INFORMATION TECHNOLOGY INITIATIVES AND ADOPTION AMONG SENIOR CIVIL SERVANTS IN STATE DEPARTMENT FOR YOUTH IN NAIROBI CITY COUNTY, KENYA

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DECLARATION

This research project is my original work and has not been presented to any other institution or University for Examination

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This research project has been submitted for the course examination with my approval as the University Supervisor.

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DEDICATION

I dedicate this research Project to my dear children Njeri and Wanjohi who have been my source of motivation and encouragement. Their love and support throughout this course were overwhelming and without this, the research would not have been possible. They have been my source of joy and inspiration.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

ICT:	Information Communication Technology
IFMIS:	Integrated Financial Management Information System
ILO:	International Labour Organization
IPPD:	Integrated Personnel and Pension Database
IS:	Information System
IT:	Information Technology
KSG:	Kenya School of Government
LDC:	Less Developed Countries
MDGs:	Millennium Development Goals
NGO:	Non-Governmental Organization
NSE:	Nairobi stocks exchange
OECD:	Organization for Economic Cooperation and Development
OECD:	Organization of Economic Cooperation and Development
R&D:	Research and Development
SPSS:	Statistical Package for Social Scientists
UN:	United Nations
UNDP:	UN Human Development Report
UNESCO:	United Nations Educational, Scientific and Cultural Organization
UNIFEM:	United Nations Development Fund for Women
WSIS:	World Summit on the Information Society

OPERATIONAL DEFINITION OF TERMS

Adoption of ICT: part of ICT which deals with the policies, procedures and methods which will be used to incorporate technology usage in the county.

ICT infrastructure: These are the platform hardware, software and strategies that are used to implement communication technology so as it can be used in service delivery.

IT Capacity Building: This is the process of equipping the users of ICT with the relevant skills to be able to utilize the ICT resources in performing tasks and carrying out the assigned responsibilities.

Legislation: This refers to the process of making or enacting laws based on ICT.

Physical Facilities: This refers to the physical equipment/hardware and software that enables a network to function

Top Management Commitment: This is the direct participation by the highest-level executives in a specific and critically important aspect or program of an organization.

Government policy: These are government plans, policies and regulations that dictate how certain ICT projects and strategies may be implemented

ABSTRACT

The ICT revolution has radically changed the world and can contribute immensely to the social-economic development of the country. The potential of ICT for increasing work efficiency and effective service delivery is however not fully exploited in many countries including Kenya. Studies adoption of ICT have dealt with the effects of other frontiers and hardly on the determinants of its adoption by senior civil servants in Government Ministries and their effect on performance. The research has earmarked the State Department for Youth since it handles issues surrounding youth who are the main consumers of Information Technology. The purpose of this research was to survey the determinants of ICT adoption among senior civil servants in State Department for Youth and establish the extent to which they can adapt ICT and its effect on their performance. The study objectives were to establish the extent to which legislation affects the adoption of ICT, to investigate how demographic factors such as gender and age influence adoption of ICT and to determine how top management support relates to the adoption of ICT. The study was conducted in Nairobi City County and targeted employees of the State Department for Youth. To achieve this, the study adopted a descriptive research design in which 30% of senior civil servants in the State Department for Youth were sampled using a simple random sampling method. The target population was 150 senior civil servants in the Directorate. Research instruments used self-administered closed and open-ended questionnaires. The questionnaires were dropped for the respondents to fill and collected after two days. Data collected were analysed using correlation analysis and descriptive statistics. Quantitative analysis began with field editing to minimize errors. The study found that ICT adoption is highly influenced by the availability of facilities and infrastructure, existing legislation, training/capacity building and top management support. Infrastructure needs to be always up to date to enhance the efficiency of ICT use among senior civil servants since the availability of ICT facilities makes work easier and therefore improves the morale of the employees. As part of the recommendations, there is a need to ensure that there are adequate, accessible and user-friendly ICT infrastructure/facilities to ensure that service delivery is enhanced in an organization. There is also a need to establish high-level inspiration, political goodwill and oversight to overcome resistance to change and also ensure that all Government Departments and Ministries adopt and utilize ICT in all their operations. These findings may be found useful by the Government and policymakers in developing policies related to deepening the adoption of ICT in the Government Ministries as well as addressing the gaps in the adoption and utilization of ICT in service delivery. Government training organizations such as KSG may also benefit from the study since they can use the findings to identify training needs and be able to develop training manuals and programmes relating to ICT adoption.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

According to Almarabeh and AbuAli, (2010), Information and Communication Technology is one of the key Government strategies aimed at reforming the public service. Further, the adoption of ICT systems aims at increasing accountability in service delivery as well as prudent utilization of resources in the public sector. Electronic (e) government refers to the adoption of ICT technologies that enable the Government to offer services to the citizens effectively and efficiently.

Information flows between the decision-makers and those targeted by the decisions and those responsible for the implementation of the decision is vital for the effective formulation and adoption of policies (Heeks, 1998). In support of this proposition, Ongwae (2002) adds that the Government stands to benefit from the capabilities of ICT in carrying out its operations if ICT is sufficiently adopted in the Ministries. The use of ICT by the Government to provide services enhances the effectiveness and efficiency of service delivery and makes services available as and when needed and in the form in which it is required (Gage, 2002).

E-Readiness of the Government refers to the ability of the Government to utilize ICTs to facilitate and enhance the execution of administrative functions (Gichoya, 2005). E-readiness utilizes several components to be effective. These include human resources, ICT infrastructure, policy and legal frameworks and networking capabilities. All the components must be well organized and must work in harmony for the e-readiness to be realized by the Government.

1.1.1 ICT Adoption

Information Communication Technology (ICT) refers to technologies that can accept process, output and communicate data through networked interconnections. They are a set of technologies integrated and suited to perform given tasks. Various devices are used in performing the tasks through ICT which include computers and hand-held devices such as mobile phones and modems. The ICTs integrate hardware, software and connectivity components to deliver the desired services. (Kandiri, 2006). The technologies on which ICTs are run include satellites, cables, TV, computer-aided teleconferencing, intranets and internets as well as software applications (Chisenga, 2006); Hanna, 2003).

Information, communication technology (ICT) has evolved the way we live and carry out our operations. It offers immense opportunities with the capacity to spur social and economic development across the world. ICT is therefore empowering and enabling (Mansell, 2002). Despite the immense capacity of ICTs to contribute to economic development, they remain under-utilized and unused in many countries including Kenya.

The advent of innovations such as ICT has rendered the old and inefficient ways of doing things redundant since ICTs are capable of carrying out a wide variety of tasks within a short time and can perform complex tasks with speed and accuracy (Arora, 2002). There is no doubt that there are limitations on access and diffusion of technology in developing countries. These limitations could be attributed to lack of resources, lack of good policies of governance that marginalized some areas at others' expense Kraemer et al. (2000).

The Kenya Government in its current constitution spells out effectiveness and efficiency in service as a core principle of good governance Kenyan Constitution (2010). The Jubilee Government was also elected on the platform of change from analogue to digital Jubilee manifesto (2012). Senior civil servants are the drivers of the desired change and need to fully utilize the potential presented by ICT. These managers must therefore have the ability and capacity to access and use ICT and harness its potential. The big question is; are the senior civil servants in the State Department for Youth able and willing to adapt to ICT? As the Government adopts ICT to facilitate improvement in service delivery; the ICT needs of its senior civil servants must also be accessed. There has not been a structured training programme to build ICT capacity amongst Government employees and ICT infrastructure is unevenly distributed in the country, Inadequate and uncoordinated ICT policies to govern ICT, investment is relatively new in Kenya with few empirical studies conducted to examine the ICT needs and capacities in public and private entities. Several studies have been conducted on the extent of use of ICT strategy in the companies quoted at Nairobi stocks exchange (NSE) (Waruingi, 2003) while Senaji (2005) carried out a study to examine the factors that influence ICT development in Kenya. Studies on ICT strategy targeting senior civil servants are generally lacking.

1.1.2 IT Initiatives

The Government of Kenya through the Vision 2030 Development Blue Print recognises the importance of ICT in economic development and has therefore initiated major steps to promote its use. One of the major initiatives that the Government is pursuing is to improve ICT infrastructure to bridge the digital divide and lower the cost of communications. The Government is also levelling the ground through the

development and implementation of policy and regulations aimed at attracting investment within the sector. The Government recognises information to be a resource that must be generated, collected, organized, leveraged, secured and preserved to enhance national prosperity (IST Africa, 2018).

There are four mobile operators in Kenya: Safaricom Ltd, Airtel Networks Kenya Ltd (former Zain/Celtel), Equitel Limited and Telkom Kenya Limited (Orange). According to Communication Authority of Kenya statistics, mobile penetration is at 88.7% as of June 2017, with 40.2 million subscriptions compared with 39.1 million in March 2017. Fixed lines have continued to decrease from 72,259 in March 2017 to 71,307 in June 2017. Internet penetration stood at 64.8% with Internet subscriptions at 29.6 million in June 2017 (CMA 2018).

The ICT sector in Kenya has changed dramatically over the past decade transitioning to a burgeoning market. In terms of ICT infrastructure, a national fibre optic infrastructure is in place and four submarine cables are online (TEAMS - East Africa Marine System, SEACOM, EASSy – East African Submarine Systems, and LION Optical Fibre Submarine Cable System). The expanded terrestrial fibre optic cable (5,500km) is complete and linked to the undersea cable. Consequently, the price of international connectivity has dropped from $7,500/month for 2Mbps to $650/month in 2011. The volume of communications has increased almost 300 times. Over the last decade, ICT has outperformed all other sectors growing at an average of 20 percent per year and propelling the combined transport and communications sector into the economy’s second-largest.: Kenya is recognized as having taken a leading role in using ICT in access to financial services, for example, with the advent of M-PESA an application launched by Safaricom in 2007 access to financial services has

significantly increased, with around ¾ of the adult population using mobile money and transfers estimated at US$7billion annually (20 percent of GDP) by phone (IST Africa, 2017).

The number of Higher Education institutions in Kenya has grown considerably over the past three years as a result of greater demand for University Education and the Government policy of enhancing access hence Constituency University Colleges becoming accredited as fully-fledged Universities (Odhiambo, 2018). There are now 30 fully chartered public Universities, 5 public University Constituent Colleges, 6 public research institutes, 17 accredited private Universities, 11 private Universities with letters of interim authority and 5 private University Colleges.

1.1.3 State Department for Youth

The Ministry of Youth Affairs was first established in December 2005 to address youth concerns in the country on the realization that the government may not achieve the Millennium Development Goals (MDGs) without dealing with the many socio-economic challenges facing the Kenyan youth. In 2018, it was merged with other State Departments within the Ministry of Public Service, Youth and Gender (Executive Order Paper No.1, 2018).

The State Department of Youth is found under the Ministry of Public Service, Youth and Gender Affairs which is part of the newly structured Ministries in Kenya under the new constitution. The Ministry houses the State Department of Public Service, the State Department of Youth and the State Department of Gender. These State Departments were previously called Directorates (Executive Order Paper No. 1, 2016). The mandate of the State Department for Youth includes management of youth

policy, overseeing the management of National Youth Service and youth empowerment.

1.2 Statement of the Problem

The Government of Kenya has embraced digitization of its services to ensure efficiency and effectiveness by adopting e-government, e-citizen, Integrated Financial Management Information System (IFMIS), e-procurement, Integrated Personnel and Pension Database (IPPD), submission of tax returns through iTax and also communication through social media platform like Face book, Twitter among others. It however appears that the adoption of ICT is yet to reach its maximum utilization (Magutu &Lelei, 2010). Of interest is the level of ICT knowledge and skills among top-level civil servants in Government Gichoya (2005). The internet has been regarded as a" liberation technology "Diamond, (2010) which facilitates the exchange of political information and the organization of collective action thereby reducing asymmetries between citizens and states in political communication.

Certain factors hinder the successful adoption of ICT. The key among them is resistance to change by civil servants. For instance, in Kenya, Ministries heads, state Departments and Agencies have continually acquired supplies outside the e-procurement systems (Namunane & Karanja, 2015). This has increased corruption loopholes as tenders and businesses are awarded in non-transparent ways. Mwololo and Mitullah (2009). According to Bhatnagar and Singh (2010), corruption has reduced in many governments in developing countries due to the adoption of ICT. E-governance has led to exposing public officials who misallocate scarce resources by

distorting public priorities to facilitate their lifestyles instead of focusing on the ordinary citizens Ogema and Otika, (2013).

There are various types of information that e-governance makes transparent hence reducing chances of corruption Bhatnagar and Singh, (2010). For example, information on rules and procedures that govern services and public officials responsible for different tasks leads to standardized procedures for the delivery of services. This reduces arbitrariness (such as demand for unnecessary documentation) and citizens can resist attempts to delay processing.

There have been several studies on e-governance in Kenya (Muganda & Belle, 2010). Njuru (2011) looks at the implications of e-government on public policy as well as the challenges of adopting technology in Kenya. According to him, the use of technology has contributed to good governance as a result of allowing for public participation in decision making and policy implementation. E-government affects public policy implementation such as transparency and accountability, access to public information, reduction of corruption and favouritism, enhanced political participation and good governance. Challenges to the adoption of ICTs include resistance to change, lack of skills and competencies among Government staff, the digital gap between those who are conversant with technology and those who are not, and security and privacy-related concerns brought about by technology. This study, therefore, sought to establish the determinants of ICT adoption among senior civil servants in the State Department for Youth in Nairobi City County.

1.3 Objectives of the study

The study was guided by the following objectives:

1.3.1 General Objective

To determine the effects of ICT initiatives on adoption among senior civil servants in the State Department for Youth in Nairobi City County.

1.3.2 Specific objectives

i. To find out how facilities/ infrastructure influence adoption of ICT among senior civil servants in the State Department for Youth in Nairobi City County

ii. To establish the extent to which legislation affects the adoption of ICT by senior civil servants in the State Department for Youth Nairobi City County

iii. To investigate how training /capacity building influences adoption of ICT by senior civil servants in the State Department for Youth in Nairobi City County

iv. To establish how top management support affects adoption of ICT senior civil servants level managers in State Department for Youth in Nairobi City County

1.4 Research Questions

i. How do facilities and infrastructures influence the adoption of ICT by senior civil servants in the State Department for Youth in Nairobi City County?

ii. To what extent does legislation affect the adoption of ICT senior civil servants in the State Department for Youth in Nairobi City County?

iii. How does training/capacity building affect ICT adoption among senior civil servants in State Department for Youth in Nairobi City County?

iv. How does top management support influence the adoption of ICT senior civil servants in the State Department for Youth in Nairobi City County?

1.5 Significance of the Study

To begin with, the findings of this study could benefit the Government and all decision-makers who would utilize the findings and recommendations to formulate policies on how to address the gaps in ICT in the Government Ministries, as well as gaps in the allocation of resources. Additionally, Training organizations such as the Kenya School of Government (KSG) would also benefit from the study as a basis for identifying the training needs of senior civil servants as relates to ICT and hence design training programmes to address the challenges.

Similarly, the findings of this study will benefit researchers, students and scholars focusing on ICT initiatives and adoption in providing relevant literature. The study will also help in identifying research gaps and therefore improve their studies on strategic Similarly, the findings of this study will benefit researchers, students and scholars focusing on the strategic planning process and competitive advantage in providing relevant literature. The study will also help in identifying research gaps and therefore provide the basis for further research.

1.6 Scope of the study

The objective of this study was to determine the effects of ICT initiatives on adoption among senior civil servants in the State Department for Youth in Nairobi City County. This study targeted State Department for Youth, Youth Affairs Headquartered in Nairobi City County. This study specifically examined facilities, legislation, training, and top management commitment effect on the adoption among senior civil servants in the State Department for Youth in Nairobi City County. The officers in the State Department in Nairobi County were selected for the study. The study was carried out in Nairobi County since the headquarters of most Government Ministries/entities are located there. The target population of the study included the employees in job groups M, N, P, Q, R and S of which added to a total of 150 respondents of which a sample was taken. The study was conducted from September to December 2019.

1.7 Limitations of the study

The study encountered various limitations which included: minimal resources at the disposal of the researcher might limit the conduct of the research. In this study, the participants were employees who were not easily accessible to answer the research questionnaire. Consequently, the information collection method took longer than anticipated, which delayed the research as the respondent's enumerator collected information. However, the investigator sought an appointment well in advance with the target participants on the best time to complete the questionnaires. The findings of this research might apply to the State Department of Youth and may not be generalized to other State Departments.

1.8 Organization of the project

This research project has several sections or chapters. The first chapter comprises of Background of the study, Problem statement, the objective of the research project, Research questions significance of the study and the scope of the study, Chapter two on literature review is divided into Theoretical review, Empirical review, Critical review of major issues, a summary of literature review and research gaps as well as the conceptual framework. Chapter three is on research methodology and covers the study design, target population, sample design, data collection procedures and instrument, validity and reliability, ethical consideration. Chapter four focuses on data analysis, findings and discussions and the last chapter (Chapter five) are a summary chapter and outlines the summary of findings, conclusion and recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction to Literature Review

This chapter is an analysis of relevant literature on the subject matter of the study. The review concentrated on Theories of ICT adoption, ICT adoption, legislation and ICT adoption, Facilities and ICT adoption the Study's Conceptual Framework and a Critical Review of major issues.

2.2 Theoretical Review

2.2.1 Theories of Adoption

The study was underpinned in the diffusion Innovation Theory by Everett Roger (2003) and the Technology Acceptance Model (TAM) by Davis (1989). According to the Diffusion Innovation Theory, the pattern of adoption of any innovation follows a bell-shaped pattern. The theory identifies five segments involved in the adoption of innovation namely: innovators, early adopters, early majority, late majority, and laggards. The innovators are the initial adopters of innovation. The innovators are young and are willing to take risks. Mostly, the adopters have higher social class, are economically endowed and are closer to the source of the innovation. Due to their economic ability, they are capable of absorbing risks should the innovation fail to materialize. Early adopters are individuals or groups with high social class and have a high degree of opinion leadership, advanced education and have a wider choice in adoption than the innovators. The early majority adopt an innovation after a relatively long time and tend to be slower in technology adoption.

They are of average social status and do not hold high opinion leadership positions. The late majority adopt an innovation after a large proportion of members of the society have done so. They demonstrate a high degree of scepticism and have very little opinion leadership skills. They are of below-average social status and very little financial lucidity. Finally, the laggards who make up 16% are the last to adopt an innovation. Individuals in this category have no opinion leadership, are risk-averse and are resistant to change. The individuals in this category are rigid and conservative and tend to be advanced in age. They have the lowest financial lucidity and are only in contact with a small circle of friends and relatives. Adoption of Technology among senior Civil Servants is largely determined by these adopter segments where the young employees are the first to adopt an innovation while the older ones are more rigid and resistant to change.

The technological Acceptance Model (TAM) by Davis (1989) attempts to describe how users of technology accept, adopts and use technology. It postulates that the acceptance of technology among the users is determined by the perceived ease of use and perceived usefulness of the technology by the users. Perceived usefulness is determined by the perceived ease of use of the technology. Some of the senior civil servants in the State Department for Youth may not perceive an Information system as useful and therefore may not adapt it. If the senior civil servant perceives the Information system to be free of effort, the adoption of the system is embraced but if it's found to be complicated to use, resistance may develop.

2.3 Empirical Review

According to past research, the rate of adoption of ICT is still slower than expected given the proven importance of ICT in economic development and increased effectiveness and efficiency in performing tasks and operations in the adopting organizations (Pavic, et al. (2007). Several barriers to adoption of ICT in organizations have been identified to include among others the resistance to change, lack of skills and competence among the users, ignorance about the potential advantages of ICT and shortage of ICT resources (Blackburn and Athayde, (2000); Cavalcanti, (2006); Ndubisi & Jantan, (2003); Utomo, (2001).

Several studies have focused on specific aspects of ICT adoption such as internet adoption and established that factors such as competition, external pressures from suppliers, buyers, competitors, the government play a major role in compelling organizations to adopt and utilize ICT in their operations to comply with requirements (Daniel & Wilson, (2002); Dasgupta, (2000); Lai & Hsieh, (2007); Scupola, (2003). Other studies have focused on firm-level factors affecting ICT adoption and utilization such as management support, resistance to change, user competence, financial and infrastructural factors and user attitudes. Lucchetti and Sterlacchini (2004) while examining the firm-level characteristics affecting ICT adoption found out that technical skills, financial resources and firm characteristics as key determinants of ICT adoption and utilization among financial institutions.

A recent study by Seyal et al. (2007) found out that government support, top management support, and perceived usefulness and benefits are key determinants that influenced ICT adoption and utilization among firms. Only a few studies have studied the relationship between ICT skills and the adoption of ICT. Shiels et al. (2003in a

study found out that ICT capability and ICT specific skills among the firm owners had a significant impact on the adoption and utilization of ICT in small firms.

2.3.1 Physical Facilities and ICT adoption

The term facility refers to something that permits the easier performance of an action, course of conduct. Availability of physical facilities for use in Information Technology in the State Department for Youth greatly influenced the adoption of Information Technology by top managers in the Ministries. A study by Odedra (1993) found out that the majority of developing countries have limited application of ICT within the public sector as a result of a lack of skilled human resources and inadequate ICT infrastructure. Further, he found out that lack of adequate financial resources alone does not contribute to the slow adoption of ICT in public institutions but also weak and uncoordinated policy frameworks resulting in duplication and redundancy. The uncoordinated effort has culminated in investments in ICT equipment by various Departments within an organization with little regard to compatibility and versatility of the resources leading to resource wastages.

The Kenyan Government has over the last five years made huge investments towards ICT projects in many public organizations. The financing of the projects has been sourced through private-public partnerships as well as donations from the development partners. Over the last five years, the Kenyan Government has initiated some capital investment towards setting up and installation of ICT infrastructure. The foreign financing is mostly directed to ICT components and the infrastructure while the Government contributes mostly geared towards technical and support as well as the provision of physical infrastructure. (Limo, 2003).

In addition, the Government is also providing integrated ICT applications to Ministries such as the Integrated Financial Management Information System (IFMIS) and the Integrated Personnel and Pensions Database (IPPD). The ICT environment in Kenyan public institutions can be characterized as being mainly donor-funded, low user participation during needs identification, inadequate financing, lack of ICT policy master plants, focus on administrative rather than managerial support and unstable ICT resource investment.

2.3.2 Legislation and ICT adoption

Jones & Kozma as quoted in Hennessy et al (2010), says that National ICT policies can perform several key functions. The ICT policies can provide the basis, vision, set goals and objectives of the operations of the government. In addition, they portend that all the organizations in the country stand to benefit if ICT policies are adopted and implemented in all the parastatals in the Government. According to Nduati & Bowman, quoted in Hennessy et al (2010), despite the formulation of ICT policy in the 1980s in Kenya, the process of institutionalizing ICTs in all public institutions remain incomplete up to date. Kenya inaugurated the National ICT policy in 2006 after many years of dedicated effort. The policy aims at improving the standard of living of Kenyans by focusing on the provision of efficient, accessible, affordable and reliable ICT services to all. The National ICT policy has several modules including broadcasting, Information Technology, postal services and telecommunications. The IT module spells out the objectives and strategies relating to the usage of ICT in the Government. Under these objectives, the Government seeks to encourage the institutions to adopt and utilize ICT to improve the effectiveness, efficiency and quality of service delivery to the populace (Farrell, 2007).

The Ministry of Information Communications and Technology was created in June 2004. by a Presidential Circular No. 1/2004 of September (2004) was charged with the responsibility of developing, managing and administering policy of broadcasting. It was mandated to control the ICT sector and had the vision to spur Kenya into a world-class of excellence in ICT usage. The mission of the Ministry was to develop Kenya into a prosperous and competitive nation by the creation of an environment that enables and encouraged development by expanding the use of ICT. The main function of the Ministry included expanding development of ICT infrastructure in Kenya, developing and adoption of ICT policy, development of the film policy, dissemination of public information expansion of media capacity in Kenya and promotion of ICT programmes in Kenya.

In Kenya, the provision of ICT services is limited to few major towns and the vast rural areas where the majority of Kenyans live are left out. There is an increasing realization that there is a need to ensure universal access to ICT through the development of ICT infrastructure, ensuring that there are adequate ICT resources that are accessible to the majority of Kenyans, awareness creation on the benefits of ICT adoption to the public, development of networks of sharing knowledge at the local level, development of a universal service fund and developing incentives for devolving services to the service providers. To ensure cyber security in Government, the country needs to establish enough legislation and legal framework to curb network security, cyber-crime and terrorism. This will ensure National security against the possible threats which may be perpetrated through the ICT systems through ICT networks. In addition, the country needs to partner with the neighbouring countries to guard against cross border cyber-crimes and insecurities.

There is also a need to establish high-level inspiration, political goodwill and oversight to overcome resistance to change and also ensure that all Government Departments and Ministries adopt and utilize the ICT in all their operations. This top political goodwill ensures that enough resources are set aside for the acquisition of ICT resources and the cultivation of a supportive ICT environment.

2.3.3 Top management commitment and ICT adoption

In Kenya, e-government was established in 2004 and has since been working towards the achievement of an efficient, effective and operational system to support effective and efficient delivery of services to the citizens, promote productivity, encourage public participation in Government and empower all citizens. The e-government programme is a key element enhancing the modernization of the Government in the provision of services. It provides a framework and scope within which collaboration within the public sector, private sector, the Government and the business community can link up and share information seamlessly. In addition, it identifies new strategies of developing knowledge and skills required by public servants towards the realization of new opportunities that ICT can offer such as networking and the internet. Information Technology can lead to improved managerial function. Kagaari, Munene and Ntayi (2010) consider Information Technology one of the factors that influence the improvement of intra organizational communication.

The management sought to break down the obstacles that exist between various departments, involving all employees at all levels and facilitating resource sharing and participatory decision making. This has brought about a paradigm shift from the traditional autocratic style of management to a more collaborative and participatory

management style. The need for personal leadership from top to bottom provided a clear vision, mission and focus in the State Department for Youth. The investment in ICT systems has enabled the Government to adopt a less hierarchical organisational structure to form a more flat, learner, boundary-less structure leading to transformational leadership. Training, management support, budget /cost/resources and awareness are key drivers of Information Technology adoption Smith and Jamieson, (2006).

2.3.4 Training and ICT adoption

Computer training is important for workplaces to ensure skills among the workforce. The State Department for youth has ensured that the employees from the lowest level are computer literate and have the requisite skills for their job through on the job training (Smith and Jamieson, (2006). The concept of on-the-job training is based on the Kaizen principle of continuous improvement which aims at innovating to meet requirements and increase productivity. Kaizen's principle of continuous improvement was initially introduced to the Western countries by Masaaki Imai in his book Kaizen: The Key to Japan's Competitive Success in 1986. Kaizen's continuous improvement concept is based on several guiding principles such as 'good results come from good processes', go see for yourself to grasp the current situation, speak with data, manage by facts, take action to contain and correct root causes of problems, Work as a team. The most notable aspect of Kaizen's concept is the proposition that big results are a result of many small steps accumulated over time. However, this has been misunderstood to mean that kaizen equals small changes. Study of intention to use the digital library, perceived ease of use Hong et al, (2001/2002).

2.4 Critical Review of Major Issues

Kenya is currently engaged to put in place a development initiative that will last the next 25 years. The Kenya Vision 2030 seeks to transform Kenya into a middle-income economy and increase its Global competitiveness geared at attaining high quality for the inhabitants. The initiative aims at producing a double-digit economic growth rate for the country. A study by David Altig and Petel Rapert, (2019) found a significant relationship between Internet use and economic growth. The relationship indicates that 100% of Internet users would be associated with 4% economic growth Khendl *et al*. (2005) there has been an effort by the Government and other Organizations to improve Internet infrastructure, make computers affordable for the citizens and make it easy to access Internet services. The Government has reduced the structural barriers to adoption by deregulation and the fostering of Internet connections. This involves licensing of other data carriers as one of the Governments move to easy Internet accessibility. To remove the monopoly of Telkom as the only internet and data service provider. This move will increase the competition in the industry thereby ensuring competitiveness and provision of a wider variety of products.

Many empirical studies have found a link between environmental factors resulting from increased competition, management of ICT resources and organizational performance (Lee, Lin, & Pai, 2005). A study by Grover, (1993) asserts that environmental factors such as policy, support systems and system-related factors have a huge impact on the rate of adoption of ICT systems. Secondly, changes in competitors' strategies relating to high dependence on ICT resources showed a positive correlation to the adoption of ICT in public organizations (Choe, 2003). Further, the study showed a statistically significant positive correlation between

environmental factors and ICT alignment. Previous studies have shown that this phenomenon is particularly serious for Sub-Saharan African countries including Kenya (Mbarika, Okoli, Byrd, & Datta, 2005). Government Support positively affects Internet adoption and diffusion.

ICT Vendors Support, ICT vendor support is associated with Behavioural intention to use the Internet Kim and Galliers, (2004). Other researchers have found that ICT take-up varies by sector, and this variation depends on the degree to which industry (often Internationally) has developed in terms of ICT use (Hawkins and Principe, 2000; Smallbone and North, 1999; Daniel, 2003). The Government National ICT policy formulation and support is fundamental to utilize ICT to its full potential. There is a scarcity of ICT policies in the African continent (Mbarika, Okoli, Byrd, & Datta, 2005). Jain, (2006), and Kalusopa, (2005) have identified ICT vendor support as one of the External factors related to ICT adoption and diffusion, while the rest include network performance, compatibility, relative advantage, costs, telecommunication infrastructure, marketing efforts by ICT vendors, technology innovation and availability of Internet payment applications.

According to Dwivedi & Lal, (2007), and Arend, (2002) both PC and Internet adoption indicated that socio-economic factors (such as income, level of education, and marital status) and demographic factors (such as age, sex and race/ ethnicity) continue to be the variables most correlated with IT home adoption. The study by Yang and Lee (2003) identified the following socio-economic factors: Race, Income, Geographical location, Education, Age, Gender and Disparity factors that influence the adoption and diffusion of the Internet.

According to the Standish Group Magazine Review (2005), which tracks IT projects success rate, only 29% of ICT projects conducted in 2004 were finalised productively. This could be due to a diversity of causes together with Budget constrictions, too rare people dedicated to the task, hardware bottlenecks as well as network and operating system problems IT project miscarry at the commencement, not the termination due to absence of enough planning. The Government should consider the resources it requires to dedicate to the project, staff involved and the skills required. IT project flops because they are hurried. Many companies nowadays rely on ICT to build a competitive advantage. They speed through development efforts and systems implementation to be the first to market with new, IT-based products, services and capabilities. IT projects fail because their scope is too unwieldy (Morgan, 2006).

2.5 Summary of Literature Review and Research Gaps

Although a large number of IT projects are regularly completed magnificently, it's worth noticing that statistics on IT projects is deficient for example, a study carried out in the UK by Oxford University (2003) found out that 16% of IT projects were completed successfully. In another UK Survey carried out by BSC, only 3 out of over 500 ICT projects studied were successful according to the assessor's criteria. Contextual Gap; Studies have been done on the adoption of Information Technology. This study now focuses on the adoption of Information Technology by senior civil servants in the State Department for Youth in Nairobi City County.

Theoretical Gap; The Diffusion theory Everett Roger (2003) does not address other factors that may influence the adoption of ICT such as attitude, external and internal factors such as availability of software and hardware, internet connection. The critical

analysis shows that no commonly- used theory adequately explains State Department for Youth in Nairobi City County senior civil servants' adoption of ICT because each omits important aspects. An integrated theoretical framework is therefore needed.

Empirical Gap; even though a large number of ICT projects are completed in time and within budget, it's worth noting that data on IT project success is wanting. In Kenya, the implementation of the laptop project by the Jubilee Government for the standard one pupil, Jubilee manifesto (2013) has been faced with challenges such as Power supply; since most of the areas in the rural areas have no access to mains electricity which led to the delay of the implementation of the project. With these, the laptop project was delayed. For the project to be implemented effectively, power, the government must ensure that all the schools are connected to the national grid and that security in the schools is beefed up to ensure the safety of the laptops. Secondly, teachers need to be sufficiently trained and prepared to be able to use the laptops in class. In addition, the government should offer a supportive environment for teachers who do not have ICT competence to acquire the skills and gain proficiency in the use of ICT in teaching.

Knowledge Gap; This study contributed to addressing the knowledge gap that has not been addressed by the preceding studies especially on the ICT adoption in government ministries. The research helped address the challenges of ICT adoption by senior civil servants and will remain a reference point for researchers.

Table 2.1: Summary of the Literature Review and Research Gaps

Authors	The focus of the Study	Research Finding	The focus of the current study
	Adoption of Information Technology by senior civil servants in the State Department for Youth in Nairobi City County	Government support	adoption of Information Technology by senior civil servants in the State Department for Youth in Nairobi City County
Everett Roger (2003)	Diffusion is the process by which an innovation is communicated over time among the participants in a social system.	Adoption to technology is greatly determined by age	adoption of Information Technology by senior civil servants in the State Department for Youth in Nairobi City County
Lee,Lin & Pai (2005)	Influence of technological factors, organizational factors and environmental factors on Information technology planning.	There's a link between environmental factors resulting from competition management of ICT and ICT adoption	adoption of Information Technology by senior civil servants in the State Department for Youth in Nairobi City County
Mbarika,Okoli,Byrd and Datta,(2005)		There's a scarcity of ICT policies in the African continent.	adoption of Information Technology by senior civil servants in the State Department for Youth in Nairobi City County

Source: Researcher, (2019)

2.6 The Conceptual Framework

The research project seeks to document the determinants of ICT adoption among senior civil servants in the State Department for Youth in the Ministry of Public Service, Youth and Gender Affairs in Kenya. It looks at senior civil servants' level of access and use of ICT in the course of delivery of services. The variables in the research project include legislation, availability of ICT facilities/ infrastructure, Government support in training, Demographic factors such as age and gender of the senior civil servants.

Availability of quality ICT infrastructure and appropriate training would result in a high level of ICT use capability, access and utilization of ICT in service delivery. This is further strengthened by appropriate experience in the use of ICT hardware and software. To enhance the meeting of ICT needs of civil servants, Government support is needed through procurement of ICT infrastructure and facilitation of pieces of training. According to Rodgers Technology curve, the younger a manager is, the more quickly he adapts to new technology. Older managers are therefore slow in adopting new technology.

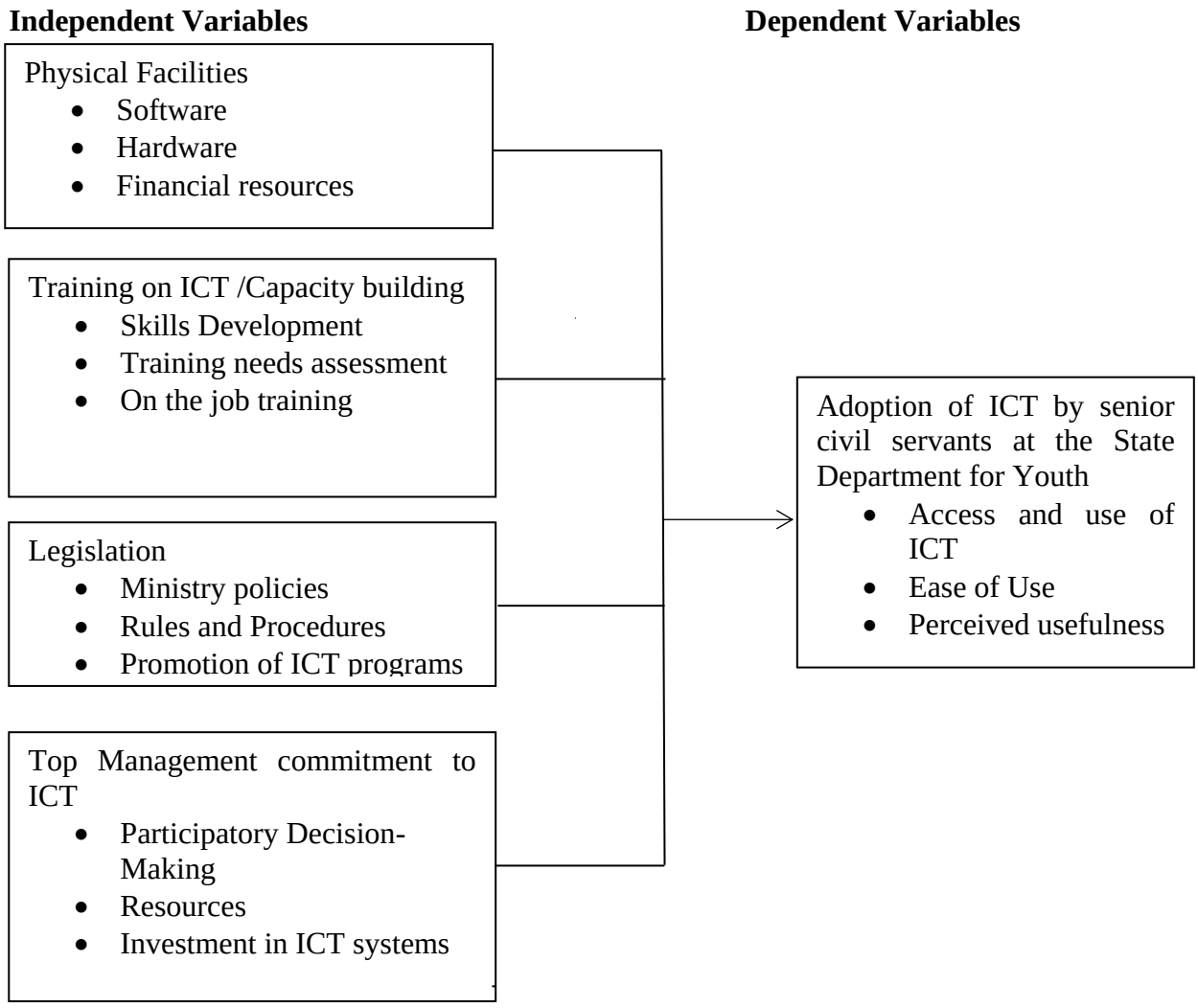

Figure 2.1: Conceptual Framework

Source: Researcher (2019)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction to Research Methods

This chapter has described the method used in the study. The chapter highlights the research design, population, sample design, data collection, data analysis, validity and reliability and logistical and ethical considerations.

3.2 Study Design

The study adopted a cross-sectional descriptive survey design. According to Gay (1981) descriptive survey attempts to collect data from members of a population to determine the current status of that population concerning one or more variables.

3.3 Target Population

The research study was conducted in the State Department for Youth. The State Department for Youth has 150 employees based in Nairobi City County and these formed the population of the study. The target population of the study were the employees in job groups M, N, P, Q, R and S.

The study used a stratified sampling method where three strata were formed with each stratum comprising elements with fairly similar characterizes. For this case of the Directorate of Youth Affairs, officers in Job group M & N are in the lower management level; officers in job groups P& Q are the middle-level management; while those in Job Groups R & S are in the top level of management, hence, the three strata. The first stratum (Job groups M&N) has 87 officers. The second stratum (job groups P & Q) has 50 officers. The third stratum (job groups R& S) has 13 officers.

Table 3.2: Target Population

Strata (N)	Job Group	Population Frequency	Percentage
N_1	**M&N**	87	58
N_2	**P&Q**	50	33
N_3	**R&S**	13	9
P	**TOTAL**	150	100

Source: State Department for Youth, (2019)

3.4 Sample Design

The research study used simple random sampling methods to select a sample from the target population. The sample size consisted of 30% of the target population in each group. The researcher determined the sample size of each stratum using the proportional allocation method. Under the proportional allocation method, the sizes of the samples from the different strata are kept proportional to the size of the strata (C.R. Kothari, 2004 p. 63). The total sample size n = 60 out of the total target population N = 150 officers; number of officers in stratum 1, N_1= 87; the number of officers in stratum 2, N_2 = 50 officers; and number of officers in stratum 3, N_3 = 13 officers. Table 3.1 shows the sampling frame that helped the researcher to determine the sample sizesn_1, n_2 andn_3 for the three strata as in below.

Table 3.3: Sampling Framework

Strata (N)	Job Group	Population Frequency	$n = n_k . P$	Sample Size (n)
N_1	**M&N**	87	45(87/150)	26
N_2	**P&Q**	50	45(50/150)	15
N_3	**R&S**	13	45(13/150)	4
P	**TOTAL**	150	-	45

Source: Researcher, 2019

3.5 Data Collection Procedures and Instruments

In the research study, the researcher collected primary data using the questionnaire method. Questionnaires enable the researcher to collect information more easily and within a reasonable time, Kombo and Tromp, (2006). Questionnaires are also generally preferred for this study because they ensure a wide range of respondents' perceptions. The questionnaire had both open-ended questions and closed questions. Both primary and secondary data were used for the study; secondary data was collected from journals, magazines and the internet.

The researcher obtained an introduction letter from the Graduate school, Kenyatta University and obtained authority from National Commission for Science, Technology and Innovation (NACOSTI) to research in Nairobi City County. The researcher sought authority to research in the State Department through the relevant authorities. The researcher booked an appointment with the respondents to deliver and administer questionnaires in person.

3.6 Validity and Reliability

3.6.1 Validity

The validity of a research instrument is defined as the extent to which a given instrument measures what it purports to measure. The instruments were pretested to ensure clarity. The results of the pretesting study helped to assess whether the instruments of data collection are measuring what they are intended to measure. To ensure the validity of the instrument the researcher shared the information in the questionnaires with the lecturers and colleagues to establish whether the questions are

relevant. The ambiguous questions were discarded and harmonized to ensure that the questionnaire is valid.

3.6.2 Reliability

Reliability of a research instrument is the ability of the instrument to produce consistent results when administered more than once to the same subjects. To determine instruments reliability, the study used the test-retest method through the pilot study was conducted in the State Department for Youth Affairs. The test-retest involves administering the same instrument twice to the same group of subjects. There was a two-week time lapse between the first test and the second. The same questionnaires were administered to the respondents. Pearson's product-moment correlation coefficient (PPMCC) was used. It is a measure of the linear correlation (dependence) between two variably X and Y giving a value between +1 and -1 inclusive. After the test-retest of the two sets of instruments, a correlation coefficient was determined. A reliability coefficient of 0.65 or above was acceptable Mugenda & Mugenda, (2003)

3.8 Ethical Considerations

Ethics refer to adherence to set standards regarding morality and legality Saunders, Lewis & Thornhill, (2009). Ethics involve the protection of respondents from any form of abuse, coercion or any other infringement on their right to voluntary participation and other discretions Kombo, (2004).

In compliance with these ethical provisions, permission was sought from authorities for them to allow access to data collection sites i.e. the management. Data collection

started by getting the authority to collect data through an introduction letter from Kenyatta University. A research permit and letter of authority were then obtained from the National Council of Science, Technology and Innovation (NACOSTI). The research was designed, reviewed and undertaken to ensure integrity and quality.

Research subjects were informed fully about the purpose, methods and intended possible uses of the research, what their participation in research entails and what risks, if any, are involved. The anonymity of respondents was respected. Research participants only participated voluntarily, free from any coercion. Any harm to research participants was avoided. The independence of research was clear and any conflicts of interest or partiality were explicit.

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents data analysis, findings, interpretation and discussion. The purpose of the research study was to investigate the effect of Information Technology initiatives on adoption among senior civil servants in the State Department for Youth in Nairobi City County, Kenya. Besides the response rate and demographic information, the chapter is organized into sections based on research variables including the adoption of ICT, facilities/infrastructure, legislation, training/capacity building, and top management

4.2 Response Rate

Table 4.1: Response Rate

Job Group	Sample Size	Responses	Response Rate
M&N	26	23	88.5%
P&Q	15	12	80.0%
R&S	4	3	75.0%
Total	**45**	**38**	**84.4%**

The researcher administered 45 questionnaires to the employees in job groups M, N, P, Q, R and S in The State Department for Youth, Nairobi City County. As shown in Table 4.1, response rates were found to be 88.5% for M&N, 80.0% (P&Q) and 75.0% for R&S with an overall return rate of 84.4%. Nulty (2008) recommends a response rate of at least 65% for quantitative data if the responses are to be considered adequately unbiased for a sample size of 200 elements or below. Therefore, an overall

response rate of 84.4% was considered adequate to generalize the findings of this study.

4.3 Demographic Information

Demographic information for this study was based on the gender of the respondents, age bracket, highest academic qualifications, numbers of years served in the organization, as well as the current position in Nairobi City County.

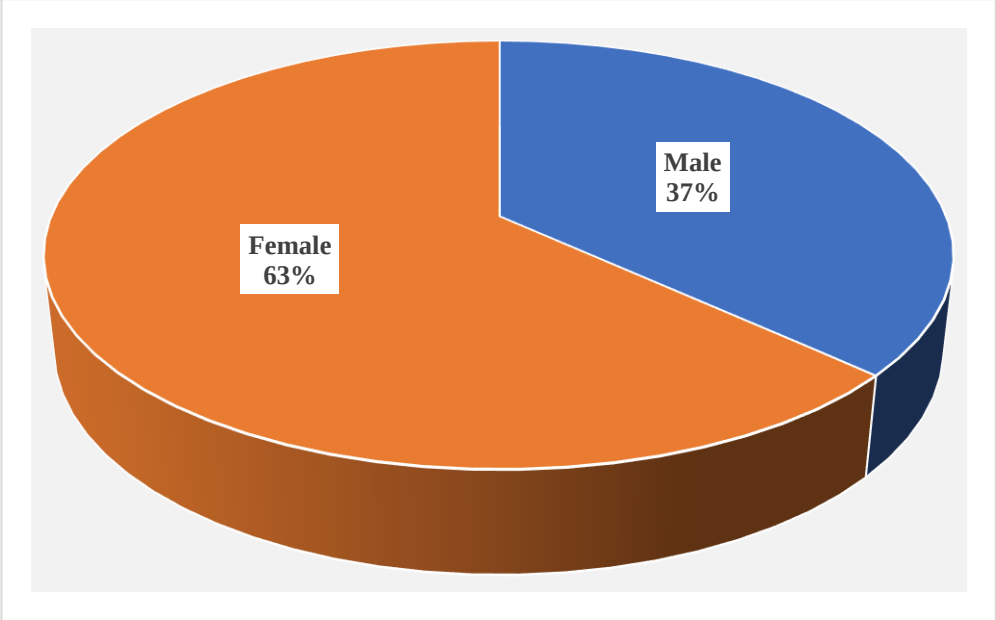

Figure 4.1: Gender of the respondents

As shown in Figure 4.1, female respondents (63%) were the majority with their male colleagues being 37 percent. This implies that the youth department in Nairobi City County is highly represented by female civil servants.

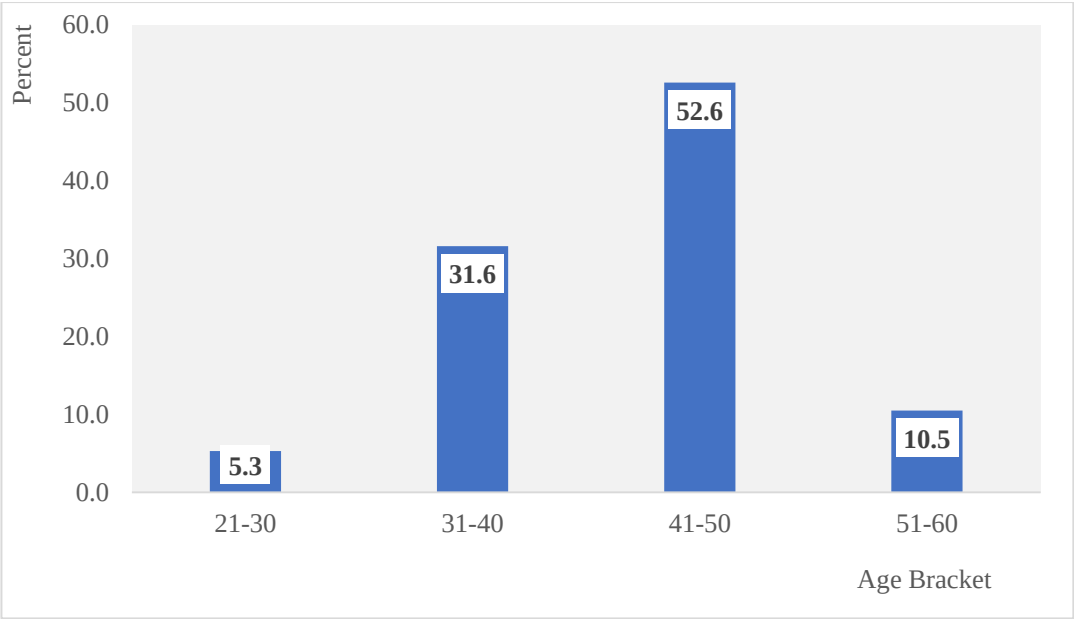

Figure 4.2: Age bracket of the respondents

Figure 4.2 illustrates the age bracket of the bracket. It was found that the majority (52.6%) were aged between 41 and 50 years. Other age brackets included 31-40 years (31.6%), 21-30 years (5.3%) and over 50 years (10.5%). This implies that the majority of senior civil servants in the State Department for Youth in Nairobi City County are aged at least 40 years. This distribution is in line with expectations given that employees will have to go through different ranks before they attain senior positions and thus their age will have advanced in tandem.

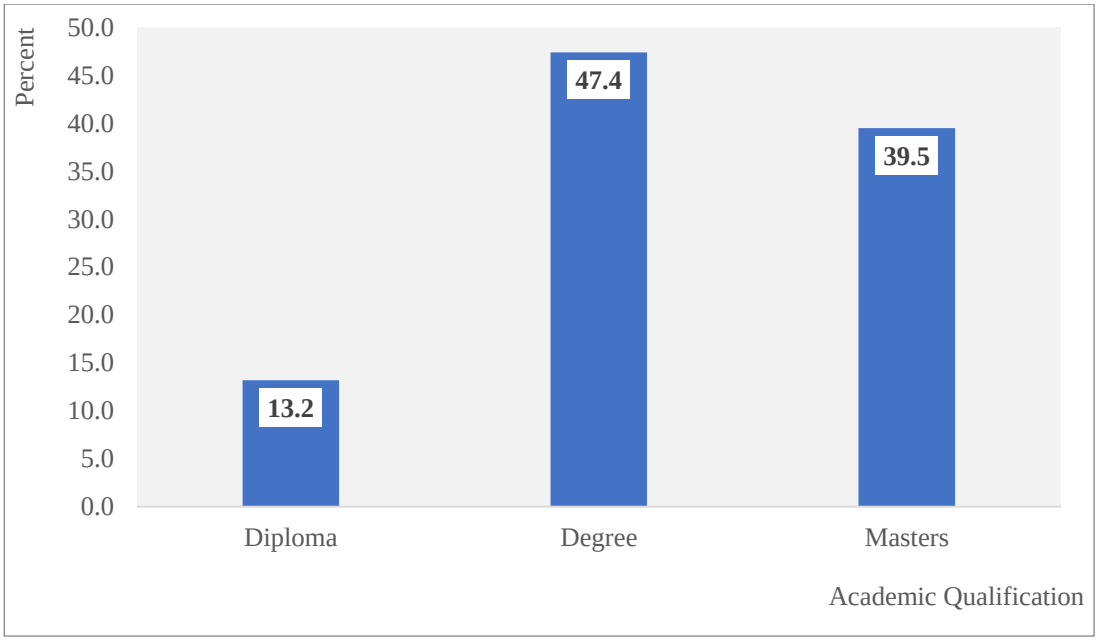

Figure 4.3: Highest academic qualifications of the respondents

On the highest academic qualifications, Figure 4.3 shows that 39.5% of the respondents had Masters with 47.4% being holders of the first degree. The remaining 13.2% had a diploma. This implies that the majority of senior civil servants in the State Department for Youth in Nairobi City County have at least a bachelor's degree. An advanced academic qualification could form an ideal ingredient for effective Information Technology initiatives that would in turn lead to efficiency in ICT adoption.

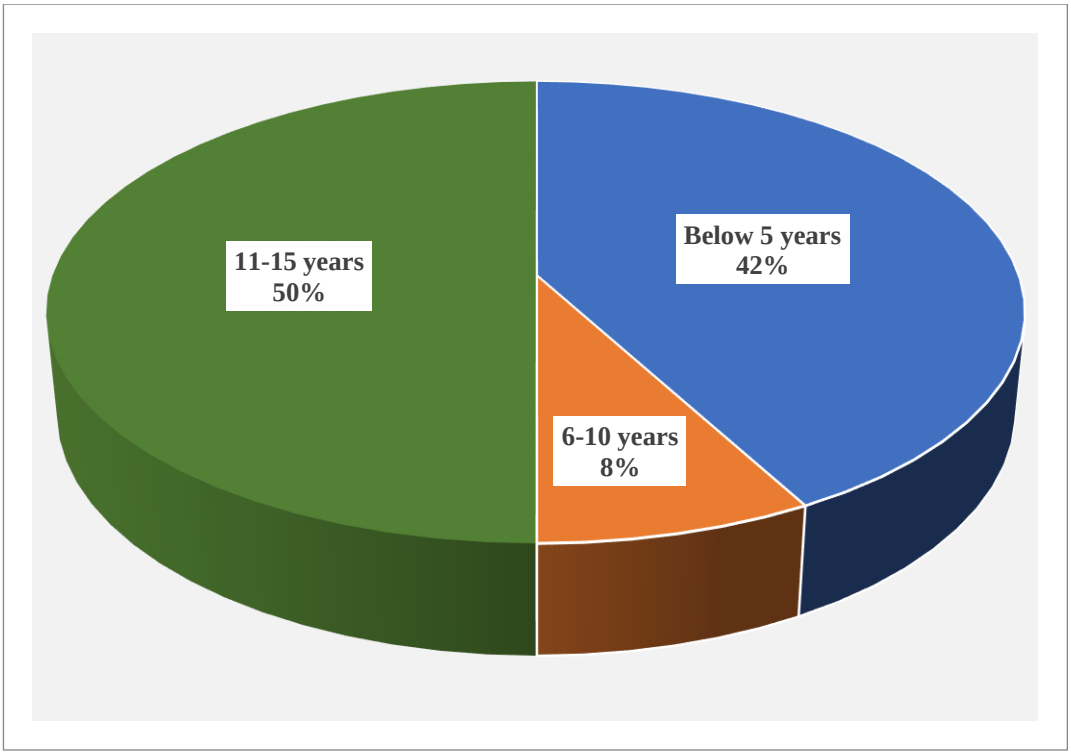

Figure 4.4: Number of years served in the organization

Regarding the number of years served in the organization, Figure 4.4 shows that half (50%) of the respondents had served for 11-15 years with 42% having been with the State Department for Youth for below 5 years. Only 8 percent of the respondents had served for between 6 and 10 years. This indicates that the majority of the senior civil servants in the Youth Department in Nairobi City County have served for over 10 years. This can be termed as a relatively long time, enough for respondents to sufficiently articulate Information Technology initiatives in the youth department and therefore adequately address the research questions for this study.

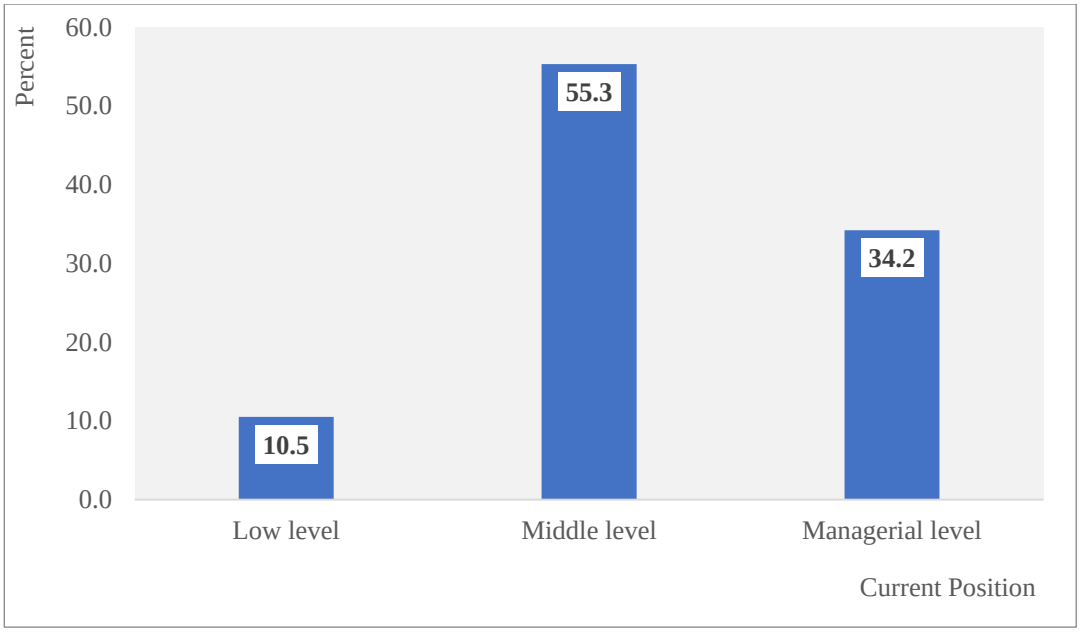

Figure 4.5: Current position in the State Department for Youth

On the current position in the State Department for Youth in Nairobi City County, Figure 4.5 shows that a majority of 55.3% were in the middle-level position with a further 34.2 percent being in managerial level. Others (10.5%) were in low-level positions. This implies that the majority of senior civil servants in the Youth Department in Nairobi City County are either in middle-level positions or managerial positions. Servants in senior positions are normally entrusted with organizational decision making and thus respondents for this study under their positions could be directly involved in the development of information technology initiatives at the Youth Department in Nairobi City County a fact that enables them to address the current study's objectives.

4.4 Adoption of ICT

Adoption of ICT was based on whether service delivery computerized in the State Department for Youth in Nairobi City County as well as the extent of tendency in adoption of ICT as presented in Figure 4.6 and Figure 4.7.

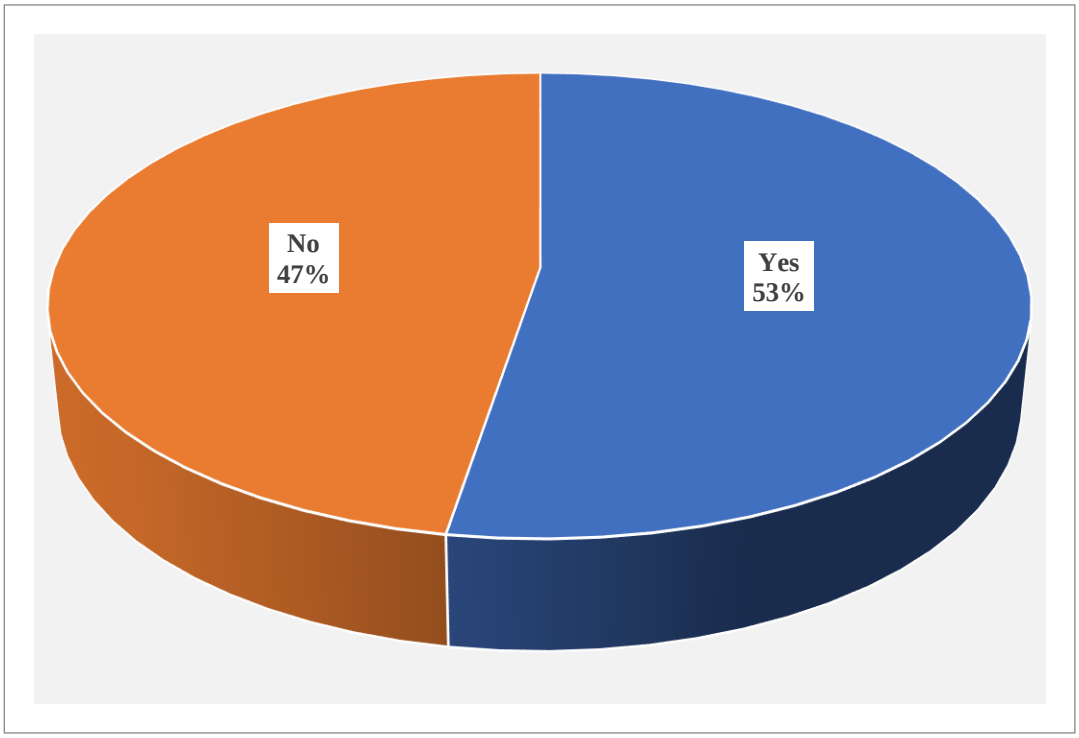

Figure 4.6: Whether service delivery computerized in the State Department for Youth in Nairobi City County

As shown in Figure 4.6, 53 percent of all the respondents thought that service delivery is computerized in the State Department for Youth in Nairobi City County with 47 percent feeling that there is no computerization at the department.

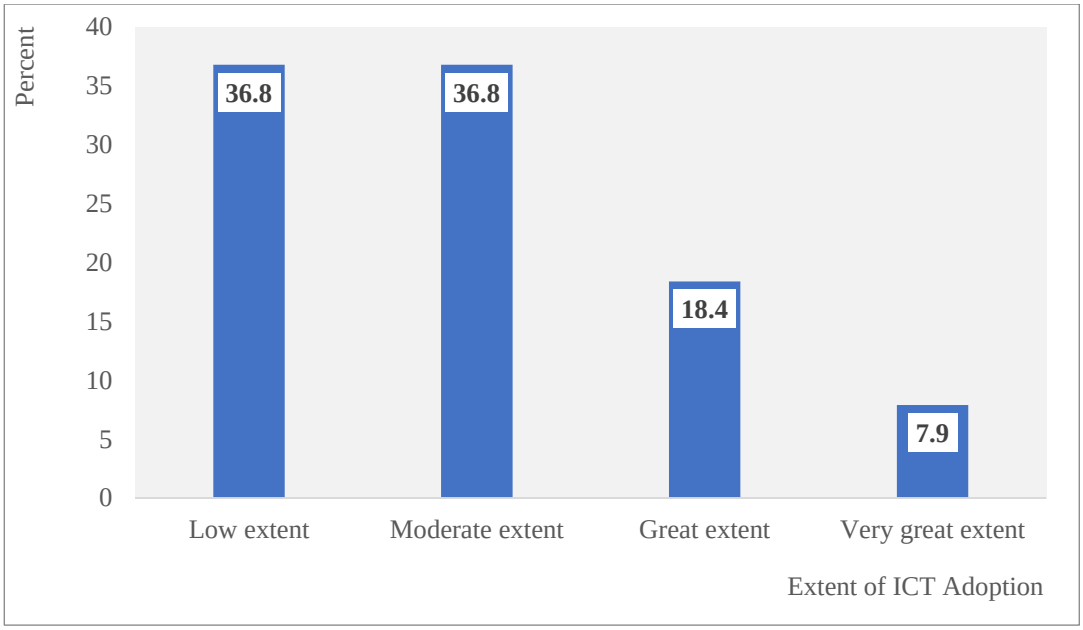

Figure 4.7: Extent of tendency in adoption of ICT

Regarding the extent of tendency in the adoption of ICT, 36.8% of the respondents rated the extent as low with a further 36.8% rating it as moderate. Only 18.4% and 7.9% rated the extent as great and very great respectively. This implies that the extent of ICT adoption at the State Department for Youth in Nairobi City County is below expected standards. This could be contributed by inadequate and uncoordinated ICT policies to govern the ICT investment is relatively new in Kenya with few empirical studies conducted to examine the ICT needs and capacities in public and private entities. Several studies have been conducted on the extent of use of ICT strategy in the companies quoted at Nairobi stocks exchange (NSE) (Waruingi, 2003) while Senaji (2005) carried out a study to examine the factors that influence ICT development in Kenya. Studies on ICT strategy targeting senior civil servants are generally lacking.

4.5 Facilities/ Infrastructure

This section was based on whether there are adequate physical facilities that the Government must provide in form of computer hardware and software, the extent of the adequacy of the physical facilities provided by the Government, whether there are adequate physical facilities that the government must provide in form of computer hardware and software, and the level of respondents' agreement on aspects related to ICT facilities/infrastructure. Figure 4.8, Figure 4.9, Figure 4.10 and Table 4.2 present the information.

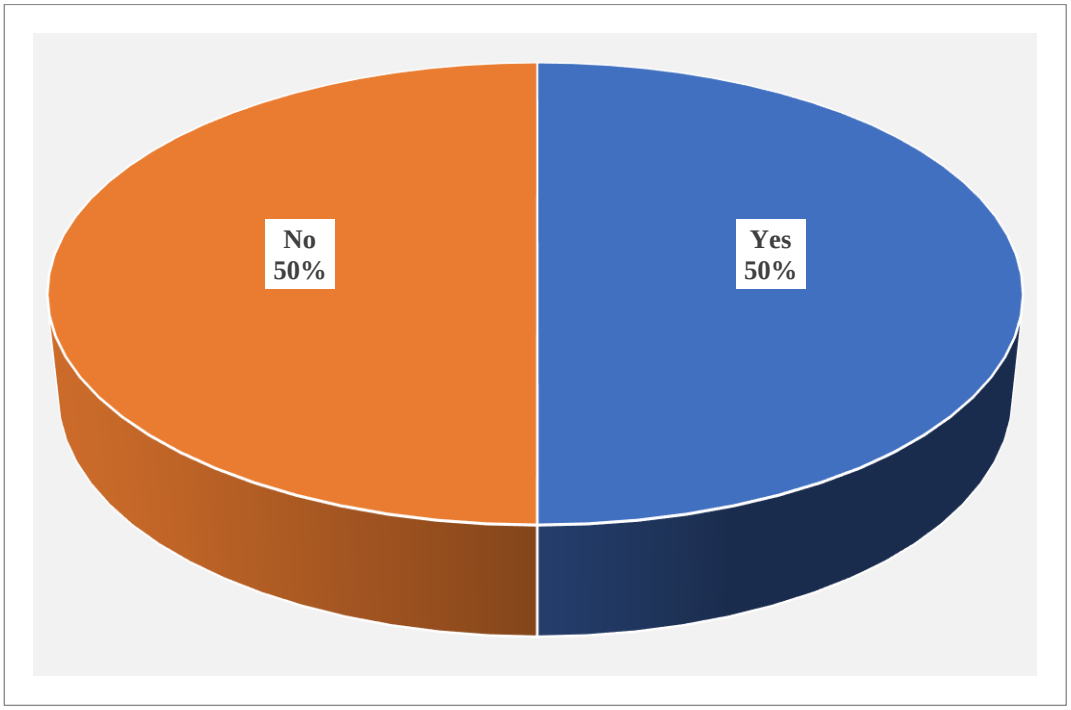

Figure 4.8: Whether there are adequate physical facilities provided by the Government in form of computer hardware and software

Half (50%) of the respondents indicated that there are adequate physical facilities that the government has provided in form of computer hardware and software with the remaining 50 percent citing inadequacies.

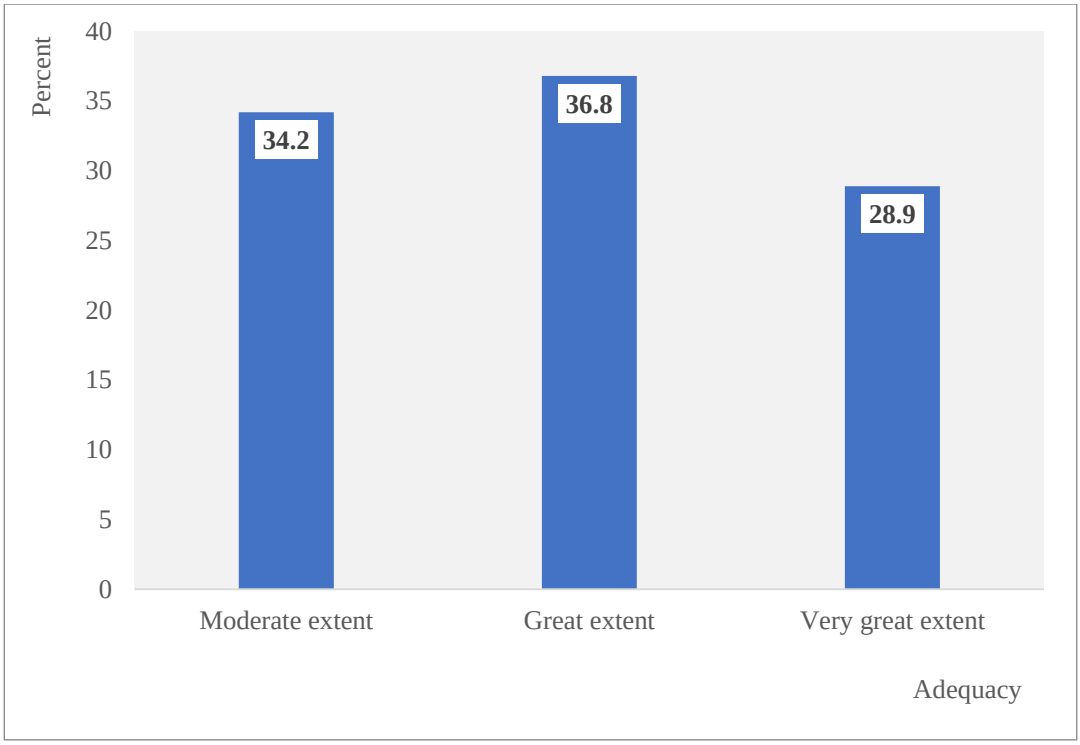

Figure 4.9: Extent of the adequacy of the physical facilities provided by the government

On the extent of the adequacy of the physical facilities provided by the government as indicated in Figure 4.9, 36.8 percent of the respondents opined that the extent is great with 28.9 percent feel that the extent is very great. The remaining 34.2% indicated that the adequacy of the physical facilities provided by the government is moderate.

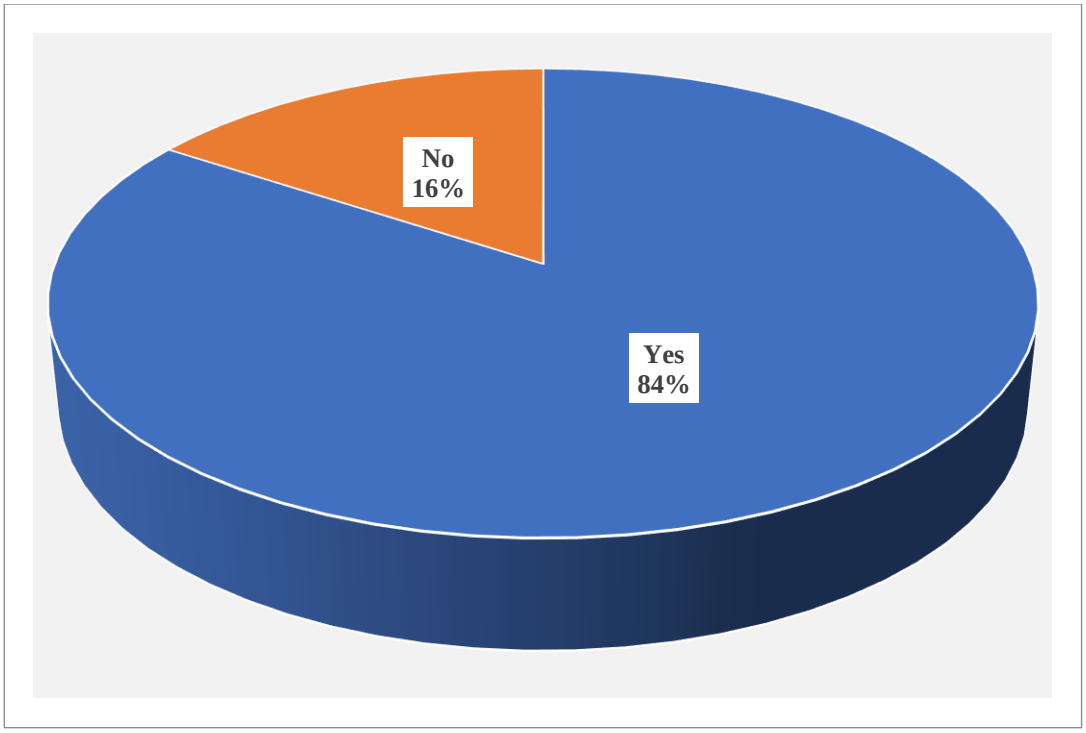

Figure 4.10: Whether there are adequate physical facilities that the government has provided in form of computer hardware and software

Regarding the adequacy of physical facilities that the Government has provided in form of computer hardware and software, an emphatic 84% of respondents confirmed the presence of such facilities with the remaining 16% indicating the facilities are not adequate. Figure 4.10 illustrates the information.

Table 4.2: Level of respondents' agreement on aspects related to ICT facilities/infrastructure

ICT Facilities/Infrastructure	Strongly Disagree	Disagree	Moderate	Agree	Strongly Agree	Mean	Standard Deviation
a) The ICT facilities in the State Department for Youth are up to date and enhance the	23.7	31.6	34.2	10.5	0.0	2.3	0.9

	efficiency of ICT use among senior civil servants.							
b)	The ICT facilities and infrastructure are adequate for use by all the senior civil servants in the Youth Department	10.5	26.3	42.1	18.4	2.7	2.8	1.0
c)	Access to ICT facilities by senior civil servants in the Directorate ensures efficiency and prompt delivery of service to the public.	0.0	10.5	34.2	39.5	15.8	3.6	0.9
d)	Availability of ICT facilities makes work easier and therefore improves the morale of the senior civil servants in the Youth Department,	0.0	0.0	0.0	39.5	60.5	4.6	0.5
e)	ICT Facilities in Government Ministries are well maintained and in good working condition to facilitate service delivery.'	23.7	39.5	21.1	15.7	0.0	2.3	1.0
Average		**11.6**	**21.6**	**26.3**	**24.7**	**15.8**	**3.1**	**1.2**

The level of respondents' agreement on aspects related to ICT facilities/infrastructure was analyzed on a -five-point Likert-type scale with 1 point indicating strongly disagree while 5 points indicated strongly agree. Mean scores and standard deviation were then computed for ease of interpretation. A mean score closer to one indicated that the respondents strongly disagreed with a certain factor with the opposite being true for mean scores close to 5 points. On the other hand, the more the unanimity of responses on a particular factor and vice versa.

From the findings, respondents strongly agreed that the availability of ICT facilities makes work easier and therefore improves the morale of the senior civil servants in the Directorate. (Mean = 4.6, standard deviation = 0.5). In addition, they agreed that access to ICT facilities by senior civil servants in the Directorate ensures efficiency and prompt delivery of service to the public. (Mean = 3.6, standard deviation = 0.9). On the other hand, respondents refuted that, the ICT facilities and infrastructure are adequate for use by all the senior civil servants in the Directorate. (mean = 2.8, standard deviation = 1.0) and highly disagreed that the ICT facilities in the State Department for Youth are up to date and enhance the efficiency of ICT use among senior civil servants. (Mean = 2.3, standard deviation = 0.9). Further, respondents disagreed that ICT facilities in Government Ministries are well maintained and in good working condition to facilitate service delivery. (Mean = 2.3, standard deviation = 1.0). The average mean score was for adequacy of physical facilities/ infrastructure was moderate (3.1) with a standard deviation of 1.2.

The findings in this study correspond to those of A study by Odedra(1993) who found out that the majority of developing countries have limited application of ICT within the public sector as a result of lack of skilled human resources and inadequate ICT infrastructure. Further, he found out that lack of adequate financial resources alone does not contribute to the slow adoption of ICT in public institutions but also weak and uncoordinated policy frameworks resulting in duplication and redundancy. The uncoordinated effort has culminated in investments in ICT equipment by various Departments within an organization with little regard to compatibility and versatility of the resources leading to resource wastages. However, the Financing of ICT projects in Kenya has been sourced through private-public partnerships as well as donations from the Development partners. Over the last five years, the Kenyan Government has

initiated some capital investment towards the setup and installation of ICT infrastructure. The foreign financing is mostly directed to ICT components and the infrastructure while the Government contribution is mostly geared towards technical and support as well as provision of physical infrastructure.

4.6 Legislation

This section was based on the extent to which legislation affect adoption of ICT by senior civil servants as illustrated by Figure 4.11.

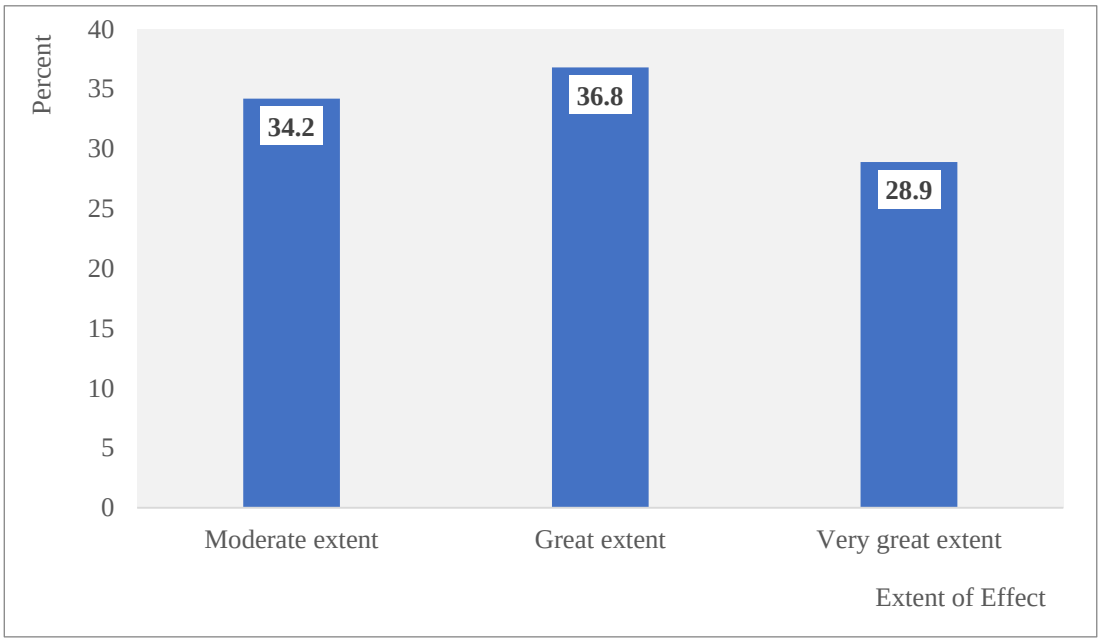

Figure 4.11: The extent to which legislation affect adoption of ICT by Senior civil servants

From the findings, 34.3 percent of the respondents thought that legislations affect the adoption of ICT by senior civil servants to a moderate extent with 36.8 percent indicating that the effect is great. A further 28.9% said that legislation affects the adoption of ICT by senior civil servants to a very great extent. This implies that existing legislation does greatly affect the adoption of ICT by senior civil servants.

Jones & Kozma as quoted in Hennessy et al (2010), says that National ICT policies can perform several key functions. The ICT policies can provide the basis, vision, set goals and objectives of the operations of the Government. In addition, they portend that all the organizations in the country stand to benefit if ICT policies are adopted and implemented in all the parastatals in the Government. According to Nduati & Bowman, quoted in Hennessy *et al*. (2010), despite the formulation of ICT policy in the 1980s in Kenya, the process of institutionalizing ICTs in all public institutions remain incomplete up to date.

4.7 Training/Capacity Building

Training /Capacity Building was based on the level of respondents' agreement on aspects related to training /capacity building as shown in Table 4.3.

Table 4.3: Level of respondents' agreement on aspects related to training/capacity building

Resources and Training	Strongly D.	Disagree	Moderat	Agree	Strongly .	Mean	Standar .
a) There is a positive relationship between training in ICT and civil servants' performance	13.2	5.3	10.5	18.4	52.6	3.9	1.4
b) Availability of resources greatly influences ICT adoption by civil servants	0.0	0.0	0.0	26.3	73.7	4.7	0.4
c) Top management support in the provision of resources and training opportunities for senior civil servants is required to encourage ICT use and adoption	0.0	10.5	18.4	7.9	63.2	4.2	1.1

d)	Training needs assessment is conducted before any training is provided.	28.9	36.9	10.5	7.9	15.8	2.4	1.4
e)	Training equips the senior civil servants with the necessary skills and thus makes work easier and more fulfilling.	0.0	0.0	0.0	28.9	71.1	4.7	0.5
Average		**8.4**	**10.5**	**7.9**	**17.9**	**55.3**	**4.0**	**1.3**

The level of respondents' agreement on aspects related to training /capacity building was analyzed on a -five-point Likert-type scale with 1 point indicating strongly disagree while 5 points indicated strongly agree. Mean scores and standard deviation were then computed for ease of interpretation. A mean score closer to one indicated that the respondents strongly disagreed with a certain factor with the opposite being true for mean scores close to 5 points. On the other hand, the more the unanimity of responses on a particular factor and vice versa.

From the findings, respondents strongly agreed that the availability of resources greatly influences ICT adoption by civil servants (mean = 4.7, standard deviation = 0.4) adding that training equips the senior civil servants with the necessary skills and thus makes work easier and more fulfilling. (Mean = 4.7, standard deviation = 0.5). Respondents were also insistent that top management support in the provision of resources and training opportunities for senior civil servants is required to encourage ICT use and adoption (mean = 4.2, standard deviation = 1.1) accounting that, there is a positive relationship between training in ICT and civil servants' performance (mean = 3.9, standard deviation = 1.4). The respondents however expressed reservations that, training needs assessment is conducted before any training is provided (mean = 2.4, standard deviation = 1.4). The average mean score was 4.0 with a standard deviation

of 1.3 indicating that training and capacity building greatly affects the adoption of ICT by the State Department of Youth in Nairobi City County.

Training and capacity building are important for workplaces to ensure skills among the workforce. These findings are in line with Kaizen's principle of continuous improvement concept which is based on several guiding principles such as 'good results come from good processes', go see for yourself to grasp the current situation, speak with data, manage by facts, take action to contain and correct root causes of problems, Work as a team. The most notable aspect of Kaizen's concept is the proposition that big results are a result of many small steps accumulated over time. However, this has been misunderstood to mean that kaizen equals small changes.

4.8 Top Management Support

The effect of top management on the ICT adoption section was based on whether management support influences ICT adoption among Senior Civil Servants as illustrated in Figure 4.12.

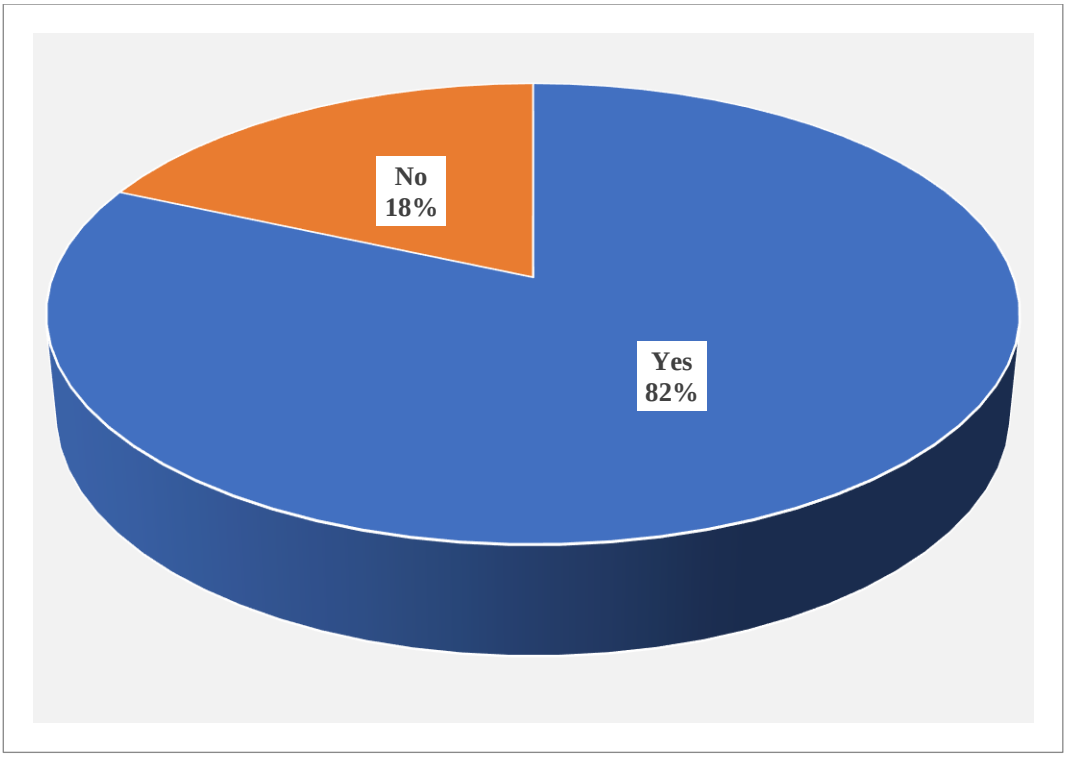

Figure 4.12: The management support influences ICT adoption among Senior Civil Servants in the State Department for Youth

From the findings, a vast majority (82%) affirmed that the management support influences ICT adoption among Senior Civil Servants with only 18 percent having contrary opinions. These findings indicate that the need for personal leadership from top to bottom provides a clear vision, mission and focus in the State Department for Youth Affairs. The investment in ICT systems has enabled the Government to adopt a less hierarchical organizational structure to form a flatter, learner, boundary-less structure leading to transformational leadership.

4.9 Inferential Statistics

Inferential statistics were determined entailing correlation coefficient, coefficient of determination (R-Square), analysis of variance as well as regression coefficients. Test for autocorrelation was also performed.

4.9.1 Correlation Coefficient

Table 4.4: Correlation Coefficients for Variables Relationship

	Facilities/infrastructure	Legislation	Training/capacity building	Top management support
Facilities/infrastructure	1	0.617	0.662	0.617
Legislation	0.617	1	0.812	0.772
Training/capacity building	0.662	0.812	1	0.677
Top management support	0.617	0.772	0.677	1

The highest correlation was found between legislation and training/capacity with a correlation coefficient of 0.812. Other major correlations were between training/capacity building and top management support (0.772), training/capacity building and legislation (0.812) as well as top management and training/capacity building.

4.9.2 Coefficient of Determination

Table 4.5: Coefficient of Determination (R^2)

			Std. Error of the	Change Statistics					Durbin-Watson
R	R^2	Adjusted R^2	Estimate	R^2 Change	F Change	df1	df2	Sig. F Change	
.989	.978	.976	.04655	.978	374.029	4	33	.000	2.011

Results in Table 4.5 show an R-Square of 0.978 with the standard error of estimate being 0.146. This implies that collectively, facilities/infrastructure, legislation, training/capacity building, and top management support explain changes in ICT

adoption up to 97.8 percent. This is significant prediction given that p-Value = 0.000<0.05 when df1 =4 and df 2 33 at 5% significant level. The researcher also tested for autocorrelation using Durbin Watson statistic which is a test for autocorrelation in the residuals from statistical regression analysis and always between 0 and 4. The Hypotheses for the Durbin Watson test are H_0 = No first-order autocorrelation, and H_1 = First order correlation exists, and (For a first-order correlation, the lag is a one-time unit).

A **rule of thumb** is that test statistic values in the range of 1.5 to 2.5 are relatively normal. Values outside of this range could be cause for concern. Field (2009) suggests that values under 1 or more than 3 are a definite cause for concern. For the current study, the Durbin Watson statistic was 2.011 which falls within the relatively normal range and therefore there was no presence of autocorrelation in the residuals from a regression analysis.

4.9.3 Analysis of Variance

Table 4.6: Analysis of Variance (ANOVA)

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	3.242	4	.811	374.029	.000
Residual	.072	33	.002		
Total	**3.314**	**37**			

a. Predictors: (Constant), facilities/infrastructure, legislation, training/capacity building, top management support
b. Dependent Variable: ICT adoption

As shown in Table 4.6, F-Calculated (4, 33) = 374.029>F-Critical (4, 33) = 2.916 at 2-tail test and 95% confidence level. Results also show p-Value = 0.000 < 0.05. This further confirms that at composite level, the predictors (facilities/infrastructure,

legislation, training/capacity building, and top management support) significantly influence ICT adoption.

4.9.4 Regression Model

Table 4.7: Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	.051	.089		.574	.570
Facilities/infrastructure	1.026	.055	1.016	18.505	.000
Customer Management System	.037	.037	.053	1.003	.003
Training/capacity building	.047	.043	.048	1.098	.028
Top management support	.044	.033	.063	1.313	.019
a. Dependent Variable: ICT adoption					

Findings as shown in Table 4.7 express that, when facilities/infrastructure, legislation, training/capacity building, and top management support are individually increased by one unit, ICT adoption would increase by 1.026, 0.037, 0.047, and 0.044 units respectively. The opposite is also true. When all the explanatory variables are held constant, ICT adoption will remain at 0.051 out of 5 scores. This indicates that facilities/infrastructure, legislation, training/capacity building, and top management support all significantly influences ICT adoption given p-Value <0.05 for each. This can be summarized by the following model: $\boldsymbol{Y = 0.051 + 1.026X_1 + 0.037X_2 + 0.047X_3 + 0.044X_4}$ where Y = ICT adoption and X_i are the explanatory variables.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, conclusion and recommendations. The chapter also gives suggestions for further studies

5.2 Summary of Findings

The purpose of this research was to survey the determinants of ICT adoption among senior civil servants in State Department for Youth and establish the extent to which they can adapt ICT and its effect on their performance. The study objectives were to establish the extent to which legislation affects the adoption of ICT, to investigate how demographic factors such as gender and age influence adoption of ICT and to determine how top management support relates to the adoption of ICT. Findings from this study indicate that service delivery is computerized in the State Department for Youth in Nairobi City County. In addition, 36.8% of the respondents rated the extent of tendency in the adoption of ICT as low with a further 36.8% rating it as moderate.

The study findings indicated that there are adequate physical facilities that the government has provided in form of computer hardware and software with the remaining 50 percent citing inadequacies. Likewise, 36.8 percent of the respondents opined that the extent is great with 28.9 percent feel that the extent is very great. Regarding the adequacy of physical facilities that the government has provided in form of computer hardware and software, an emphatic 84% of respondents confirmed the presence of such facilities with the remaining 16% indicating the facilities are not

adequate. Respondents strongly agreed that the availability of ICT facilities makes work easier and therefore improves the morale of the senior civil servants in the State Department for Youth. When the officers are provided with the required facilities and tools to perform a certain task, it makes it easier for them to work and this boosts their morale and ensures better results. In addition, they agreed that access to ICT facilities by senior civil servants in the State Department for Youth ensures efficiency and prompt delivery of service to the public.

On the effect of legislation on ICT adoption, 34.3 percent of the respondents believed that legislations affect the adoption of ICT by senior civil servants to a moderate extent with 36.8 percent indicating that the effect is great. A further 28.9% said that legislation affects the adoption of ICT by senior civil servants in the State Department for Youth Affairs to a very great extent.

Respondents strongly agreed that the availability of resources greatly influences ICT adoption by civil servants, adding that training equips the senior civil servants with the necessary skills and thus makes work easier and more fulfilling. Respondents were also insistent that top management support in the provision of resources and training opportunities for senior civil servants is required to encourage ICT use and adoption accounting that, there is a positive relationship between training in ICT and civil servants' performance. A vast majority (82%) affirmed that the management support influences ICT adoption among Senior Civil Servants with only 18 percent having a contrary opinion.

5.3 Conclusions of the Study

Based on the study findings it was concluded that various factors such as software, hardware and financial resources were found to influence adoption significantly. It then can be concluded that the State Department of Youth should always update their physical facilities for enhanced efficiency of ICT use among senior civil servants since the availability of ICT facilities makes work easier and therefore improves the morale of the employees.

The study further concludes that various activities such as skills development, training need assessment and on the job training among others were considered. To enhance the meeting of ICT needs of civil servants, Government support is needed through procurement of ICT infrastructure and facilitation of pieces of training. According to Rodgers Technology curve, the younger a manager is, the more quickly he adapts to new technology. Older managers are therefore slow in adopting new technology. Therefore, the availability of quality ICT infrastructure and appropriate training would result in a high level of ICT use capability, access and utilization of ICT in service delivery. This is further strengthened by appropriate experience in the use of ICT hardware and software.

Further factors such as ministry policies, rules and procedures, and promotion of ICT programs among others were considered. It then can be concluded from the findings that legislation is critical to the adoption of ICT initiatives among senior civil servants at the State Department of Youth. The final focus is on top management commitment and ICT adoption with activities such as participatory decision-making, resources, investment in ICT systems, among others. The findings indicate that they are important and it can be concluded that the commitment of the top management is

vitally significant in the adoption of ICT initiatives among senior civil servants at the State Department of Youth.

Financial implications and their influence on the adoption of ICT on service delivery received strong sensitizations from the respondents. Most of the respondents felt issues like the affordability of computer hardware and software prevents residents of the County to fully adopt ICT. The cost of transactions was also seen as a major factor that influences the adoption of ICT on service delivery. When mobile money and online transactions have high charges, most people in the County prefer paying for services using cash, this reduces the number of people using ICT in service delivery.

Availability of ICT infrastructure was felt to play a major role in influencing the adoption of ICT in service delivery. Availability of ICT gadgets like computers and servers makes it easy for residents to access information hence more adoption of ICT in service delivery. Apart from the availability of gadgets, networking connectivity and specifically fibre optics connectivity makes it easier for members of the County to access information online. With the County transferring most of its manual operations to online, better connectivity will enable more residents to easily access information online.

5.4 Recommendations of the Study

As part of the recommendations, there is a need to ensure that there are adequate, accessible and user-friendly ICT infrastructure/facilities to ensure that service delivery is enhanced in an organization. There is also a need to establish high-level inspiration, political goodwill and oversight to overcome resistance to change and also ensure that all Government Departments and Ministries adopt and utilize the ICT in

all their operations. This top political goodwill ensures that enough resources are set aside for the acquisition of ICT resources and the cultivation of a supportive ICT environment. Training and capacity building on Information Technology initiatives and ICT adoption should also be enhanced in organizations to make the effective and efficient achievement of the objectives that the technology was intended to accomplish. There should also be a commitment by the top management because ICT initiatives would require dedicated implementation, monitoring and evaluation. Moreover, policymakers should formulate policies that would assist easy adoption of ICT.

5.5 Suggestions for Further Studies

This study was carried out in the State Department of Youth in Nairobi City County. The researcher recommends this study be extended to other departments in the same county and other counties for comparative purposes. Other variables not included in this study should also be evaluated.

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APPENDICES

APPENDIX I: LETTER OF INTRODUCTION

Rose Wanjiru Wanjohi,
P.O. Box 43844-00100,
Nairobi, Kenya.
Phone Number: 0722420712.

Dear respondent,

RE: INVITATION TO PARTICIPATE IN A RESEARCH

I am a student at Kenyatta University pursuing a Master's in Business Administration (MBA) Strategic Management Option. I am researching ICT adoption by senior civil servants in the State Department for Youth in the Ministry of Public Service, Youth and Gender in the National Government Nairobi City County. Kindly spare some time to fill this questionnaire to facilitate the research.

This questionnaire is being administered purely for research purposes and any information provided will be treated with confidentiality. Kindly go through the questions carefully and answer them as precisely as possible.

Thank you.

Rose Wanjiru Wanjohi

APPENDIX II: RESEARCH QUESTIONNAIRE

Please provide your responses to the following questions. Use a tick or cross where necessary

SECTION A: General Information

Please tick the appropriate answer

1. Gender:

   Male [ ] Female [ ]

2. Age Bracket

   21-30 [ ] 31-40 [ ]

   41-50 [ ] 51-60 [ ]

3. Highest academic qualifications

   KCSE [ ] Certificate [ ]

   Diploma [ ] Degree [ ]

   Masters [ ]

4. Number of years you have served in the organization

   Below 5 years [ ] 6-10years [ ]

   11-15 years [ ] 16-20 [ ]

   Over 20 [ ]

5. Which is your current position?

   Low-Level [ ]

   Middle-Level [ ]

   Managerial-Level [ ]

SECTION B: ICT Adoption

1. Are transactions of service delivery computerized in the State Department for Youth in Nairobi City County?

   Yes [ ] No [ ]

2. Adoption of ICT is normally important to enhance service delivery in the State Department for Youth in Nairobi City County? To what extent has there been this tendency to adopt ICT?

   [ ] Very great extent [ ] Great extent [ ] Moderate extent

   [ ] Low extent [ ] Very low extent

3. Kindly indicate your level of agreement to the following statements on civil servant ICT training where 5 = Strongly Agree; 4 = Agree; 3=Moderate; 2 = Disagree; and 1=Strongly Disagree

S/No.	**Resources and Training**	5	4	3	2	1
i.	There is a positive relationship between training in ICT and civil servants' performance					
ii.	Availability of resources greatly influences ICT adoption by civil servants					
iii.	Top management support in the provision of resources and training opportunities for senior civil servants is required to encourage ICT use and adoption					

iv.	Training needs assessment is conducted before any training is provided.					
v.	Training equips the senior civil servants with the necessary skills and thus makes work easier and more fulfilling.					

SECTION C: ICT and physical Facilities/Infrastructure

1. To adopt ICT, the government must provide physical facilities in form of computer hardware and software. Are such facilities adequate?

   Yes [ ] No [ ]

2. If Yes, to What Extent?

   [ ] Very great extent [ ] Great extent [ ] Moderate extent

   [ ] Low extent [ ] Very low extent

3. Do you think facilities influence the adoption of ICT in the State Department for Youth
4. Suggest what can be done in the Directorate on facilities to enhance IT
5. Kindly indicate your level of agreement to the following statements on ICT Facilities /Infrastructure and civil servants' ICT adoption; where 5=Strongly Agree;4=Agree; 3= Moderate; 2 = Disagree; and 1=Strongly Disagree.

S/No.	ICT Facilities/Infrastructure	5	4	3	2	1
i.	The ICT facilities in the State Department for Youth are up to date and enhance the efficiency of ICT use among senior civil servants.					
ii.	The ICT facilities and infrastructure are adequate for use by all the senior civil servants in the Directorate.					
iii.	Access to ICT facilities by senior civil servants in the Directorate ensures efficiency and prompt delivery of service to the public.					
iv.	Availability of ICT facilities makes work easier and therefore improves the morale of the senior civil servants in the Directorate.					
v.	ICT Facilities in Government ministries are well maintained and in good working condition to facilitate service delivery.					

6. Do you think management support influences ICT adoption among senior Civil Servants in the State Department for Youth in Nairobi City County?

   Yes [ ] No [ ]

7. To what extent does legislation affect the adoption of ICT by senior civil servants in State Department for Youth in Nairobi City County?

[ ] Very great extent [ ] Great extent [ ] Moderate extent

[ ] Low extent [ ] Very low extent