FACTORS INFLUENCING IMPLEMENTATION OF ICT PROJECTS IN GOVERNMENT AGENCIES: A CASE OF NAIROBI COUNTY, KENYA

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DEDICATION

This work is dedicated to my dear parents, Johnson and Edith Mwitia who instilled in me the value of education. I would also like to dedicate this work to my dear husband, Mwenda M. Kiambi, and our children, Makandi, Kithinji and Nkirote, for their support during my entire study time at the University.

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ABBREVIATIONS AND ACRONYMS

ACA   **Anti-Counterfeit Agency**

EACC   **Ethics and Anti-Corruption Commission**

E-Government **Electronic Government**

EMIS   **Environmental Management Information System**

ERM   **Electronic Records Management**

GOK   **Government of Kenya**

ICT   **Information and Communication Technology**

IFMIS   **Integrated Financial Management System**

IMIS   **Integrated Multicultural Information System**

IPOA   **Independent Policing Oversight Authority**

IS   **Information Systems**

KRA   **Kenya Revenue Authority**

KWS   **Kenya Wildlife Services**

MDGs   **Ministries, Departments and Government Agencies**

ABSTRACT

The aim of this study was to investigate factors influencing implementation of ICT projects in Government Agencies looking particularly the influence of availability of infrastructural facilities, financial resources, assessing the influence of staff competencies, investigating the influence of Top Management support on implementation of lCT projects in Government Agencies in Nairobi County. This study sought to answer the following questions; To what extent does availability of infrastructural facilities and staff competencies influence the implementation of ICT Projects in government agencies in Nairobi County? How does availability of financial resources and Top Management Support influence the implementation of ICT Projects in government agencies in Nairobi County? The researcher used stratified random sampling technique to select a sample size of 90 respondents from the five Government Agencies. Data quality was incorporated especially during the data collection in that all the spoilt questionnaires were not used. Descriptive statistics was used to analyze the data. Data was analysed using SPSS and presented in tables and percentages. A total of 90 questionnaires were administered and the study managed to obtain 75 completed questionnaire representing 83.3% return rate. The questionnaires contained questions that addressed the objectives of the study. The study established that top management ensured establishment of effective communication structures to ensure flow of communication. Project Management and leadership as a factor influencing implementation of ICT projects was addressed to a high extent in Government Agencies in Nairobi County. The study findings also indicate that most ICT projects were undertaken and produced significant benefits in the Government Agencies to a very high extent. Scholars and researchers will use this study as a reference and guide for future studies. This study recommends that the Government of Kenya ensure that every government office has adequate financial resources and infrastructural facilities such as computers and internet connectivity, the staff have adequate trainings, qualifications and experience and top management support which involves proper planning of the project in terms of time and scope as well as engaging in consistent communication with established project teams so as to identify their needs and progress in achieving successful implementation of ICT projects.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

There are readily available computer software in the market which have become very dominant in the area of computing. The available computer software can be either bought over the shelf which we call "off-the-shelf" software or they can be customized to suit every organization's computing need. Every organization be it large or small, in the private or public domain, have embraced information communications technology (ICT) in their daily operations namely; planning as well as decision making using the Decision Support Systems (DSS). It has become extremely critical to use ICT in everyday life. It is not easy to implement ICT projects successfully and many failures occur because of the application domain and its setting.

Ever since ICT technology was started several methods and techniques have been done to help in overcoming the challenges of building effective information systems because the major challenge has been in implementation of computerized systems in Government. Electronic Government is a concept that has been in use over the years in many countries in communications, administrative services, research, gathering of data and its storage, surveillance (CCTV) cameras and dissemination of information. The Government of Kenya has embraced ICT so as to enhance delivery of public services by improving the way information flows to its people while promoting productivity among the public officers. (GOK, 2013)

Electronic Government is the means by which governments as well as the public sector embrace information systems so as to ensure improved delivery of services to its citizenry (Musau, Cheruiyot, and Munishi, 2011).

The main reason why Electronic Government has been embraced is to address the wastage in time and other resources occasioned by such meetings. The purpose for implementing Electronic Government within the government is for it to achieve it's economic goal of prosperity. There are several institutions which have been setup to help in attainment of this vision and these are; Kenya E-Government Secretariat that was set up in 2004 which is under the Office of the

President that was meant to be an oversight body for all ICT projects that were aimed at improving service delivery in all the ministries, departments and agencies (MDAs)

The second institution was Ministry of Information and Communications that was set up in 2004 and it's purpose was to enable the citizens to actively participate in a global economy which is has a lot of knowledge in terms of Electronic commerce. In 2013 the Information and Communication Technology Authority was created and it was to be responsible for ICT functions of the Government of Kenya. It's mandate was to enforce ICT standards in Government and also offer supervision for its electronic communication. The other purpose was to promote ICT literacy, build capacity as well as encourage innovation in line with the National ICT Masterplan of 2017 (ICT Authority Website).

There have been various researches undertaken on Electronic Government in Africa which have mainly focused on understanding of the implementation and the use of ICT systems in governments with an exploration of the implications of transforming the manual way of doing things after embracing Electronic Government plus the various challenges and constraints that are experienced during the implementation and adoption of Electronic Government. Korsten and Bothma, 2005 made discussions on Electronic Government strategies as well efforts required by African states to ensure that these systems are in place and also accessible to it's citizens.

The main purpose for this literature review is provide the various reasons that make Electronic Government fail in the developing countries. This will help in knowing what goes wrong during implementation of Electronic Government in the developing countries and allow those implementing such systems be more knowledgeable as well know the potential problems plus create a more robust and effective plan to counter these anticipated challenges.

1.2 Statement of the Problem

There has arisen a need for implementation of ICT Technology in Government agencies which led to my interest in researching on the factors that influence implementation of ICT projects in these institutions. There has been a gap in adoption of ICT Technology in Government agencies

in the past few years when they were formed following the promulgation of the new Kenyan constitution in August 2010 (GOK, 2013). This justified the need for the study to fill this gap.

There have been several studies that have been done locally on Electronic Government and service delivery concepts. For instance, Agweli (2010) examined the strategies adopted by the Kenyan government in introducing Electronic Government. The findings that the IT managers gave showed that there is always a relationship between the demographical characteristics and the knowledge project implementers have on ICT literacy as well as the Electronic Government concept. Odanga (2010) reviewed the factors influencing the successful implementation of Electronic Government in Kenya using the case of the directorate of E-government. The findings indicated that the ICT skills of personnel influenced the implementation to a very large extent.

Kipyegon (2012) did an investigation of the impact of E-government technology in the City Council of Nairobi and established that it enhanced the institutional operational performance. Olal (2012) looked at a framework for e-Government development using a case of Kenyan Government and established that the management of the systems was a major problem. The government ministries, departments and agencies normally experience myriad problems related to service quality such as delay in service delivery, lack of accuracy in the data due to manual transfer, lack of consistency in handling data and also lack of completeness of data in many instances.

The study therefore seeks to answer the question: what is the influence of ICT projects implementation in Government Agencies, a case of Nairobi County.

1.3 Purpose of the study
The study sought to investigate the factors which influence the implementation of Information Communication Technology projects in Government Agencies in Nairobi County, Kenya.

1.4 Research Objectives
There were various objectives by which the study was guided and they are listed below;
  i. To assess how availability of infrastructural facilities influence the implementation of ICT projects in Government Agencies in Nairobi County.

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ii. To determine the influence of availability of financial resources on implementation of ICT Projects in Government Agencies in Nairobi County.

iii. To assess the influence of staff competencies on implementation of ICT Projects in Government Agencies in Nairobi County.

iv. To establish how Top Management Support influence implementation of lCT Projects in Government Agencies in Nairobi County

1.5 Research Questions

The study sought to answer the following questions:

i. How does availability of infrastructural facilities influence the way ICT Projects are implemented in Government agencies in Nairobi County?

ii. How does availability of financial resources influence the way ICT Projects are implemented in Government agencies in Nairobi County?

iii. How do staff competencies influence the way ICT Projects are implemented in Government agencies in Nairobi County?

iv. How does Top Management Support influence the way ICT projects are implemented in Government Agencies in Nairobi County?

1.6 Significance of the study

The study will provide a framework and process which will assist the Government in implementation of ICT projects in various Ministries, Departments and Government Agencies (MDGs) and the results will benefit the country in policy making which will assist it in being ICT compliant state according to Vision 2030. The study will be available to researchers and the academic world who seek to increase knowledge in this area.

1.7 Delimitation of the study

This was carried out in Nairobi County in Kenya. The study involved the Agencies staff involved in implementation of significant ICT projects hence they were a source of data. The researcher had substantial knowledge of the operations of Government Agencies and knew some of the staff working at those Agencies hence collection of relevant data was made easier. The study evaluated the population by selecting and studying a selected sample of Ninety(90) employees in five Government Agencies namely;   Kenya Wildlife Services (KWS), Anti-Counterfeit

Agency(ACA), Ethics and Anti-Corruption Commission (EACC), Independent Policing Oversight Authority (IPOA) and Kenya Revenue Authority (KRA) in Nairobi County. The information was gathered from the Government Agencies.

1.8 Limitations of the study

The study was on the factors that influence the ICT projects implementation in Nairobi County. The researcher depended on the data which was provided by the respondents and its accuracy was dependant on the information that was provided.

1.9 Assumptions of the study

The study made the assumption that the respondents would be available; they would cooperate and provide honest responses. From the sample that was selected, it was a true representative of the whole population of the Government agencies. The respondents were quite cooperative as per the questionnaire return rate.

1.10 Definition of Significant terms used in the study

The following were the significant terms that were used in this study.

Availability of Financial resources: refers to the resources in terms of funds required for purchase of ICT infrastructure and hiring of ICT personnel.

Availability of Infrastructural facilities: means the availability of computers and their connectivity to the network through internet.

Implementation of ICT Projects: refers to the entire process that is undertaken in order to successfully complete the ICT projects.

Management Support: refers to the support given to the project team members by the top leadership of an organization which includes project planning in terms of time and scope.

Staff Competencies: means the adequate number of staff, qualifications, skills and experience of the project team.

1.11 Organization of the study

The research study has been organized into five chapters namely; Chapter one, two, three, four and five. Chapter One consists of the background to the study, statement of the problem, purpose, objectives, significance, assumptions, limitation and delimitation of the study, research questions, definition of significant terms and the organization of the study. Chapter Two comprises of the reviewed literature that includes factors that influence the implementation of ICT projects in Government Agencies, theoretical framework, conceptual framework, research gap and summary. Chapter Three is composed of the research methodology used, design of research, population targeted, data collection methods used, research instruments validity, reliability plus pilot testing of research instrument, techniques of data analysis and ethical considerations. Chapter Four consists of analysis of data, data presentation and how it is interpreted. Chapter Five discusses summary of study findings, discussion, the conclusions, recommendations plus possible solutions to the problems being studied and suggestions for future.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter sought to find out what factors influence ICT projects implementation in Government agencies in Nairobi County. It highlighted the theory that was formulated in the area of ICT projects implementation and a conceptual framework developed for the study. This chapter has offered both theoretical and conceptual frameworks on which the study was based.

2.2 Implementation of ICT Projects in Government Agencies in Nairobi County

Over the years organizations have invested heavily in Information Communication and Technology. The main reasons for doing this is; gaining competitive advantage over their competitors, strategic planning, goal alignment and management support in decision making process. The other reason is because with computerization, there is improved productivity, quality and competitiveness. There is also need to meet the customer expectation through excellent service delivery. When an organization invests in appropriate ICT infrastructure, it makes it more flexible and responsive to cope with the ever environment in the business world.

All organizations are motivated to undertake ICT projects but these must go through some evaluation before the project can commence. This process of evaluation involves software and hardware evaluation which will involve financial considerations in terms of costs hence budget allocations for the ICT projects.

ICT implementation and usage has various challenges which could be minor difficulties that are experienced by organizations that are small in size that are digitizing their operations to organizations that are large in size who are trying to improve their competitive edge by investing in ICT systems. Depending on the size of the project, it is the more risky, difficult and complicated to implement because it is large in size. During implementation of ICT projects there are potential problem areas namely; training of users, inadequate ICT skills and the required resources; lack of project management skills; inexperience in new technology; lack of senior management support; and failure to carry out sufficient software evaluation.

According to Ndou (2004), ICT Projects implementation in developing countries offered major opportunities to governments though they have not reaped the full benefits of embracing ICT because this has been limited by the countless political, social and economic hindrances that affect the way this process is managed. The ICT Projects implementation is faced by more problems when compared to what developed nations experience.

On the other hand, Cogburn and Adeya (2009) findings were that in developing countries the many challenges faced in the implementation of ICT were mainly infrastructure development for ICT setup, human resource skills for the project team members, the legal and regulatory frameworks were lacking and insufficient plus the governments lacked strategy. There was another challenge which was identified by Bhuiyan (2009) and this was the political stability that influenced the way ICT initiatives would go.

Njuru (2011) conducted a study which was about the consequences of Electronic Government on public policy and the challenges faced while embracing technology a case of Kenya. The study findings showed that the Kenyan government has not disseminated information about electronic government and there was no sensitization of it's citizens on the use of technology to access government services via the online platform. There was no provision of incentives to encourage use of technology.

2.2.1 ICT Projects Implementation in the Globe

Over the years ICT projects implementation in Government institutions has been the trend for both the private and public institutions in developed and developing countries. With the embracing of ICT in Government, there is a notable rate of development and also the democracy in such governments has become greater. This literature review is therefore meant to outline the reasons for failure or success in implementation of ICT projects in developing countries. This will help in knowing what goes wrong more often than not within the context of ICT implementation in developing countries. Hence this will allow those in the field to use such knowledge in anticipation of potential problems thereby creating robust and effective plans to counter the problems that may arise.

Implementation of ICT projects in Canada

There are several studies that have been done on the area of ICT projects implementation in Canada for both the private and public institutions. Out of these studies, there are two academic studies that have been carried out that are specifically dealing with Electronic Government implementation. There was the first study that was carried out by Warkentin et al. 2002 which was on the proposal of a conceptual model on Electronic Government implementation with the citizen trust being the underlying catalyst for this implementation. With the online tax services being one of the most widely used of the electronic services in several countries, the authors made the proposal on how to increase the the citizen trust in online services. On the side of Institution-based trust the areas would be having in place a fair and independent judicial system that was seen as a key factor that would build trust in Electronic Government.

The online government services were trusted by the experienced users who believed in the system because of using it over a long period of time and realizing it was beneficial to them in accessing the services effectively and efficiently. There was the negative influence on ICT systems implementation in Canada that was brought about by the fear of personal information being lost as well as monitored on the internet. What encouraged implementation of ICT projects on the other hand is the individuals' perception that they had control over how their personal information would be acquired or even used.

There was another model that was proposed by Gilbert and Balestrini, 2004 which looked into the combined attitude and service-quality approaches. For this model, the dependent variable was the user's willingness to use the Electronic Government services while the independent variables the barriers that were perceived barriers plus the benefits that were also perceived. The perceived barriers consisted of confidentiality, enjoyment, reliability, ease of use, safety, and visual appeal. The perceived benefits included the convenience, cots, time, personalization, and no personal interaction with the people offering these services. There was also the other factor of age influencing the implementation of Electronic Government is age.

2.2.2 Implementation of ICT Projects in Africa

There has been research that has been undertaken on Electronic Government in Africa which has mainly focused on gaining an understanding on the implementation and usage of ICT in service delivery in Governments. This has focused on exploration of the effects of moving from traditional governments of manual services to Electronic Government. This research has looked at the challenges and constraints experienced during implementation and improvement of Electronic Government.

There are many lessons that we can learn from the African countries that have successfully implemented Electronic Government with the aim of making government services available to the citizens online thereby improving service delivery. Some studies show that African governments have invested in infrastructure that is necessary for supporting these online service such as internet provision through laying of fibre optic cables, training of their human resource as well as interactive portal development to achieve higher e-readiness indices Njuru, 2011; Lubua and Maharaj, 2012.

There were other studies that were undertaken which were mainly to examine, investigate and evaluate the various aspects of the implementation and usage of ICT in the public sector with more emphasis being on the technical, user, and organizational aspects of Electronic Government (Jakachira, 2009; Miriam et al., 2009).

There has been great impact and implications of implementing Electronic Government which has caused a positive transformation in service delivery in the public sector where the citizens get prompt services and corruption has been prevented to a larger extent.

2.2.3 ICT Projects Implementation in Kenya

The Kenyan Government over the past decade has become more responsive to citizens needs through adoption of ICT systems that provide online services to its people. The main purpose for this move has been reduction of overall operational costs that generates both social and economic value effectively. This has involved the implementation of various information systems such as management support systems, operations support systems, transaction processing systems, human resources management system, electronic messaging and collaboration system, IMIS (Integrated multicultural information system), IFMIS, EMIS

(Environmental management information system), Transport management system, Ledger management System and National electronic single window system for various staff distributed across different government offices in different ministries and autonomous bodies (GOK, 2013).

In 2012, the Kenyan government started a program of investing in ICT infrastructure with the help of foreign funding (Muganda, 2008). This program was meant to address two challenges to development faced by many countries such as corruption and inefficiency in service delivery. Despite Kenya being classified as a less-developed country according to the UN's Computer Industry Development index, the country managed to successfully introduce online government services with the aim of improving its services and reducing corruption.

Unified Communication system in the Electronic Government is intended to address the wastage in time and other resources. There are a number of institutions that have been setup in helping the country attain the vision 2030 pillar of Economic stability. The Government of Kenya established Information and Communication Technology Authority in 2013 which was mandated to coordinate all ICT activities in the county and make Kenya known globally as a local and international ICT hub (GOK, 2013)

2.3 Availability of Infrastructural facilities and Implementation of ICT Projects

Infrastructure refers to the hardware, software, networks, data centers, facilities and related equipment in an organization. These are to be used for developing, testing, operating, monitoring, managing and/or supporting services for information technology unit/department for that organization.

Infrastructure Facilities in ICT context refers to the physical equipment/hardware and software that enables an ICT system to function. There was a major problem of lack of adequate connectivity for the networking infrastructure as pointed out in 2006 by the Data and Statistics. There was the other issue of limitation in the physical networking infrastructure for the county governments to the national networking infrastructure where the headquarters were based which was also pointed out. This was despite a small number of Ministries, Departments and Government Agencies with high speed connectivity through an internet service provider.

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There have been immense benefits of implementing ICT as a means of delivering quality services to the Kenyan people but the government employees have not fully harnessed it's benefits in developing countries. This has been is due to problems of infrastructure access such as slow or unreliable Internet connectivity. As a result of implementing ICT systems in government, there has been a paradigm shift in the way communication is done in that there is a move to digital communication from the traditional manual communication. With such access to ICT, it has helped in dissemination of information to the rest of the world.

2.4 Availability of Financial Resources and Implementation of ICT Projects

According to Oliveira, T., & Martins, M. F. (2011). (2002), cost is defined as the amount of money paid to purchase, acquire, produce, or maintain goods or services. Implementation of ICT systems according to this study refers to the application of online services in Government Agencies. There is a major problem of funds lacking that are needed to produce ICT training materials required for use by end users of the implemented ICT systems which is considered as a negative influence the implementation of ICT in Government agencies. The higher the cost of computers and their related devices means less acquisition in terms of computers due to limited resources.

Tusubira and Mulira (2009) stated that the cost of purchasing equipments to be used in computerization was quite prohibitive for most Government agencies in developing countries. The Agencies that have budgetary allocation in terms of funds needed to purchase this ICT hardware and equipments then routine maintenance and servicing them becomes impossible due to limited budgetary allocation from the National Treasury.

The adoption to electronic records has been necessitated by limitations in paper based records which have limited functionality in that many people cannot view the same record at the same time and one has to travel from far and wide to access the information. With the emergence of electronic record keeping through computerized systems, the top government officials can make faster decisions hence improving on operating efficiency thereby improving on quality. In the developed countries where ICT systems have been implemented such as decision support systems has let to reduction of errors in applications in developing countries.

2.5 Staff Competencies and Implementation of ICT Projects

Cooke-Davies (2002) in a study of the real success factors in projects found that it is crucial to note that the personnel aspect of the project implementation had been ignored. He established that people are key in every project for it to succeed. Therefore the competence of the project personnel is significant in every project including the project managers' skills.

According to the Social Exchange Theory the norms regulating the relationship between individuals apply also to an organization members. Based on this assumption, different authors showed how Human resources Management (HRM) practices, within organizations, influence some of the variables involved in the definition of relation sustainability, particularly in relation to trust (Eisenberger, 1990); commitment (Tsui et al., 1997) and job satisfaction. There is need for the project team to work as one and should be a composition of the consultants and internal ICT project staff so that they can develop the necessary technical skills which are essential for business.

2.5.1 ICT staff attitude and implementation of ICT projects

In this era of computerization, in both the developed and developing countries many Governments are promoting and embracing ICT systems all aimed at improving service delivery to it's citizens in the Public sector. This places great demands to the government in the way information is handled because of infrastructure; all this is because the citizens are seeking and prioritizing quality in their lives through improved service delivery. (Apulu & Latham, 2009). The key elements in effective and efficient service delivery in public institutions is reliable information and effective communication elements in. As a result of use of the right technology then quality is improved and information reaches everyone. According to Thong (1999), the attitude of the project team and the users who either implement or reject the technology that is used in an organization influences the overall performance of the said organizations.

2.6 Top Management Support and Implementation of ICT Projects

The support of the Top Management plays a key role in the process of ICT investments implementing (Kohli and Devaraj, 2004). For successful ICT projects implementation to be realized, it all depends on the way the executives perceive ICT. ICT projects implementation is

important in provision of excellent and quality of services, satisfaction of customers and market positioning, which are all relatively difficult to evaluate quantitatively.

ICT implementation by definition is the factors that influence the way decision making in organizations are perceived at all levels by the project managers and team members. When it comes to ICT projects implementation by an individual organization, it can be defined by the factors that influence the implementation of ICT projects in Government Agencies. There is great importance in distinguishing between the overall success and failure of ICT projects implementation as a result of the top management support.

Ofer Zwikael (2008) considered top management support as an area that has high influence on the project success. From the previous studies, it has been stated that effective top management support practices usually vary in different industries but they all have great influence on implementation of ICT projects. The top management support is both the nature and amount of support the project manager who is expected to be a leader of the project as well as part of the organization's management team. The nature of management's support of ICT project entails; allocation of sufficient resources, such as funds allocated for acquisition of hardware, software and hiring of human resource for project implementation. Top management support is very critical as a factor for success which encompasses various other factors influencing implementation of ICT projects in Government agencies.

Whenever there are new projects in an organization, the top management must demonstrate their full support by appointing one of their own as project champion representing the Management team. The presence and visibility of top management support will definitely influence the success of the ICT projects being implemented.

2.6.1 Project Planning as part of Top Management Support on Implementation of ICT Projects

The first key step for any successful project is planning. Before any project starts you need to create a project plan. The project goals for each project should also be clearly outlined for it to be successful because the needs of the stakeholders must be met. The stakeholders in the project

must be identified and they are the customers who will receive the deliverables, the project outputs for the project, the sponsor of the project, the manager of the project and team and the next step will be to find out the customer's needs. This identification can be done by conducting stakeholder interviews. They should be engaged through requirement analysis and definition which should be the first step so that the end product which is ICT project will be beneficial to them. The next step will be the need to prioritize each requirement.

After the clear goals have been established then this should be recorded in the project plan. The next step will be the project deliverables which will be made up of a list of things that will be delivered by the project in order to meet those goals. Specifications on when and how each item must be delivered must be done. These deliverables will need to be added to the project plan that should indicate an estimated delivery date. During the scheduling phase is when the accurate delivery dates will be established.

Human Resource Plan – this will involve identification of the individuals' organizations that have a a key role in the project. In this plan, there will be a clear description of the roles and responsibilities on the project. It will also indicate the type of people as well as the numbers needed to carry out the project. There should be a single sheet created that contains this information.

Communications Plan – this document should indicate the people who need to be informed as well as receive information about the project. It will be done on a weekly or monthly as a progress report which will give a clear description of the project as well as the milestones that have been achieved and work planned for the next period.

Risk Management Plan- Every project has it's risks and it is very important to identify these risks as much as possible plus make preparations should they occur. The most common project risks are: very optimistic time and costs, review and feedback cycle being too slow for the customers, unexpected budget cuts, unclear roles and responsibilities, failure to seek input from the stakeholder, or failure to properly understand their needs, changing requirements by the stakeholders after the project has commenced, addition of new requirements by the stakeholders after the project has commenced, misunderstandings arising from poor communication, problems in terms of quality and rework, lack of resource commitment. A simple risk log can be

maintained whose main purpose will be to track each of the risks identified. A write up on what should be done and how to prevent it from occurring should be maintained. There should be a regular review of the risk log and additions of new risks as they occur during the lifetime of the project.

2.7 Theoretical Framework

In this section, we look at the various theories used to inform the study on the factors influencing implementation of ICT. This study was used the following theories; Technology acceptance theory and Contingency theory. All the two theories discussed here below influences the implementation of ICT Projects in Government Agencies as outlined here below.

2.7.1 Technology Acceptance Theory

This theory was introduced by Davis, 1989; Davis et al., (1989), it talks about the adaptation of the theory of reasoned action that deals with the prediction of the way users of an information system will accept it. The main aim of this theory is to offer an explanation of the determinants of computer acceptance that is general, capable of explaining user behavior across a broad range of end-user computing technologies and user populations, while at the same time being both parsimonious and theoretically justified. This theory provides a basis for tracing the influence of external factors on attitudes, intentions, and beliefs. Technology acceptance theory was formulated in an attempt to achieve these goals by identifying a small number of fundamental variables suggested by previous research dealing with the cognitive and affective determinants of computer acceptance.

The technology acceptance theory has also been used by researchers to explain the acceptability or rejection of a particular system by the users. The two beliefs in this theory are; the perception of usefulness and ease of use of the system that affect the user acceptance. The theory is extremely relevant to the study because of it's suggestion that ICT projects implementation will be useful as well easy to use once the ICT systems are implemented.

2.7.2 Contingency Theory

Contingency theory suggests that there should be a structure that is consistent with the environmental needs for an organization to be effective. This effectiveness will be based upon

how fit it is towards internal and external factors that include environment, organization size, and organization strategy and technological factors to make a decision. Tornatzky and Fleischer (1990), developed a framework for organizational adoption based on contingency theory of organizations. In that framework, there were three key determinants identified which aided the decision makers in taking into account technology, organization and environment factors that influenced an organizations embrace for technology.

The fundamental idea behind contingency theory is that the organization ability to be viable is dependent on the environment it operates in. An organization is considered an open system if it incorporates the environmental needs where it operates in. (Donaldson, 2001). The organization need to be dynamic internally, innovative and flexible, internally in order for it to succeed in the rapidly changing and dynamic environment.

This theory is applicable to the study since Government Agencies operate in an environment which affects it's operations in terms of service delivery because of the different needs of it's citizens and the different management styles plus the composition of their staff as well as service to the Kenyan people. Therefore, as per the contingency theory, each Government Agency must monitor its own environment and realize that it has to deal with different situations in different ways.
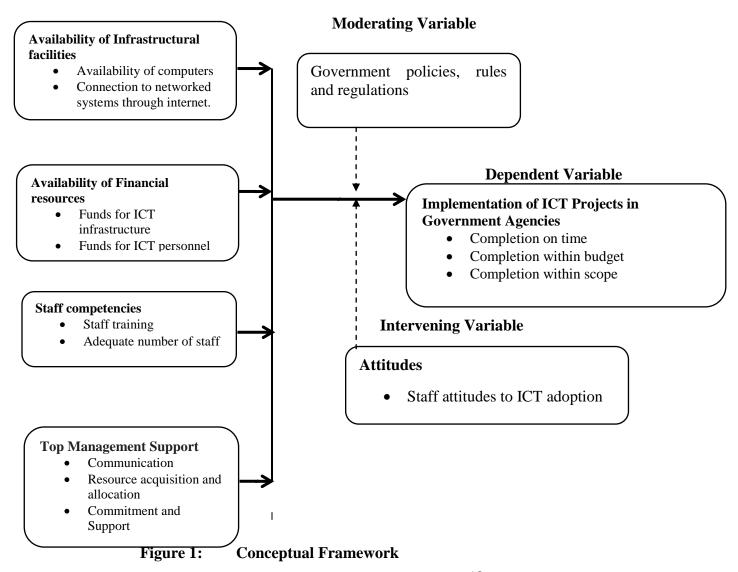
2.8 Conceptual Framework

A conceptual framework refers to an analytical tool that has several variations and contexts and it's used to make relations through distinctions and organizing ideas

Conceptual Framework

Figure 1 offers the Conceptual Framework on which the study is based.

Independent Variables

Figure 1:   Conceptual Framework

The relationship that exists between the variables in the conceptual framework is that there is one dependent variable; factors influencing the implementation of ICT projects in Government Agencies in Nairobi that influences the four independent variables; availability of financial resources, availability of infrastructural facilities, influence of staff competences and top management support. There is a moderating variable that influences the implementation of ICT projects in Government Agencies in Nairobi; Government policies, rules and regulations as well as an intervening variable; staff attitudes to ICT adoption.

2.9 Research Gap

Despite numerous researches done to determine key factors in ICT project implementation, literature indicates that there are varying reasons and variables as responsible for the success of ICT project implementation. According to Cushing, (2002), lack of clear project goals and objectives changing during the project are considered the key factors in ICT project failure, on the other hand, The Standish Group International, (1999) reported that large projects are more likely to fail than small projects due to their complexity.

Tilmann and Weinberger, (2004) identified project management process and organizational culture as the key factors in determining the success of ICT projects. On the contrary, Jenster and Hussy, (2005) concluded that lack of the management support and user involvement are the two critical factors in ICT project implementation.

Though there is a general agreement on factors affecting ICT project implementations, there is no consensus on the extent to which these factors affect the success or failure of ICT projects in organizations. Furthermore, much of the available literature is based on the developed countries, thus there is need for this type research in a developing country like Kenya.

This study sought to identify the factors that influence the implementation of ICT projects in Government Agencies in Nairobi County, Kenya. It tried to establish how the four independent variables namely availability of infrastructural facilities, availability of financial resources, staff competencies and Top Management Support influence the one dependent variable that is, implementation of ICT projects in Government Agencies in Nairobi County.

Table 2.1: Knowledge Gaps

Variable	Author and Year	Findings	Knowledge gap
Availability of financial resources	Tusubira and Mulira, (2009)	Found that the cost of computerized equipments is often prohibitive and for those who can afford them, routine maintenance and servicing, is yet another problem that is not easily manageable by the first generation computer users.	There is need to adopt affordable equipment whose routine maintenance and servicing is also cheap to improve the quality and expand the access to Government services.
Staff competencies such as training, skills and qualifications	Thong, (1999)	Suggested that the higher ICT capabilities the staff have, the higher their potential in the use of information systems, and thus the higher percentage of implementing ICT.	Government Agencies should provide employees with computer education and training courses. IT acceptance among users of IT who form part of a firm employee's base will impose positive impacts on IT adoption
Availability of infrastructural facilities	Quayle ,(2002)	Today almost all organizations are utilizing ICT technologies to cut costs, improving	Government Agencies should adopt ICT technologies to improve the quality and

		efficiency and also to provide better customer services. Additionally, governments around the world are adopting ICT to facilitate business environment and to encourage open competition trust and security	efficiency of the service delivery and contain the cost.
ICT staff attitude	Breznik, (2012)	IT and the Internet create a competitive advantage and improve performance of different sectors.	The study seeks to come up with a clear view that there is a growing need to develop positive ICT staff attitude to improve performance which is the main reason for Government Agencies to install information and communication technology

2.10 Chapter Summary

This chapter reviewed literature from Global, Regional and Local perspective. It highlighted the factors that influence the implementation of ICT projects in Government agencies in Nairobi County. The chapter also offered both theoretical and conceptual frameworks on which the study is based. From the literature review ICT personnel helps organizations react to changes as well as providing necessary connectivity and modularity that enable rapid organizational response to changes. ICT personnel contribute significantly to the extent of ICT implementation. The lack of

computer skills is regarded as the most common barriers to ICT adoption. The unfamiliarity with IT and computer operations amplified the degree of difficulties experienced by the end users in the initial transition stage.

Oliveira and Martins (2011), shows the human capitals of workers who are conversant with information communication technology are of particular importance in implementation of ICT projects. Knowledge regarding the use of ICT, is an important issue because it significantly influences the implementation of innovative technologies. Lack of trained personnel to provide value to Government Agencies and managerial capabilities are catalogued with great importance in the implementation of ICT. The lack of knowledge on how to use technology and low computer literacy are factors that influence the implementation of ICT. There is a need for computer training programs for both managers and staff to enable them get benefits associated with the use of ICT. The introduction/implementation of ICT in routine data system in organizations widen the scope of analyses thus reducing bulkiness of data reported and enable data to reach its destination much faster to the users. Computerization allows transmission of disaggregated data to the national level. This makes data validation an easy exercise at each level. ICT influences on organizational performance and a more effective implementation of tools and how organizations can take advantage of their application. However, even though there remains considerable interest in the relationship, the body of work that focuses on the contributions of technology on organizational performance could be enlarged (Tusubira & Mulira, 2009). Strong substantiation suggests that it is not ICT in isolation that leads to benefits like increase quality service, reduced errors and time saving. The application of ICT systems provides timely information hence improves the quality and efficiency of the service delivery to the public and contains the cost.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter consists of research design, target population, sampling design, data collection instruments, data collection procedures and data analysis. The researcher also gives a validation of the chosen methodology adopted in the research to make its findings objective. The operationalization table of the study variables is also provided.

3.2 Research Design

The study adopted the descriptive research design. Descriptive studies portray the variables by answering who, what, and how questions (Babbie and Mouton, 2002). Mugenda and Mugenda (2003) assert that the descriptive design is a process of collecting data in order to test hypothesis or to answer the questions of the current status of the subject under study. Descriptive research design is chosen because it will enable the researcher to generalize the findings to a larger population. This descriptive research design has been adopted because the study is seeking to describe one variable (Implementation of ICT projects) in Government Agencies in Nairobi County. The objectives of the study are clearly stated.

3.3 Target Population

Population refers to the entire group of people or things or interest that the researcher wishes to investigates. Mugenda & Mugenda (2003) defines population as an entire group of individuals or objects having common observable characteristics. It is the aggregate of all that conforms to a given specification. The study was carried out in Nairobi County in five Government Agencies. The population for purposes of the study was the staff members from various departments who are involved in ICT projects implementation. This is as shown in Table 3.1

Table 3.1: Target population

Agency	Category	Population
Anti-Counterfeit Authority (ACA)	Human Resource	30
	ICT	40
	Finance	40
	Customer Care	43
	Managers	18
Ethics and Anti-Corruption Commission (EACC)	Human Resource	30
	ICT	40
	Finance	41
	Customer Care	43
	Managers	18
Independent Policing Oversight Authority (IPOA)	Human Resource	30
	ICT	40
	Finance	41
	Customer Care	43
	Managers	18
Kenya Revenue Authority (KRA)	Human Resource	30
	ICT	40
	Finance	41
	Customer Care	43
	Managers	18
Kenya Wildlife Services (KWS)	Human Resource	31
	ICT	40
	Finance	41
	Customer Care	43
	Managers	18
Total		**860**

Source: Survey 2017

3.4 Sample Size and sampling technique

This study uses simple random sampling method which is a probability method. It further helps in the process of identifying the respondents for data collection. The sample size was established and the procedure for establishing is explained as follows.

3.4.1 Sample size

The term sample refers to a segment of the population selected for research to represent the population as a whole (Kotler & Armstrong, 2006). This study utilizes the formular as recommended by Mugenda and Mugenda (2003) to determine the sample size of the study as follows:

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

Where,

 n - Is the sample size for the study

 N- Is the study population

 e- Is the level of precision?

N=860

 e=10%

Therefore n will be $= \dfrac{860}{1+860(0.10)2}$

     $= 89.583$

     $=90$

Table 3.2: Sampling Frame

Agency	Category	Population	Sample Size
Anti-Counterfeit Authority (ACA)	Human Resource	30	3
	ICT	40	4
	Finance	40	4
	Customer Care	43	5
	Managers	18	2
Ethics and Anti-Corruption Commission (EACC)	Human Resource	30	3
	ICT	40	4
	Finance	41	4
	Customer Care	43	5
	Managers	18	2
Independent Policing Oversight Authority (IPOA)	Human Resource	30	3
	ICT	40	4
	Finance	41	4
	Customer Care	43	5
	Managers	18	2
Kenya Revenue Authority (KRA)	Human Resource	30	3
	ICT	40	4
	Finance	41	4
	Customer Care	43	5
	Managers	18	2
Kenya Wildlife Services (KWS)	Human Resource	31	4
	ICT	40	4
	Finance	41	5
	Customer Care	43	5
	Managers	18	1
Total		**860**	**90**

Source: Survey 2017

3.4.2 Sampling Procedure

Sampling is the process of selecting units such as people, organizations from a population of interest so that by studying the sample we may fairly generalize our results back to the population from which they were chosen.

The study used the convenience sampling technique to select various staff who were involved in ICT projects being implemented by the Government Agencies. With the convenience sampling method, the researcher used his personal judgment to select those respondents that best suited the purposes of the study and those that are believed to have the information being sought.

In this study, Managers, ICT staff, finance officers, customer care officers and Human Resource staff are deemed viable when carrying out the research (Evans, J.R., & Lindsay, W.M. (1999). The sample size of about 90 respondents was equitably distributed and all respondents had equal chances of participating in the study. Purposive sampling technique was used for selection of various staff in the different Government Agencies that influence implementation of ICT projects as they are considered competent in providing the required information. According to Denscombe (2008), purposive sampling starts with a purpose in mind and the sample is thus selected to include people of interest and exclude those who do not suit the purpose. The method was therefore suitable in selecting the managers who have been engaging in ICT project implementation for a reasonable period of time. Denscombe (2008) also posited that, purposeful sampling is useful when one wants to access a particular subset of people.

3.5 Research Instrument

Kothari (2004), terms the questionnaire as the most appropriate instrument due to its ability to collect a large amount of information in a reasonably quick span of time. This study used questionnaires as primary tool for data collection. The questionnaires contained both structured and unstructured questions (see Appendix 2).

3.5.1 Pilot Testing of the Instrument

Pilot testing involves conducting a preliminary test of data collection tools and procedures to identify and eliminate problems, allowing programs to make corrective changes or adjustments before actually collecting data from the target population. A pilot test was conducted in order to test the validity of the questionnaire and it was carried out with the help of research assistants.

The main reasons for the pilot study was to identify any potential deficiencies, omissions and errors in the questionnaire and eliminate them before it is used to collect the actual data (Brotherton, 2008).

A pilot study was conducted at IPOA where 2 ICT staff, 2 Human Resource staff, 2 Managers, 2 finance officers and 2 Customer care staff were picked for the pilot study. Test re-test method was used to test for reliability of the instrument. The instruments were administered to the respondents and re-administered to the same respondents after one week. A correlation coefficient of above 0.7 was deemed to mean that the instrument is reliable thus the questionnaire was used for data collection.

3.5.2 Validity of research Instrument

Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. Researchers generally determine validity by asking a series of questions, and often look for the answers in the research of others. Marion, Joppe (2000) provides that explanation of what validity is in quantitative research. Wainer and Braun (1998), describe the validity in quantitative research as "construct validity". The construct is the initial concept, notion, question or hypothesis that determines which data is to be gathered and how it is to be gathered. They also assert that quantitative researchers actively cause or affect the interplay between construct and data in order to validate their investigation, usually by the application of a test or other process. In this sense, the involvement of the researchers in the research process would greatly reduce the validity of a test. Data quality was incorporated in the entire study process especially at the data collection point to include completeness of questionnaires, legibility of records and validity of responses. At the data processing point, quality control included data cleaning, validation and confidentiality. There are three types of validity which was addressed and stated; Face validity with pre-testing of survey instruments is a good way was used to increase the likelihood of face validity. Content validity the use of expert opinions, literature searches, and pre-test open-ended questions helped to establish content validity.

To establish the validity of the instruments in this research, the instrument was presented to the research supervisor and defended in the faculty forums where the research proposal was

presented. Thereafter the questionnaire was administered with approval of the supervisor. Kothari (2004), terms the questionnaire as the most appropriate instrument due to its ability to collect a large amount of information in a reasonably quick span of time. Kothari (2004), terms the questionnaire as the most appropriate instrument due to its ability to collect a large amount of information in a reasonably quick span of time.

3.5.3 Reliability of research Instrument

Reliability of a research instrument has to be tested so as to find out if the required information will be derived especially if it was designed in an area foreign from where the study is being conducted (Seamus and Hegarty, 1982). Individual items in an instrument measuring a single construct should give highly correlated results which would reflect the homogeneity of the items. This can be tested using the split-half form, where items are grouped into two and then correlated with the Spearman-Brown formula. This involved the researcher carrying out a pilot study and then carrying out the above test. This pilot was done with a sample that was not be involved in the final data collection process. Reliability of the data collection instrument was done by carrying out a pilot test at IPOA. The outcome of the test was that the research instrument in this case the questionnaire was reliable for data collection. The questionnaire was pre-tested through a pilot test with individuals from the Government Agencies previously involved in ICT projects but not part of the sample population in the study to avoid double inclusion of pre-test participants in the main study. Their feedback helped in making vital adjustments to enhance reliability and validity of the study findings. To ascertain the reliability of the data collection instrument was examined by professionals who include researchers, supervisor and ICT experts and modifications done based on the responses obtained.

The outcome was that all the four independent variables had great influence on implementation of ICT projects in Government Agencies. A reliability test was done at IPOA (one of the Government Agencies under study and the result was that the instrument to be used for data collection which was the questionnaire was reliable.

3.6 Data Collection Procedure

The researcher sought a letter of transmittal from the University of Nairobi as well as sought permit from Nacosti in order to facilitate the process of data collection. The researcher then

introduced himself to the five Government agencies relevant authorities to begin the data collection processes. The researcher approached respondents introducing the purpose of the study and self–administered the questionnaire.

3.7 Data Analysis Techniques

The process of data analysis involves making sense out of text and image data, this is according to Creswell and Plano Clark (1999). It involves preparing the data for analysis, moving deeper into understanding it, presenting it and making an interpretation of the larger meaning. The nature of data obtained from this study will be both quantitative and qualitative. Quantitative data will mainly be from the close ended questions and qualitative data emanated from the open ended items. The quantitative data generated was analyzed using descriptive statistics with the help of Statistical Package for Social Sciences (SPSS) version 20. Descriptive statistics was used to analyze the data after which the information was presented in percentages and frequencies through use of tables. Descriptive statistics allow social science to organize and summarize data in a meaningful way (Nachmias & Nachmias, 2000).

3.8 Ethical Considerations

The principle of voluntary participation was adhered to and respondents were not coerced into participating in the research. Bryman (2007) states that it is the responsibility of the researcher to carefully assess the possibility of harm to research participants, and the extent that it is possible; the possibility of harm should be minimized. The researcher recognized that the issue under study was sensitive because it involved the core business of the Agencies. Therefore, there was need to protect the identity of the respondents as much as possible. The research ensured confidentiality and the respondents were informed of the consent and the purpose of this research study. To ensure confidentiality, names of the respondents were not used in the study. Throughout this study the researcher strived to adhere to ethical research considerations and professional guidelines. This involved avoiding acts of misconduct in research, such as data fabrication, falsification and plagiarism. Permission to conduct the study was obtained from the relevant authorities before commencement of data collection. During data collection the researcher explained and sought consent from the respondents participating in the research. The researcher ensured that the information collected was treated with due confidentiality and was used purely for research work.

3.9 Operational Definitions of Variables

The operational definition of variables on which the study is based is presented in Table 3.3.

Table 3.3 Operational Definition of Variables

Research Objectives	Type of Variable	Indicator	Measure	Data Collection	Level of scale	Approach of analysis	Level of analysis
To establish the influence of availability of infrastructural facilities on implementation of ICT projects Government Agencies in Nairobi County	Independent: Availability of infrastructural facilities	Availability of computers Availability of printers and external storage devices like flash disks	Number of computers Number of printers and storage devices	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages
		Connection to networked systems through high speed internet connectivity	Ability to share networked information among users	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages

To determine the influence of availability of financial resources on implementation of ICT projects in Government Agencies in Nairobi County.	Independent: Availability of Financial Resources	Resources for ICT infrastructure such as hardware and software	Access to ICT equipments such as printers, scanners and copiers	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages
		Resources for ICT personnel	Staff expertise skills in terms of computer use	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages
To assess the influence of staff competencies on successful implementation of ICT projects in Government	Independent: Staff Competencies	Staff trainings and continuous ICT literacy refresher	ICT literacy trainings carried out for staff	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages

Agencies in Nairobi County.		courses					
		Staff Qualifications and experience	Years of experience and Certificates received	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages
To study the influence of Top Management Support on implementation of lCT Projects in Government Agencies in Nairobi County	Independent: Top Management Support	Communication	Constant update on the progress of the project	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages

		Resource acquisition and allocation	Money for the Project Project team	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages
		Commitment and Support	Consistent Management support	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages
Implementation of ICT Projects in Government Agencies in Nairobi County, Kenya	Dependent: Implementation of ICT Projects	Completion on time	The project was completed within the set time	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages

		Completion within budget	The project was completed within set budget	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages
		Completion within scope	The project was completed having achieved it's goals, deliverables and deadlines	Questionnaire	Nominal Ordinal	Qualitative and Quantitative	Descriptive Analysis using tables and percentages

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter presents the analysis of data collected based on the four objectives of the study. The data is then presented in terms of tables, frequencies and percentages before interpretation. Descriptive statistics have been used to discuss the findings of the study.

4.2 Questionnaire Return Rate

As shown on Table 4.1, there was a questionnaire return rate of 83% that is far higher than the 70% that Mugenda and Mugenda (1999) consider as excellent.

Table 4.1: Return Rate

This table shows the number of completed and uncompleted questionnaires as shown by Table 4.1.

Agency	Return Rate Completed	%	Incomplete/ Not Returned	%
ACA	15	83.33	3	16.67
EACC	15	83.33	3	16.67
IPOA	15	83.33	3	16.67
KRA	15	83.33	3	16.67
KWS	15	83.33	3	16.67
Total	**75**			

4.2 Demographic Information

This section presents the demographic information of the respondents in terms of level of education and period of service.

4.2.1 Level of Education of the respondents

The study sought to establish to what level the respondents were educated. This information is shown by Table 4.2.

Table 4.2: Level of Education of the respondents

Agency	Level of Education	Frequency	Percentage %
ACA	College Diploma	1	1.33
	Undergraduate	6	8
	Masters	4	5.33
EACC	College Diploma	2	2.67
	Undergraduate	10	13.33
	Masters	6	8
IPOA	College Diploma	2	2.67
	Undergraduate	3	4
	Masters	5	6.67
KRA	College Diploma	3	3.99
	Undergraduate	9	12
	Masters	10	13.33
KWS	College Diploma	2	2.67
	Undergraduate	7	9.34
	Masters	5	6.67
	Total	**75**	**100**

On respondents' level of education attained, the study revealed that most of the respondents, at 86.67 percent, had attained undergraduate degree and above. This implies that respondents were well educated and therefore they were in position to respond to the research questions with ease.

4.2.2 Period of Service of the respondents

The study sought to establish the respondents' period of service in various Government Agencies. The information appears in Table 4.3.

Table 4.3: Period of Service of the respondents

Agency	Period of Service	Frequency	Percentage %
ACA	Below 2 years	0	0
	3 to 5 years	0	0
	6 to 8 years	6	8
	9 years and above	9	12
EACC	Below 2 years	0	0
	3 to 5 years	0	0
	6 to 8 years	7	9.33
	9 years and above	8	10.67
IPOA	Below 2 years	2	2.67
	3 to 5 years	3	4
	6 to 8 years	10	13.33
	9 years and above	0	0
KRA	Below 2 years	0	0
	3 to 5 years	0	0
	6 to 8 years	2	2.67
	9 years and above	13	17.33
KWS	Below 2 years	0	0
	3 to 5 years	0	0
	6 to 8 years	0	0
	9 years and above	15	20
	Total	**75**	**100**

As shown on Table 4.3, over 90 percent of the respondents had served their agencies for over 6 years and thus they were in a position to give credible information rating to this research.

4.3 Staff Competence and Implementation of ICT

This section addresses the influence of staff competence (number of staff, their skills, training, experience and qualification) on implementation of ICT projects. The literature suggests that there is a significant influence of the staff competence on the project performance. The competency of the staff is indeed a factor in successful project implementation (Kuen et al., 2009). This information is shown in Table 4.4.

Table 4.4: Staff Competence of the respondents

Agency	Staff Competence	Strongly Disagree	Moderately Agree	Agree	Strongly Agree
ACA	Adequate number of staff	0%	2%	6.67%	10%
	Staff with Specialized IS knowledge and technical skills	0%	4.33%	8%	3%
	Provision of computer education and training courses for Staff	0%	0%	4%	8%
	Staff experience	1%	1.67%	7%	5%
	Competence and experience on ICT projects implementation	1%	2%	3%	6%
	Staff qualification on ICT usage	1%	3%	6%	4%
EACC	Adequate number of staff	0%	3.33%	8%	14%
	Staff with Specialized IS knowledge and technical skills	0%	5%	13%	8%
	Provision of computer	0%	3%	25.33%	12%

	education and training courses for Staff				
	Staff experience	2.67%	1%	10%	5%
	Competence and experience on ICT projects implementation	1%	2%	4%	6%
	Staff qualification on ICT usage	1%	3%	6%	8.67%
IPOA	Adequate number of staff	0%	1%	10%	8%
	Staff with Specialized IS knowledge and technical skills	0%	6%	5%	5%
	Provision of computer education and training courses for Staff	0%	0%	6%	7%
	Staff experience	1%	2%	8%	5%
	Competence and experience on ICT projects implementation	1%	0%	8%	6%
	Staff qualification on ICT usage	3%	4%	14%	4%
KRA	Adequate number of staff	0%	2%	9%	12%
	Staff with Specialized IS knowledge and technical skills	0%	4%	20.67%	5%
	Provision of computer	0%	3.67%	11%	7%

	education and training courses for Staff				
	Staff experience	1%	1%	7%	26%
	Competence and experience on ICT projects implementation	1%	4.67%	31.67%	9.33%
	Staff qualification on ICT usage	4%	6%	8%	4%
KWS	Adequate number of staff	0%	2%	5%	7%
	Staff with Specialized IS knowledge and technical skills	0%	4%	4%	5%
	Provision of computer education and training courses for Staff	0%	0%	9%	6%
	Staff experience	1%	1%	8%	5.66%
	Competence and experience on ICT projects implementation	1.33%	2%	4%	6%
	Staff qualification on ICT usage	1%	2%	19.33%	4%

As shown on Table 4.4, majority of the respondents at 89.67 percent agreed that the number of staff is adequate, 76.67 percent of the respondents agreed that staff existed with specialized Information Systems knowledge and technical skills, 93.33 percent agreed that there is provision of computer education and training courses for staff, 84 percent agreed that competence and experience on ICT projects implementation was key and another 72 percent of the respondents agreed that staff qualification on ICT usage all had influence on ICT projects implementation. In conclusion staff competence had great influence on implementation of ICT projects in Government Agencies in Nairobi County.

4.4 Top Management Support

This section attempts to determine the influence of Top Management Support on implementation of an ICT project in Government Agencies in Nairobi County. This study sought to determine the influence that top management support had on the implementation of projects. Top management support has been consistently identified as the most important and crucial factor in successful implementation of projects. Kuen et al. (2009) in a study on critical factors influencing the project success amongst companies in Malaysia found that top management support is positively but indirectly related to project success within Government Agencies. The results of this analysis are presented in Table 4.5.

Table 4.5: Top Management Support in ICT projects implementation

Agency	Top Management Support	Strongly Disagree	Disagree	Moderately Agree	Agree	Strongly Agree
ACA	Projects are well-funded	3%	5%	6%	1%	3%
	There is clarity in the vision, mission and objectives of the organization	2%	2%	1%	4%	9.4%
	Organizational structure complements the project implementation process	2%	1%	1%	10%	5%
	There are clear channel of Communication	2%	1%	1%	6%	6%
	Adherence to Project timelines and scope	0%	1%	0%	14%	8%
EACC	Projects are well-funded	2%	4%	7%	3%	2%
	There is clarity in the vision, mission and objectives of the organization	3.2%	2%	1%	4%	9.4%
	Organizational structure complements the project implementation process	1%	4%	2%	14%	4%
	There are clear channel of Communication	2%	2%	1%	3%	6%
	Adherence to Project timelines and scope	0%	1.67%	0%	9%	6%
IPOA	Projects are well-funded	4%	3%	11.3%	2%	3%
	There is clarity in the vision, mission and objectives of the	4%	5.9%	4%	4%	6%

	organization					
	Organizational structure complements the project implementation process	3.4%	2%	1%	7%	3%
	There are clear channel of Communication	1.1%	2%	1%	10.5%	6%
	Adherence to Project timelines and scope	0%	2%	0%	13.33%	10%
KRA	Projects are well-funded	1%	9.4%	9%	2.8%	2%
	There is clarity in the vision, mission and objectives of the organization	1%	4%	2%	4%	7%
	Organizational structure complements the project implementation process	1%	3%	1.5%	12%	9.1%
	There are clear channel of Communication	1%	11.4%	3%	6%	7%
	Adherence to Project timelines and scope	0%	0%	0%	6%	9%
KWS	Projects are well-funded	1%	3%	6%	3%	4.5%
	There is clarity in the vision, mission and objectives of the organization	1%	4%	3%	4%	6%
	Organizational structure complements the project implementation process	2%	2%	1%	6%	3%
	There are clear channel of	0%	6%	4%	6%	6%

	Communication Adherence to Project timelines and scope	0%	2%	10%	10%	7%

As shown on Table 4.5, a majority at 65.6 percent of the respondents agreed that projects initiated are well funded and enjoy sufficient resources for implementation, another majority at 71.9 percent of the respondents agreed that there is clarity in the vision, mission and objectives of the organization while 72.1 percent agreed that the organizational structure complements the project implementation process, 62.5 percent agreed that there's a clear channel of communication between project team and top management. A majority of the respondents at 93.33 percent agreed that; the project timelines and scope were adhered to. In conclusion, it was established that the Top Management Support had influence on implementation of ICT projects.

4.5   Availability of Infrastructure
This section attempts to establish the influence of availability of ICT infrastructure on implementation of ICT services in Government Agencies in Nairobi County. This information is as shown in Table 4.6.

Table 4.6: Availability of Infrastructure in ICT projects implementation

Agency	Availability of Infrastructure	Strongly Disagree	Disagree	Moderately Agree	Agree	Strongly Agree
ACA	Availability of computers, printers and external storage devices	0%	2%	0%	8%	5%
	Connection to networked systems through high speed internet connection	0%	1%	2%	4%	14%

EACC	Availability of computers, printers and external storage devices	0%	2%	0%	6%	7%
		0%	2%	2%	6.67%	9%
	Connection to networked systems through high speed internet connection					
IPOA	Availability of computers, printers and external storage devices	0%	3%	0%	10%	16.67%
		0%	0%	3%	7%	13.33%
	Connection to networked systems through high speed internet connection					
KRA	Availability of computers, printers and external storage devices	0%	3.33%	0%	9%	8%
		0%	2.67%	4.33%	5%	6%
	Connection to networked systems through high speed internet connection					
KWS	Availability of computers, printers and external storage devices	0%	2%	0%	7%	10%
		0%	1%	2%	4%	10%
	Connection to networked systems through high speed internet connection					

As shown on Table 4.6, a majority of the respondents at 86.67 percent agreed; that computers, printers and storage devices like flash disks are available while 80 percent of the respondents agreed there is connection to networked systems through high speed internet connection. In conclusion, availability of infrastructure greatly influenced the ICT projects implementation.

4.6   Availability of Financial Resources

This section attempts to establish the influence of available funding on the implementation of ICT projects in Government Agencies in Nairobi County as shown by Table 4.7.

Table 4.7: Availability of Financial Resources in ICT projects implementation

Agency	Availability of Financial Resources	Strongly Disagree	Disagree	Moderately Agree	Agree	Strongly Agree
ACA	Availability of resources for ICT infrastructure setup Availability of resources for ICT staffing	1% 0%	0% 4%	0% 1%	14% 7%	8% 2%
EACC	Availability of resources for ICT infrastructure setup Availability of resources for ICT staffing	1.67% 0%	0% 6.67%	0% 2%	9% 6%	6% 8%
IPOA	Availability of resources for ICT infrastructure setup Availability of resources for ICT staffing	2% 0%	0% 7%	0% 0%	13.33% 12%	10% 4%
KRA	Availability of resources for ICT infrastructure setup	0%	0%	0%	6%	9%

	Availability of resources for ICT staffing	0%	5%	2.67%	3%	11.66%
KWS	Availability of resources for ICT infrastructure setup	2%	0%	0%	10%	7%
	Availability of resources for ICT staffing	0%	4%	1%	3%	7%

As shown on Table 4.7 majority of the respondents, 93.33 percent agreed that there is need for resources for ICT infrastructure setup like computers and networking equipments namely switches, routers and 66.66 percent of the respondents said there is need for resources for hiring highly skilled ICT staff. Therefore, availability of financial resources for ICT infrastructure setup and ICT staffing influence the implementation of ICT projects in Government Agencies in Nairobi County.

4.7   Implementation of ICT Projects

From this study, I established that the four independent variables; availability of infrastructural facilities, financial resources, staff competencies and Top management support all have great influence on implementation of ICT projects in Government Agencies in Nairobi County.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presented the summary of key findings, discussion, conclusion drawn from the findings highlighted and recommendations for further study. The conclusions and recommendations were drawn in addressing the research objectives.

5.2 Summary of Findings

This section presents the key findings as considered under each objective in the study.

Availability of Financial Resources and implementation of ICT projects

From the findings, the study established that funds required for ICT infrastructure and ICT personnel were readily available. Majority of the respondents, 93.33 percent agreed that there is need for resources for ICT infrastructure setup like computers and networking equipments namely switches, routers and 66.66 percent of the respondents said there is need for resources for hiring highly skilled ICT staff. This positively influenced the implementation of ICT projects in Government Agencies.

Infrastructural Facilities and implementation of ICT projects

On the influence of ICT Infrastructure in implementation of ICT projects, the study established that computers are available and there is connection to networked systems through internet. A majority of the respondents at 86.67 percent agreed; that computers, printers and storage devices like flash disks are available while 80 percent of the respondents agreed there is connection to networked systems through high speed internet connection. In conclusion, availability of infrastructure greatly influenced the ICT projects implementation.

Staff Competencies and implementation of ICT projects

The study established that; majority of the respondents, at 89.67 percent agreed that the number of staff is adequate, 76.67 percent of the respondents agreed that staff existed with specialized Information Systems knowledge and technical skills, 93.33 percent agreed that there is provision

of computer education and training courses for staff, 84 percent agreed that competence and experience on ICT projects implementation was key and another 72 percent of the respondents agreed that staff qualification on ICT usage all had influence on ICT projects implementation. In conclusion staff competence positively influenced implementation of ICT projects in Government Agencies.

Top Management Support and implementation of ICT projects

The study established that; a majority at 65.6 percent of the respondents agreed that projects initiated are well funded and enjoy sufficient resources for implementation, another majority at 71.9 percent of the respondents agreed that there is clarity in the vision, mission and objectives of the organization while 72.1 percent agreed that the organizational structure complements the project implementation process, 62.5 percent agreed that there's a clear channel of communication between project team and top management. A majority of the respondents at 93.33 percent agreed that; the project timelines and scope were adhered to. In conclusion, it was established that the Top Management Support had great influence on implementation of ICT projects in Nairobi County.

Implementation of ICT Projects

The study established that the four independent variables; availability of infrastructural facilities, financial resources, staff competencies and Top management support all have great influence on implementation of ICT projects in Government Agencies in Nairobi County. From the study, it was established that there were other variables that had influence on the implementation of ICT projects in Government Agencies in Nairobi County which are the moderating and intervening variables. The moderating variable in our study that influences the implementation of ICT projects in Government Agencies in Nairobi Count is Government policies, rules and regulations and the intervening variable is the staff attitude in adoption of Information Technology.

5.3 Discussion

This section discussed the findings of the study against other findings in literature.

Availability of Financial Resources

Our study established that adequate and available funds were key to implementation of ICT projects. This is supported by Tusubira and Mulira (2009) who says that the cost of

computerized equipments is often prohibitive for most Government agencies in developing countries and for those who can afford them, routine maintenance and servicing, is yet another problem that is not easily manageable by the first generation computer users.

Availability of Infrastructural Facilities

The study established that infrastructural facilities, such as the availability of computers and connection to networked systems through the internet, had a great influence on implementation of ICT projects. The major problem pointed out by the Data and Statistics (2006) was that Kenya lacked adequate connectivity and network infrastructure. It was pointed out that, although a small number of Ministries, Departments and Government Agencies had direct access to high speed connectivity through an internet service provider, generally there was limited penetration of the national physical telecommunication infrastructure into county governments where many of these regional offices are located. A study by Idowu (2003), in Nigerian reported that while ICT capabilities (personal computers, mobile phones, Internet) were available in Government, mobile phones were spreading fastest. Their findings also revealed that computers and mobile phones were in use but not much Internet connectivity was available for internet services, such as cybercafés, for even rudimentary Internet access, such as e-mail.

Staff Competencies

Staff competency is a crucial factor influencing the success of ICT projects in Government Agencies as different members of staff are involved in the delivery of project objectives. The study established that staff skills, qualification, experience and the number of staff had a great influence on implementation of ICT projects. This supports Cooke-Davies (2002) notion that the competence of project personnel contributes significantly to project success. The effectiveness of the project staff is influenced by the mutual support between members. These findings support a Standish Group survey (2001) which showed user involvement as the number one reason for successful implementation of ICT projects.

Top Management Support

The study established that projects initiated are well funded and enjoy sufficient resources for implementation, there is clarity in the vision, mission and objectives of the organization while the organizational structure complements the project implementation process, there's a clear channel of communication between project team and top management. The project timelines and

scope were adhered to. In conclusion, it was established that the Top Management Support had great influence on implementation of ICT projects in Nairobi County.

Implementation of ICT Projects

The study established that the four independent variables; availability of infrastructural facilities, financial resources, staff competencies and Top management support all had great influence on implementation of ICT projects in Government Agencies in Nairobi County.

5.4 Conclusion

The study concludes that top management support needs to be focused on the initiation and realization of benefits from specific ICT projects, rather than the narrowly defined project activities. Top management is the most significant factor influencing the success of ICT projects. For benefits to be realized, organizational changes are required which must emanate from top management and the support thereof (Ward et al. 1996, Markus et al. 2000, Cooke-Davies 2002). Therefore, Government Agencies needs to put more emphasis on support from top management to the project teams.

Experience of working in projects by the staff also enhances their performance as each one of them makes contribution to the project processes. Effectiveness is influenced by the characteristics of the people in the project team, in the quality of their relations with each other and in their capacity to understand the needs, requests and priorities of the Agencies (Gido & Clements, 1999). Over half of the project staff in Government Agencies have prior experience working in projects, which will aid performance. Qualification in terms of professional training in project management would further boost their overall effectiveness. Training will also assist with skills that are able to measure the success of the ICT projects in meeting intended objectives.

The availability of resources for ICT infrastructure purchases and hiring of skilled ICT staff, availability of high speed internet connection and networked computer systems will greatly influence implementation of ICT projects in Government Agencies in Nairobi County.

5.5 Recommendations of the Study

Based on the findings, the study makes the following recommendations;

a) The Government of Kenya to improve the current ICT infrastructure through internet connectivity by establishment of standard local area networks (LANs), wireless systems such as VSAT technologies and operationalization of e-Government should be prioritized.

b) The Government of Kenya needs to increase the ICT budget to empower the operations of ministry of information and communication as well as the Government Agencies with a focus of bringing down the cost of ICT implementation.

c) The Government of Kenya needs to train their employees on the information systems prior to ICT project implementation.

d) The Government of Kenya needs to ensure that there is Top Management Support through engagement in consistent communication with project teams as well as proper planning of the ICT projects in terms of time and scope.

5.6 Suggestions of Further Research

The following are recommendations for further study;

i) As the study was limited only to Nairobi County, similar study should be done in other counties in the country.

ii) A study on influence of ICT in other agencies beyond Government should be carried out.

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APPENDICES

Appendix 1:   Introductory Letter

Nancy Makena Mwitia

University Of Nairobi

P.O Box 30197

Nairobi

09th March 2016

Dear Sir/Madam,

<u>RE: RESEARCH PROPOSAL QUESTIONNAIRE.</u>

I am a post-graduate student undertaking a Master of Arts Degree in Project Planning and Management at the University of Nairobi. I am required to submit as part of my course work assessment of a research project report on Factors influencing implementation of Information Communication and Technology (ICT) projects in Government Agencies, Nairobi County.

You are hence requested to provide the requested information by kindly filling out the accompanying questionnaire. The information provided will be used exclusively for academic purposes and will be treated with Confidentiality.

A copy of the same will be availed upon request.

Yours faithfully,

Nancy Makena Mwitia

L50/71764/2014

Appendix 2:   RESEARCH QUESTIONNAIRE

INSTRUCTIONS

This questionnaire seeks to study the factors influencing implementation of ICT Projects in Government Agencies, A case of Nairobi County, Kenya

CONFIDENTIALITY

*THE ENUMERATOR SHOULD INFORM THE RESPONDENT THAT THE INFORMATION HE OR SHE WILL GIVE WILL BE **HANDLED CONFIDENTIALLY AND WILL BE USED FOR RESEARCH PURPOSES ONLY***

Section: A: Demographic Information

1. Please indicate the highest level of education attained? (Tick as applicable)

      College Diploma   [ ]

      Undergraduate   [ ]

      Master   [ ]

      Others (specify)

      …………………………………………………………………………...

2. Indicate your period of service in this institution

   Below 2 years   (   )   3 to 5 years   (   )

   6 to 8 years   (   )   9 years and above   (   )

Section: B. Factors Influencing Implementation of ICT Projects

3. Indicate your level of agreement with the following statements relating to Availability of financial resources on implementation of ICT projects Key Use a scale of 1-5, where (1= strongly disagree, 2= disagree, 3= moderately agree, 4= Agree and 5= strongly Agree)

Availability of Financial Resources	1	2	3	4	5

	1	2	3	4	5
Availability of resources for ICT infrastructure					
Availability of resources for ICT staffing					

4. To what extent do you agree with the following statements on training and adoption? Use a scale of 1-5, where (1= strongly disagree, 2= disagree, 3= moderately agree, 4= Agree and 5= strongly Agree)

Staff Competence and Implementation of ICT	**1**	**2**	**3**	**4**	**5**
Adequate number of Staff					
Staff with Specialized Information Systems knowledge and technical skills.					
Provision of computer education and training courses for Staff					
Staff experience on the implementation of ICT projects					
Competence and experience on ICT projects implementation					
Staff qualification on ICT usage					

5. To what extent do you agree with the following statements on ICT Infrastructure? Use a scale of 1-5, where (1= strongly disagree, 2= disagree, 3= moderately agree, 4= Agree and 5= strongly Agree)

ICT Infrastructure	**1**	**2**	**3**	**4**	**5**

Availability of computers					
Connection to networked systems through internet which has become an important component of the electronic services in health institutions					

Section: C. Top Management Support

6. Indicate your level of agreement with the following statements relating to Top Management Support on implementation of ICT Projects Key Use a scale of 1-5, where (1= strongly disagree, 2= disagree, 3= moderately agree, 4= Agree and 5= strongly Agree)

Top Management Support	1	2	3	4	5
Projects are well-funded					
There is clarity in the vision, mission and objectives of the organization					
Organizational structure complements the project implementation process					
There are clear channel of Communication					
Projects are well-funded					

7. To what extent do you agree with the following statements on Implementation of ICT? Use a scale of 1-5, where (1= strongly disagree, 2= disagree, 3= moderately agree, 4= Agree and 5= strongly Agree)

Implementation of ICT	1	2	3	4	5
Implementation of ICT to improve the quality of Government services.					
Implementation of ICT has helped to bridge the gap					

between the citizen and the Government Agencies					
Implementation of ICT has increased knowledge in management of the institutions in the creation of networks.					
Implementation of ICT has improved efficiency in services.					
The intensity of competition in the market has influenced implementation of ICT					
Implementation of ICT has improved the financial services in terms of speed.					
Implementation of ICT has improved the financial services in terms of accuracy.					

THANK YOU FOR TAKING YOUR TIME TO FILL THIS QUESTIONNAIRE*!*

THIS IS TO CERTIFY THAT:

MS. NANCY MAKENA MWITIA
of UNIVERSITY OF NAIROBI, 9694-100
NAIROBI,has been permitted to conduct
research in Nairobi County

on the topic: *FACTORS INFLUENCING*
IMPLEMENTATION OF ICT PROJECTS IN
GOVERNMENT AGENCIES: A CASE OF
NAIROBI COUNTY, KENYA

for the period ending:
3rd November,2017

Permit No : NACOSTI/P/16/59087/10037
Date Of Issue : 4th November,2016
Fee Recieved :Ksh 1000

Applicant's
Signature

Director General
National Commission for Science,
Technology & Innovation