the study area intending to be covered in the study, together with the target population and the sampling technique to be used. The chapter shall further discuss the data collection instruments to be used and the process of data analysis to be applied.

3.1Research Design

Research design is considered as a blueprint for research, dealing with at least four problems: which questions to study, which data are relevant, what data to collect, and how to analyze the results. The best design depends on the research question as well as the orientation of the researcher (Robson, 2003). In this research, the researcher used a statistical survey focusing on different cases of local authorities in Kisumu.

3.2 Target Population

There are 14 local authorities in Kisumu: the researcher targeted the town clerk, mayor, 5 councilors from each local authority and 10 employees from each local authority. The target population was presented in the table below:

Table 3.1: Target population

Respondents	Target population

Town clerk	14
Mayor	14
Counselors	70
Employees	140
Total	**238**

(Source: Kisumu County , 2012)

3.3 Sample and Sampling techniques

The study used stratified sampling technique: this is because the local authorities have different characteristics of employees. This enabled the researcher to derive from its detailed data at affordable costs in terms of time, finances and human resource (Mugenda and Mugenda, 2003). The research ensured high degree of correspondence between a sampling frame and the sample population as the accuracy of the sample depends on the sampling frame

3.4 Data Collection

The researcher employed the use of questionnaires and interview schedules to collect data for the research. Questionnaires were used to collect data from the employees and councilors from each local authority. The questionnaires were preferably used because they can be used to gather a large amount of data in a reasonably quick pace. The data gathered using the questionnaires were coded for easy analysis. The interview schedule was used to collect data from the clerk and the mayors from the local authority. This was because they were manageable to interview. This involved face to face interviews

between the researcher and the respondents. Structured interviews are easy to carry out because the questions are prepared in advance.(Foddy et.al 2001)

3.4.3 Sample size

Patton 2002 argues that the sample size depends on what one wants to know, the purpose the inquiry, what is at stake, what was credible and what can be done with available time and resources. According to Mugenda and Mugenda (2003) between 10 and 30 percent (10%- 30%) of the accessible population is enough for a descriptive study. Stratified sampling technique was used to select the respondents for the study.

Table 3.2: Sample size

Respondents	**Target population**	**Procedure**	**Sample size**
Town clerk	14	0.3* 14	4
Mayors	14	0.3* 14	4
Employees	140	0.3*140	42
Councilors	70	0.3* 70	21
Total	**238**	**0.3*238**	**71**

(Source Kisumu County, 2012)

3.4.4 Research procedure

This refers to the series of events to be followed during the data collecting process. In this research study, the researcher first booked an appointment with local authorities' administration to seek for permission to carry out the study on a date provided depending on the availability of the respondents in their office. On the day of the study, the researchers picked the samples and issue them with the questionnaires. The researcher

then conducted interview with the clerk and the mayors in their respective authorities. The researcher then collected the information after a given time frame.

3.6 Data Analysis

Data analysis is the process of creating order, structure and meaning to the mass of information collected (Mugenda, 2003). The study used descriptive and inferential analysis techniques to analyze data. The descriptive statistic to be used was mean and the standard deviations, which indicates the average performance of a group or a measure of some variable. The inferential statistics was used in multiple regressions. Graphs and tables were used in data presentation. This was done with the aid of a computer programmes - Statistical Package for Social Sciences (SPSS) version 17.0 for windows

CHAPTER FOUR: DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1 INTRODUCTION

This chapter consists of data presentation, analysis and interpretation of findings. The data was analyzed, coded and presented based on responses to the questionnaires and therefore presented in a tabular form and converted into percentages

4.2 Background Information

The researcher sought to get information from different backgrounds of the respondents: this is to avoid biasness to one side of the information. The research study then found out the following information about gender, the age , job experience, and the level of education of the respondents. The results were then presented in the table that follows

4.2.1 Gender of the respondent

The researcher classified the respondents into two groups based on gender; this was to obtain responses from both male and female and to avoid gender imbalance. The results obtained were represented in the table below.

Table 4.1 Gender of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	18	60.0	60.0	60.0
Female	12	40.0	40.0	100.0
Total	30	100.0	100.0	

The study revealed that 60% of the respondents were male and 40% of the respondents were female. The majority of the respondents were male. This implies that the researcher was able to collect information from both genders thus there was no biasness in the gender.

4.2.2 Age of the Respondents

The researcher used the respondents' age groups in order to find answers to the questionnaire; this was to establish answers from different age groups so as to avoid age biasness across the different age groups. The findings were then represented the table below:

Table 4.2 Age of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
26-30 Years	12	40	40	40
31-35 Years	11	36.7	36.7	76.7
36-40 years	6	20	20	96.7
Over 46 Years	1	3.3	3.3	100
Total	30	100	100	

The results reveals that 40% of the respondents were between the age of 26-30 years. 37% of the respondents were between the age of 31-35 years. 20 % of the respondents were between the age of 36- 40 years and 3% of the respondents were over 46 years of age. This implies that the researcher was able to get information throughout the age groups.

4.2.3 Work experience of the respondents

The researcher sought findings from the working experience of the respondents. It was classified from a working experience of those with their experience of less than 3 years, between 4-6 Years and 10 years and above. The research findings were then represented in the table below:

Table 4.3 Job Experience of the respondents

Years of experience	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 3 years	8	26.7	26.7	26.7
Between 4-6 Years	21	70	70	96.7
10 Years and above	1	3.3	3.3	100
Total	**30**	**100**	**100**	

The results revealed that 70% of the respondents had a working experience between 4-6 years, 26.7 % of the respondents had a working experience of less than 3 years and 3.3% of the respondents had a working experience of 10 years and above.

This implies that the researcher was able to collect information from at least all levels of job experience ranging from less than 3 years to those with 10 years and over. Therefore, there was no biasness to those who have worked for a certain period of time.

4.2.4 Level of education of the respondents

The researcher sought information from the level of education of the respondents, this was to get information from all levels of education and avoid lying on one side of the respondents, the researcher classified as certificate, Diploma, Degree and other levels of education. The information is then presented in the table below:

Table 4.4 Level of education of the respondents

Education Level	Frequency	Percent	Valid Percent	Cumulative Percent
Certificate	1	3.3	3.3	3.3
Diploma	14	46.7	46.7	50
Degree	12	40	40	90
others	3	10	10	100
Total	30	100	100	

The study revealed that 46.7 % of the respondents had a diploma level of education, 40 % of the respondents, had a degree level of education, 10% of the respondents had other levels of education which included, masters, and Phd levels of education and 3.3% of the respondents had attained a certificate level of education. This implies that the researcher was able to collect information across all levels of education; there was no biasness into one level of education.

4.3 Specific information

The researcher sought to get information from the respondents based on ICT legal and policy framework, ICT human resource, ICT physical infrastructure and ICT software systems. The findings were therefore represented in form of tables as follows:

4.3.1 ICT legal and policy framework

The researcher wanted to get information concerning the Information Communication Legal Policy and Framework. The findings were then presented in the table below:

Table 4.5: ICT legal and policy framework

Statements	Descriptive	SA	A	UD	D	SD	Total	Mean
The local authority has clear policies on ICT usage	Frequency	15	11	3	1	0	30	4.33
	Percentage	50	37	10	3	0	100	87%
The policies identify the goal of e-Government in the local	Frequency	11	14	2	2	1	30	4.07
	Percentage	37	47	7	7	3	100	81.%
The policies in the local authority provides privacy and	Frequency	12	9	7	1	1	30	4.00
	Percentage	40	30	23	3	3	100	80%
The guidelines in the county provides legal restrictions on	Frequency	9	8	5	6	2	30	3.53
	Percentage	30	30	19	22	7	100	71%
The ICT policy respects copyright laws of the countries	Frequency	11	7	7	2	3	30	3.70
	Percentage	37	23	23	7	10	100	74%
The guidelines protect privacy of ICT usage in the local	Frequency	11	5	7	3	4	30	3.53
	Percentage	37	17	23	10	13	100	71%
The policy provides for ICT access by authorized persons	Frequency	8	5	5	8	4	30	3.17
	Percentage	27	17	17	27	13	100	63%
The policy protects the ICT equipment from mishandling	Frequency	8	7	4	4	7	30	3.17
	Percentage	27	23	13	13	23	100	63%
The guidelines stipulate for the specific conditions of use such	Frequency	13	5	4	4	4	30	3.63
	Percentage	43	17	13	13	13	100	73%
The policy provides for prosecution of those who go	Frequency	8	7	4	4	7	30	3.17
	Percentage	27	23	13	13	23	100	63%

The study revealed that 87% (mean= 4.33) of the respondents strongly agreed that the local authority has clear Usage of ICT. 81% (mean= 4.07)of the respondents strongly agreed that the policies identify the goal of e-Government in the local authority. 80% (mean=4.00) strongly agreed that the policies in the local authority provides privacy and data security. 74% (mean= 3.70) of the respondents strongly agreed that the ICT policy respects copyright laws of the countries. 73% (mean= 3.63) of the respondents strongly agreed that the guidelines stipulate for the specific conditions of use such as time. 71% (mean= 3.53) of the respondents strongly agreed that the guidelines in the county provides legal restrictions on usage of ICT and the guidelines protect privacy of ICT usage in the local authority respectively. 63% (mean=3.17) of the respondents strongly agreed that The policy provides for ICT access by authorized persons only. The policy protects the ICT equipment from mishandling and The policy provides for prosecution of those who go against it respectively.

This implies that in the ICT legal and policy framework. the local authorities in the county has clear policies on the ICT usage. which clearly identifies the goal of e-government in the local authority. The e-government therefore if clearly governed by the ICT policies in the local authorities in Kisumu.

According to Graham. (2007) A country must prepare itself in order to overcome any such obstacles and embrace e-government, it becomes ready to adopt e-government when there is an existence of an enabling legal framework encompassing privacy and security of data. legal sanction of new forms of storage and archiving, and laws that accept paperless transactions.

4.3.2 ICT human Resource

The researcher wanted to get information regarding the ICT human resource, the findings were then presented in the table below;

Table 4.6: ICT human Resource

ICT human resource	Descriptive	SA	A	UD	D	SD	Total	Mean
The level of human understanding influences e-Government success in the local authority	Frequency	26	2	1	1	0	30	4.77
	Percentage	87	7	3	3	0	100	95%
E-readiness among ICT personnel in the local authority enhances initiative implementation	Frequency	15	13	0	2	0	30	4.37
	Percentage	50	43	0	7	0	100	87%
ICT literacy among the human personnel streamlines e-Governance in the local authority	Frequency	16	10	3	1	0	30	4.37
	Percentage	53	33	10	3	0	100	87%
Employee's resistance to change hampers e-Government initiatives	Frequency	15	11	2	2	0	30	4.30
	Percentage	50	41	7	7	0	100	86%
Enhanced personnel enhances commercial management of e-Government initiatives	Frequency	11	12	3	2	2	30	3.93
	Percentage	37	40	10	7	7	100	79%
Compliance of the personnel with the local authority ICT rules enhances the initiatives at the local authority	Frequency	13	9	4	1	3	30	3.93
	Percentage	43	30	13	3	10	100	79%
Training personnel empowers them to maintain the ICT programs in the local authority	Frequency	13	7	3	2	5	30	3.70
	Percentage	43	23	10	7	17	100	74%
Trained personnel make the targets of ICT in the local authority achievable	Frequency	17	5	3	3	2	30	4.07
	Percentage	57	17	10	10	7	100	81%
Lack of operation skills among the personnel makes implementation of the initiatives difficult	Frequency	17	6	1	4	2	30	4.07
	Percentage	57	20	3	13	7	100	81%

The study revealed that 95% (mean= 4.77) of the respondents strongly agreed that the level of human understanding influences e-Government success in the local authority. 87% (mean=4.37) strongly agreed that E-readiness among ICT personnel in the local authority enhances initiative implementation and ICT literacy among the human personnel streamlines e-Governance in the local authority respectively. 86% (mean= 4.30) of the respondents strongly agreed that Employee's resistance to change hampers e-Government initiatives. 81% (mean= 4.07) of the respondents strongly agreed that trained personnel make the targets of ICT in the local authority achievable. the same percentage also strongly agreed that lack of operation skills among the personnel makes implementation of the initiatives difficult. 79% (mean=3.93) of the respondents strongly agreed that enhanced personnel enhances commercial management of e-Government initiatives. 79% (mean= 3.93) of the respondents also strongly agreed that compliance of the personnel with the local authority ICT rules enhances the initiatives at the local authority and 74% (mean=3.70) of the respondents strongly agreed that training personnel empowers them to maintain the ICT programs in the local authority.

This implies that In order to effectively and efficiently realize the objectives of e-Government objectives Government personnel and human resource dealing with the equipment at all levels have been and are continuously being adequately equipped through relevant training to effectively carry out this initiative. A change in the way Government carries out its operations through ICT should be enhanced through training.

According to Abrahamson (2004) inadequate human resource capacity may lead to lack of customer-orientation and overall commitment. Management systems, records and work processes must be in place to provide the necessary data to support the move to e-

government. Positive attitudes, knowledge and skills need to be in place especially within the public sector – to initiate, implement and sustain e-government. Cultural aspects may cause general resistance to change and information-sharing.

4.3.3 ICT physical infrastructure

The researcher wanted to get information regarding the ICT physical infrastructure on e-government initiatives. The findings were then presented in the table below:

Table 4.7: ICT physical infrastructure

ICT physical Infrastructure	Descriptive	SA	A	UD	D	SD	Total	Mean
Lack of electronic facilities hampers e-Government initiatives in the local authority	Frequency	25	4	1	0	0	30	4.80
	Percentage	83	13	3	0	0	100	96%
High speed broad band networks enhances communication initiatives	Frequency	11	17	1	1	0	30	4.27
	Percentage	37	57	3	3	0	100	85%
Unequal access to computer technology leads to ICT based conflicts in the local authority	Frequency	15	8	6	1	0	30	4.23
	Percentage	50	27	20	3	0	100	85%
Internet networking harmonizes operations in the local authority	Frequency	14	12	2	1	1	30	4.23
	Percentage	47	44	7	4	4	100	85%
Public outlets enhance outsourcing for effective e-Governance in the local	Frequency	13	6	4	3	4	30	3.70
	Percentage	43	20	13	10	13	100	74%
Lack of resources hampers acquisition of ICT infrastructure	Frequency	13	6	4	3	4	30	3.70
	Percentage	43	20	13	10	13	100	74%
Effective ICT equipment enhances the implementation of the initiatives	Frequency	14	7	6	3	0	30	4.07
	Percentage	47	23	20	10	0	100	81%
Adaptable ICT equipment enhances implementation of the initiatives in the local	Frequency	14	5	4	5	2	30	3.80
	Percentage	47	17	13	17	7	100	76%

The study revealed that 96% (mean=4.80) of the respondents strongly agreed that lack of electronic facilities hampers e-Government initiatives in the local authority, 85% (mean= 4.27) of the respondents strongly agreed that high speed broad band networks enhances communication initiatives, 85% (mean 4.23) of the respondents, strongly agreed that Unequal access to computer technology leads to ICT based conflicts in the local authority, 81% (mean= 4.07) of the respondents strongly agreed that effective ICT equipment enhances the implementation of the initiatives, 76% (mean=3.80) of the respondents strongly agreed that adaptable ICT equipment enhances implementation of the initiatives in the local authority and 74% (mean= 3.70) of the respondents strongly agreed that Public outlets enhance outsourcing for effective and also Lack of resources hampers acquisition of ICT infrastructure respectively.

This implies that the ICT physical infrastructure is largely affected by the lack of electronic facilities which will in turn hamper the e-government initiatives. Departments need to share information as well as workers need real-time access to records and governments need to collaborate on national and international initiatives in order to significantly reduce costs, help to drive economic development and to provide public safety. Through the implementation of integrated technology, it is possible to simplify these processes within a local authorities and hence enhance workflow.

According to Burn 2001, states that there are barriers to effective use of ICT infrastructure, these include, lack of ICT resources and infrastructure such as high-speed broadband network connections, unequal access to technology results into digital divide. There should be steps in this regard to be taken in order to not fall short of expectations in improving governance structure and relevant outcomes.

4.3.4 ICT software and data

The study revealed the following in regard to ICT software and data

Table 4.8: ICT software and data

ICT software systems and data	Descriptive	SA	A	UD	D	SD	Total	Mean
Data management are key to successful e-Governance in the local authority	Frequency	23	4	1	1	1	30	4.57
	Percentage	77	13	3	3	3	100	91%
System efficiency makes initiatives easier to implement in the local authority	Frequency	12	15	2	1	0	30	4.27
	Percentage	40	50	7	3	0	100	84%
Online systems enhance government and public interactions	Frequency	13	11	2	3	1	30	4.07
	Percentage	43	37	7	10	3	100	81%
Proper software installation speeds up technology expansion in the local authority	Frequency	11	12	3	1	3	30	3.90
	Percentage	37	44	11	4	11	100	78%
Data availability enhances e-Government transformation	Frequency	11	9	4	2	4	30	3.70
	Percentage	37	30	13	7	13	100	74%
Effective software components reduce delay time between data exchange	Frequency	6	11	4	3	6	30	3.27
	Percentage	20	37	13	10	20	100	65%
Software solutions enhance data exchange between various organs in the local authority	Frequency	9	8	5	4	4	30	3.47
	Percentage	30	27	17	13	13	100	69%
The right software platforms allows the government to carry out the initiatives effectively	Frequency	11	6	2	3	8	30	3.30
	Percentage	37	20	7	10	27	100	66%

The study revealed that, 91% (mean=4.57) of the respondents strongly agreed that data management are key to successful e-Governance in the local authority, 84% of the respondents strongly agreed that System efficiency makes initiatives easier to implement

in the local authority, 81% (mean=4.07) strongly agreed that online systems enhance government and public interactions. 78% (mean=3.90) of the respondents strongly agreed that Proper software installation speeds up technology expansion in the local authority. 74% (mean=3.70) of the respondents strongly agreed that Data availability enhances e-Government transformation. 69% (mean= 3.47) of the respondents, strongly agreed that Software solutions enhance data exchange between various organs in the local authority 66% (mean= 3.30) of the respondents strongly agreed that The right software platforms allows the government to carry out the initiatives effectively and 65% (mean=3.27) of the respondents strongly agreed that Effective software components reduce delay time between data exchange.

This implies that when systems and data software are well managed in the local authorities, it will enable successful e-Governance, it will ensure local authorities initiatives to be easily implemented and used to meet the local authority's goals and objectives. It will provide a convenient way by which citizens can interact with the government for routine business such as payment of fines, obtaining licenses, filing tax returns and accessing and submitting forms easily hence operational efficiency.

According to Heeks (2004) ICT software allows local, state and national governments to improve the quality and effectiveness of their interactions with individual citizens and businesses, as well as between various government agencies and other governments. These software solutions address governments' need to streamline processes by connecting disparate information systems and improving access to public services for citizens and businesses. They also improve inter-agency communication by implementing solutions based on open industry standards-based platforms. States, national

governments, cities and towns can reach citizens and residents in new ways, making information readily available and accessible to the entire population and creating new interactions such as hosting online community meetings.

CHAPTER FIVE: SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The findings presented in chapter four were further summarized here so that specific findings can be obtained clearly in relation to the research objectives. The findings are presented, interpreted and conclusions drawn based on the findings in order to show the research objectives. the recommendations are made on what should be done to improve ICT infrastructure and e-government adoption among local authorities in Kenya.

5.2 Summary of findings

From the findings the researcher was able to collect information from different background without biasness across diverse backgrounds for example, age, gender, level of education and the work experience of the respondents.

5.2.1 ICT legal and policy framework

Kisumu County has clear policies on ICT usage; the country therefore should aspire to move from being a consumer of ICT products and services to being a major player in the production and innovation of these products and services. The cornerstones of this Inclusive Information Society are a vibrant and thriving ICT sector, an enabling policy and regulatory environment, accessible ICT infrastructure and broadband connectivity, and an appropriately skilled and knowledgeable citizenry.

The findings are considered relevant in accordance to Freeman (2004) who states that the way of carrying out business in the world is changing at very high speed with new

technologies taking a center stage. Both government and the private sector have no alternative other than to move in that direction and adopt the emerging new technologies to modernize their service delivery. The advent of Information and Communication Technologies (ICT) is fundamentally changing the way we work, learn and interact. It is the belief of the Governments that ICT should be utilized to move into the era of electronic Government (e-Government) aimed at demystifying the role of Government, simplifying procedures, bringing transparency, accountability, and making credible timely information available to all citizens and at the same time providing all services in an efficient and cost-effective.

According to the study, it is clear that the level of human understanding influences e-Government success in the local authority, this is manifested in the way the local authorities staff manage their daily work by the use of ICT, it reveals that there is need for training of ICT infrastructure in the local authorities for easy implementation of government initiatives.

This is considered relevant according to Bakry (2004) who states that every dimension requires leadership, cross-coordination and knowledge, all integrated with an ICT strategy to achieve the vision. He states that the availability of an e-government framework for assessing the ICT readiness in public sectors is critical in developing effective-government policies and strategies. While there are many e-readiness assessment tools, there is a need for fixed guidelines on how these tools can be shaped as frameworks in implementing assessment in particular e-government contexts. The design of e-government readiness assessment frameworks requires comprehensible measurement of the assessment design that determines factors clearly derived from information needs.

5.2.3 ICT physical infrastructure

The study revealed that there need for ICT infrastructure in the local authorities in order to manage their daily operations efficiently; computer technology plays an increasingly significant role at the operational levels of many government Ministries and Departments. ICT acts as a tool for bringing openness and effectiveness to local administration. Conducting transactions openly and it is an effective tool for fighting corruption.

The study is termed relevant according to Galindo (2002) who states that through the use of ICT it is possible to reduce the time delay between successful pilot initiative and full system roll-out. Using open industry standard architecture of ICT means that governments can select from the widest range of application solutions, be they publicly available or customized for specific functions, and deploy and scale e-government services faster than with proprietary systems

5.2.4 ICT Software and data

The study findings show that data management is key to successful e-Governance in the local authority; proper data management enables the local authorities carry out their imitative easily and more efficiently. In accordance to Heeks (2004) ICT software allows local, state and national governments to improve the quality and effectiveness of their interactions with individual citizens and businesses, as well as between various government agencies and other governments. These software solutions address governments' need to streamline processes by connecting disparate information systems and improving access to public services for citizens and businesses. They also improve

inter-agency communication by implementing solutions based on open industry standards-based platforms.

5.3 Conclusion

Effective penetration and utilization of ICT in the public service for high-end value-adding operations in local government is crucial to enhance effective and efficient services that satisfy the citizens and other stakeholders. ICT penetration and utilization in the local government has not reached the levels necessary to reap the benefits of ICT in service delivery.

However, the acquisition of information systems, including computers and related hardware and software systems may not offer sufficient service delivery results. People are as important as technology and listening to workers' views about how ICT could improve the quality of public services delivery would help public services use of ICT more efficiently and effectively It is thus critical that workers are involved in making decisions in the process of acquiring ICT; infrastructure be it software, hardware or human resources.

The ICT human resource should be able to train their staff on the use of information communication Technology, this will enable them to handle tasks on ICT more efficiently without any phobia. This will also help the government to easily get access to information without difficulties.

The ICT data and software should be managed in order to efficiently run the operations in various government offices. The proper use of ICT data and software enables the

government to reduce delays in data exchange and thus will be able to meet their set goals and objectives in their local authorities.

5.4 Recommendations

The government should adopt the use of cyberspace as the new space for social and political organization. This will enable the government in re-organization of the social, political and economic affairs of their government through popular uprisings organized and coordinated using the power of social media.

The government should also the use of crowd sourcing form of technology where the local authorities outsource tasks that were traditionally performed by an employee or a contractor to an undefined, large group of people or community through an open call. Crowd sourcing will enable the government the map crime and violence and help with the co-ordination of relief efforts.

Finally, the government should adopt citizen entrepreneurship that is driven by e-government. By this the opportunity for the citizen to take advantage of the availability of public information online, to abstract that information and incorporate it into new applications and products that add value to the information.

5.5 Limitations of the study

The researcher faced suspicion from the respondent due to the nature of the study. The respondents refused to cooperate in answering all the questions as required and might even be hostile to the researcher as they view the researcher as an intruder in their

business. There was also a possibility of encountering non-response from the respondents.

The researcher was able to overcome these limitation factors through the emphasis on the confidentiality of the study. The researcher assured the respondents that the study is purely for academic purposes. The researcher also requested well in advance for the permission to carry out the research in the premises, so as to decrease hostility and non-cooperation from the respondents.

5.6 Area of further studies

Given that research is a continuous process. the following areas are for further research: Public participation in usage of E-government systems is proposed as an essential area for further studies to enable the concept of adoption of E-government systems to be more transparent and accountable not only to the civil servants but also to the public.

Security concerns and their effects on the e-government systems is also identified as an area that other scholars can also research on to make the e-government systems more secure. This would make them more acceptable to the public and this would also ensure that they are able to meet their intended objectives.

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APPENDIX I: QUESTIONNAIRE

I kindly request you to participate in my study and your responses to the items in the questionnaire will be treated with utmost confidentiality, and will not be used for any other purposes except this study. The questionnaire is made of two sections A and B. Tick where appropriate.

SECTION A: BACKGROUND INFORMATION

1. What is your gender?

Male ☐

Female ☐

2. What is your age bracket?

26-30 years ☐

31-35 years ☐

36-40 years ☐

41-45 years ☐

Over 46 years ☐

3. What is your education level?

Certificate level ☐

Diploma level ☐

Degree level ☐

Other specify.....

4. How long have you served in the Ministry?

Less than 3 years ☐

Between 4-6 years ☐

Between 7-9 years ☐

10years and above ☐

SECTION B: SPECIFIC INFORMATION

1. a. Does the local authority have ICT policy framework to govern its usage?

Yes [ ] No [ ]

b. Do you find these policies effective in guiding ICT usage at the local authority?

Yes [ ] No [ ]

c. Do all the members of staff abide by these policies?

Yes [ ] No [ ]

Between 4-6 years ☐

Between 7-9 years ☐

10years and above ☐

SECTION B: SPECIFIC INFORMATION

1. a. Does the local authority have ICT policy framework to govern its usage?

Yes [ ] No [ ]

b. Do you find these policies effective in guiding ICT usage at the local authority?

Yes [ ] No [ ]

c. Do all the members of staff abide by these policies?

Yes [ ] No [ ]

2. To what extent do you agree with the following statements aboutICT legal and policy framework on eGovernment initiatives

Strongly agree (SA) Agree (A) Undecided (UD) Disagree (D) Strongly disagree (SD)

ICT legal and policy framework					
The local authority has clear policies on ICT usage					
The policies identify the goal of eGovernment in the local authority					
The policies in the local authority provides privacy and data security					
The guidelines in the county provides legal restrictions on usage of ICT					
The ICT policy respects copyright laws of the countries					
The guidelines protect privacy of ICT usage in the local authority					
The policy provides for ICT access by authorized persons only					
The policy protects the ICT equipment from mishandling					
The guidelines stipulate for the specific conditions of use such as time					
The policy provides for prosecution of those who go against the legal framework of ICT usage					

Other.....

.....

.....

3. a. Is the ICT human resource efficient in integrating the use of ICT at the local authority?

Yes [ ] No [ ]

b. Are the personnel trained to meet the changing needs of modern technology?

Yes [ ] No [ ]

4. To what extent do you agree with the following statements aboutICT human resource on eGovernment initiatives?

Strongly agree (SA) Agree (A) Undecided (UD) Disagree (D) Strongly disagree (SD)

ICT Human resource	SA	A	UD	D	SD
The level of human understanding influences eGovernment success in the local authority					
E-readiness among ICT personnel in the local authority enhances initiative implementation					
ICT literacy among the human personnel streamlines eGovernance in the local authority					
Employee's resistance to change hampers eGovernment initiatives					
Enhanced personnel enhances commercial management of eGovernment initiatives					
Compliance of the personnel with the local authority ICT rules enhances the initiatives at the local authority					
Training personnel empowers them to maintain the ICT programs in the local authority					
Trained personnel make the targets of ICT in the local authority achievable					
Lack of operation skills among the personnel makes implementation of the initiatives difficult					

Other.....

.....

.....

5. A. Does the local authority have enough physical infrastructures to enhance ICT usage?

Yes [ ] No [ ]

b. Is the equipment accessible to all the personnel in the local authority?

Yes [ ] No [ ]

6. To what extent do you agree with the following statements about ICT physical infrastructure on eGovernment initiatives?

Strongly agree (SA) Agree (A) Undecided (UD) Disagree (D) Strongly disagree (SD)

ICT physical infrastructure	SA	A	UD	D	A
Lack of electronic facilities hampers eGovernment initiatives in the local authority					
High speed broad band networks enhances communication initiatives					
Unequal access to computer technology leads to ICT based conflicts in the local authority					
Internet networking harmonizes operations in the local authority					
Public outlets enhance outsourcing for effective eGovernance in the local authority					
Lack of resources hampers acquisition of ICT infrastructure					
Effective ICT equipment enhances the implementation of the initiatives					
Adaptable ICT equipment enhances implementation of the initiatives in the local authority					

Other

.....

.....

...

7. a. Are the ICT software used at the local authority effective?

Yes [ ] No [ ]

b. Is the ICT system at the local authority evaluated over time to ensure it is efficient?

Yes [ ] No [ ]

8. To what extent do you agree with the following statements on the effects of employee empowerment on Efficiency?

Strongly agree (SA) Agree (A) Undecided (UD) Disagree (D) Strongly disagree (SD)

ICT software systems and data	SA	A	UD	D	SD
Data management are key to successful eGovernance in the local authority					
System efficiency makes initiatives easier to implement in the local authority					
Online systems enhance government and public interactions					
Proper software installation speeds up technology expansion in the local authority					
Data availability enhances eGovernment transformation					
Effective software components reduce delay time between data exchange					
Software solutions enhance data exchange between various organs in the local authority					
The right software platforms allows the government to carry out the initiatives effectively					

INTERVIEW SCHEDULE

1. Does the local authority use ICT infrastructure and e governance in their administration

_____

_____

_____

_____

2. If yes what are some of the benefits of ICT infrastructure in governance?

_____

_____

_____

_____

3. How is the relationship between ICT infrastructure and e governance in your local authority?

_____

_____

_____

_____

4

4. How is information and communication flow in your local authority with the adoption of ICTs?

5. What are some of the indicators of ICT and E governance in your local authority?

6. Outline some of the merits of ICT and e governance in your local authority