

**INFLUENCE OF ADOPTION OF INFORMATION AND COMMUNICATION  
TECHNOLOGY ON DATA MANAGEMENT PROCESSES IN NON-  
GOVERNMENTAL ORGANIZATIONS IN NAKURU COUNTY, KENYA**

**BY**

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## **DECLARATION**

This research project is the product of my own work and is not the result of anything done in collaboration. It has not been previously presented to any other institution.

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**Date**

## **APPROVAL**

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

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**Date**

## **DEDICATION**

To my mum who taught me to press on.

## **ACKNOWLEDGMENTS**

I wish to extend my gratitude to a number of people that contributed to reaching where I am today. First of all, I would like to thank my supervisor Mr. Waweru Mureithi for his guidance, dedication and patience towards achieving this height. I would like to express my gratitude to my lecturers who taught me how to use the information they gave me. I would also wish to thank Dr. Njeri Kiaritha who has helped in guiding this process of completing my work. I would also like to thank my employer Women Fighting Aids in Kenya (WOFAK) for the patience and time they gave me to finish this process more so my immediate supervisor Susan A. Onyango. Finally to amazing two cheerleaders Martin Kung'u my husband and my son Jeremy Kibiro, whose emotional and financial support helped a lot, I would also like to thank my aunt and cousins who cheered me on.

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## **ABBREVIATIONS AND ACRONYMS**

ICTs – Information Communication Technologies

NGOs – Non Governmental Organizations

CSOs – Civil Society Organizations

WSIS - World Summit on the Information Society

ITU – International Telecommunication Union

AIDs – Acquired Immune Deficiency Syndrome

HIV - Human Immunodeficiency Virus

WSIS - World Summit on the Information Society

## **ABSTRACT**

Information and Communication Technologies (ICTs) are being used in all sectors to achieve organization goals. ICTs has improved the way organization communicate, the way they conduct their day to day activities and data management, it has also improved organization productivity and service delivery. The study examined the influence of adoption of ICTs on data management processes in Non-Governmental Organizations in Nakuru County, Kenya. The study was guided by the following objectives; to establish the nature of ICTs available in data management processes, to examine the extent to which NGOs depend on ICTs in data management processes and to investigate how NGOs address barriers of adoption of ICTs in data management processes. Mixed research was used for this study which a target 249 registered and active Non-Governmental organizations in Nakuru County, Kenya. Project coordinators and monitoring and evaluation officer were interviewed using questionnaires. A test and retest was done to establish reliability of the data instrumentation a significance level of 0.7 will be acceptable. A sample size of 25 was obtained through simple random sampling and also purposive sampling was used to select the respondents to be interviewed through use of questionnaires. Descriptive and Inferential statistics were generated with the aid of the Statistical Package for Social Sciences (SPSS) version 20. The study found out the NGOS nature of ICTs influences adoption 100% of them owning computers, 74% owning mobile phones and 91% of the respondent indicated they are using internet technology. The NGOs indicated they depended on ICTS for data management with most of them 100% of the respondents indicated they depend on ICTs for data analysis and processing, storage and security. The study also found out that how NGOS deal with barriers to ICTs influences adoption. The recommendations of the study were since most of the NGOs do not highly depend on ICTS for data collection there is need to sensitize NGOs on the available ICTs for data collection. Another recommendations was that NGOs need to focus on training to upgrade the knowledge and skills of its staff for them to enjoy full benefits of ICTs adoption. The top management also need to change to have knowledge and skills of ICTS for the organizations to deal with barriers to adoption of ICTs.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background to the Study

Griffiths, (2010) he defines ICTs as a collection of technologies that deal specifically, storing and communication of information. Information and Communication Technology is the process “involved in enabling the capture, processing, storage, transmission and communication of information through electronic means.”

The information management refers to the general management of information, information based process, information warehouse and information and communication technology Beynon Davies (2002), Choo (2006), Syväjärvi & Stenvall (2007). In December 2003 United Nations staged the World Summit on the Information Society (WSIS). This is event meant to provide a framework and foundation of Information Society for all, reflecting all the different interests at stake. They continued to state as one of event vision;

*“We are aware that ICTs should be regarded as tools and not as an end in themselves. Under favourable conditions, these technologies can be a powerful instrument, increasing productivity, generating economic growth, job creation and employability and improving the quality of life of all. They can also promote dialogue among people, nations and civilizations.”*

While accelerated adoption of Information and Communication Technologies (ICTs) has resulted in the globalization of information and knowledge resources (Islam and Islam, 2007). The main adopters of Information and Communication Technology are the young people, they use ICTs to communicate, transfer data and basically in the day to day activities they engage in. ICTs has been adopted in the various activities in organization, the main reason being to make work more efficient and effectively. The process for data management for most NGOs mainly exist and carry out their activities based on data either collected or are

collecting. Thus making data management process very important to these organizations, how data is collected, entered, analyzed, presented and disseminated.

Though adoption of ICTs in the developed world is quite progressive since technology is in such countries is easily accessed. Adoption of ICTs has been in communications and managerial purposes. There is need to broaden the scope of ICTs in organization especially where it improves the services offered to the beneficiary the organizations serves. Globally the use of ICTs for improved ways to collect, enter, analyse and presentation of data has been evidently seen in the major organizations based worldwide. Study done in Hong Kong indicates that deployment and development of ICTs by Hong Kong NGOs in the social welfare sector are rather than complete. The study indicated that neither NGOS nor the government takes a full initiative in retrieving benefits from ICTs in the social welfare sector (Choi, 2004).

Africa on the other hand is not being left behind in the adoption of ICTs in their day to day lives according to International Telecommunication Union (ITU) 2014 statistics indicates Mobile-broadband penetration in Africa reaches close to 20% up from 2% in the year 2010, 40% of the world population are using internet, and those in developing world will have doubled in the last 5 years from 974 million in 2009 to 1.9 billion in 2014, (ITU 2014). This statistics shows how fast ICTs adoption is rapidly growing. Adoption of ICTs in data management goes a long way in improving data management in organizations. A case study done in Nigeria in small and medium enterprises indicated that most business will use ICTs in order to gain competitive advantage over their competitors. The study also indicated that the adoption of ICTs would assist in increasing profits. (Latham, 2010). In a situation assessment done in In Zambia use of ICTs in the form of internet and mobile phones is a popular mode of reaching the young people with HIV information. The assessment concludes

that even though it has not been evaluated the use of ICTs has potential of reaching more young people with HIV information, Kalibala and Mulenga (2011).

Looking at Kenya ICT adoption has been rapid especially among the youth. The use of ICTs in the form of mobile phones and internet is observed more. Kenya first ICT policy came into place in March 2006, though it has been under review since 2009 not much progress has been made. The vision in this Policy is of “a prosperous ICT-driven Kenyan society”, and its stated mission is “to improve the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable and affordable ICTs services”. This Policy is currently under review in light of changes that have taken place in recent years and changes that are anticipated. For example, there is a converged legal and regulatory environment; there is new submarine fiber bandwidth; there is an economic blueprint, Vision 2030 (RoK, 2007), that the policy needs to align with; and the new Constitution provides a Bill of Rights outlining fundamental freedoms to citizens (some of which require delivery through responsive ICT policymaking) (Policy Paper 9, 2012). There is in place the Kenya National ICT master plan dubbed “*towards a digital Kenya*” which was produced in April 2014. The document covers 2013/14 – 2017/18, which purpose was to review and update connected master plan launched in February 2013 with a view to extend stakeholders participation and take into account changes in the Jubilee digital Government (ICT Authority 2014). All efforts are being made toward making Kenya a digital country, with the developed governments we see efforts by various counties moving toward the digital age, Counties like Machakos where we have closed circuit television camera around town, Nakuru county with its wireless internet coverage within the central business district is just a few mentions to show progress towards improving adoption of and use of ICT services. Organizations have taken the use of ICT as a way to improve the way they do their day to day activities. Main reason being improving effectiveness of its

work force, efficient use of resources and this translates to better performance and achieving organizational goals.

## **1.2 Statement of the Problem**

There has been increased adoption of ICTs among NGOs, and is evident. A survey done by United Nations and Vodafone Group foundation revealed that 80% of NGOs employees are using mobile technology in their work, 99% of this users characterized the influence of mobile technology as positive. While O'Brien (2011), on one hand hold that ICTs have strategically helped NGOs to address development goals such as poverty, health, gender equality, education, employment and microfinance, Choi (2004) on the hand argues the NGO sector is not as responsive in the technology revolution as the business sector and the public sector thus not enjoying the full benefits of adoption of ICTs in data management processes whereby there are NGOs still experiencing delayed reporting, data quality issues among others.

NGOs are normally funded by foreign governments or civic bodies which demand fact loaded reports on a regular basis to enable them to determine the resources provided are utilized. This requires the NGOs need to collect, process, analyze, store, secure and use data to make the reports. The use of ICTs in handling these processes is an expectation from most NGOs. The above discussion indicate NGOs have adopted ICTs but the full benefits of ICTs are yet to be realized. Therefore the study aimed at establishing the influence of adoption of ICTs has on data management processes in NGOs in Nakuru County.

## **1.3 Purpose of the Study**

The purpose of this study was to find out the influence adoption of ICTs has on data management processes among NGOs in Nakuru County, Kenya.



#### **1.4 Objectives of the Study**

- i. To establish the nature of ICTs available for data management processes in Non-Governmental Organisations in Nakuru County
- ii. To examine the extent to which NGOs depend on ICTs in data management processes in non-governmental organizations Nakuru County
- iii. To investigate how NGOs address barriers of adoption of ICTs in data management processes in non-governmental organizations Nakuru County

#### **1.5 Research Questions**

- i. What ICTs are available for data management processes in Non-Government Organisations in Nakuru County?
- ii. To what extent do NGOs depend on ICTs in data management processes in non-governmental organizations Nakuru County?
- iii. How do NGOs address barriers of adoption ICTs in data management processes in non-governmental organizations Nakuru County?

#### **1.6 Significance of the Study**

It was hoped that the study will help NGOs in identifying and addressing gaps that currently exist in adoption of ICTs. The study may also assist donors on how funds are utilized in the budgeting for data issues which is important since data helps provide evidence for ongoing projects. These study findings will bring out the importance adoption and ICTs usage for improved data management.

#### **1.7 Basic assumptions of the Study**

The respondents interviewed gave the correct information required and was relevant and appropriate for obtaining the data to be used for this study. The study also assumed the structure of NGOs in Nakuru County the same and for this reason NGOs selected randomly in this study was taken as a reflection of all NGOs in Nakuru County.

### **1.8 Limitations of the Study**

The study may have been constrained by financial, time or logistical limitation. The study was conducted in Nakuru County where by the year 2014 only 249 NGOs had been registered by the Kenya council of non-governmental organization. Therefore, a representative sample was made to represent the entire target population.

### **1.9 Delimitations of the study**

The study was carried out in NGOs based in Nakuru County, Nakuru County is an urban setting and it was assumed it fulfilled the objectives of the study. Therefore the study focused on programme people, monitoring and evaluating officers/data managers who were interviewed using questionnaires At least two people per organization were selected to participate.

## 1.10 Definitions of Terms

**Information Communication Technologies** – this are any technology used for the automated data management, in this study the researcher viewed technologies to be mobile phones, tablets, computers, laptops, internet, web based database applications and computer applications used for data management for monitoring and evaluation.

**Data Management Processes-** This is the process of collection, processing, analysis, storage and use of data in any organization.

**Adoption** – this refers to the way organization takes up and uses of ICTs in the data management processes

**Non-Governmental Organization** The World Bank (1999: 1-2) defines NGOs as “private organizations that pursue activities to relieve suffering, promote the interests of the poor, protect the environment, and stimulate community development.”

**Influence** – this is the capacity adoption of ICTs in data management processes has on data management processes in NGOs

**Dependence** – this is the state of physiological reliance on certain substance/gadgets resulting from their habitual use and accompanied by the need for continuous use. In the study dependence on ICT will be the physiological reliance of ICTs in data management and the need for NGOs to continue use the ICTs for data management.

**Barriers** – this is an obstacle or a circumstance that keeps people apart or hinders communication or progress. In this study barriers will circumstances that have kept NGOS from adoption of ICTs in data management

**Nature of ICTs** – This are types of ICTs in place for use in data management

**Custom made softwares** – these are ICT applications that are developed based on requirement and needs of the organization.

**Donor Imposed ICTs** – this is any form of ICTs that donor requires an NGO to use for the data management processes while implementing projects

**Longitudinal Databases** – This is sample data collected over a period of time and changes can be tracked over the period of time i.e. to know the baseline and end point

**Web based applications** – this are application that are accessed over a network either Local Area Network or Wide Area Network.

### **1.11 Organisation of the Study**

This study contains five chapters and appendices section. Chapter one, which is the introduction, gives the background of the study, statement of the problem, the research objectives, and research questions. It also has the significance of the study, underlying assumptions, limitations and delimitations of the study. The chapter also has the definition of terms.

Chapter two contains a comprehensive literature review of past research studies and publications conducted regarding influence of adoption of ICTs has on data management processes in Non-Government organisations in Nakuru County. The chapter also contains the theoretical framework, a conceptualization of the researcher based on the literature review and summary and gaps section.

Chapter three is a description of the methodology used for the study. The research design and sampling techniques used are explained. The method of the sample selection, data collection, analysis and presentation are discussed in this chapter. The section concludes with the operational definition of variable, which attempts to associate the objectives with the methodology and provides a map to the expected results.

Chapter four is how data was analysed, presentation, interpretation and discussions of findings. The findings are presented in form of tables accompanied by explanations of the findings below the table.

Finally in chapter five contains the summary of the findings, conclusions and the research recommendations arising from the study. The chapter also includes suggested areas for further studies.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviewed relevant studies, research and literature done on adoption of ICT and if it has played a role in improvement on data management. This section covered theoretical framework, a conceptualization of the research based on Issues discussed in this section includes extent of adoption in organization and also the conceptual framework.

#### **2.2 Adoption of ICT**

Marcelle (2000) defines ICTs as a complex and heterogeneous set of goods, applications and services used for producing, distributing, processing and transforming information. Ngege (2003) (as cited by Kituyi-Kwake, A. and Adigun 2003, p127) perceives them as technologies that enable the handling of information and facilitate different forms of communication between human actors, human beings and electronic systems, and between electronic systems. ICTs are grouped under two categories 'traditional' and 'new'. Traditional ICTs constitute of non-electronic media analogue technology (radio, television, fixed line telephones and facsimiles machines) and print media while 'New' ICTs consist of computers (in all their myriad manifestations) and data processing applications accessible through their use (email, Internet, word processing, cellular phones, wireless technologies and other data processing applications) (Gurumurthy, 2004:6; Marcelle, 2000: 8). The study seeks to understand the concept of understanding the cultural, economic, environmental and structural factors for adopting and using ICTs in organizations. Pedersen (2003) claims that studies on ICT adoption have generally taken three possible approaches: a diffusion approach, an adoption approach and a domestication approach. (Ssewanyana 2007) Study results revealed that while the developing countries are still lagging behind the developed

countries, the adoption of ICT follows the same pattern in all countries. The study further indicated that people appreciate the contribution of ICT to the performance of firms but due to various barriers like high cost of hardware, software, internet and ICT professionals among others are hindrances to progress of adoption of ICT. Studies show that the use of ICT has a great impact on organizational performance; an evaluation done by (Latham 2010) concluded that there is need for organizations to invest in ICT if they have to set themselves apart. Case studies of the evaluation revealed that investment in ICT needed to be modest, as the availability of internet and accounts software increased the competitive advantage. According to (Ocen, G. 2007) two of the most significant forces shaping organizations are globalization and the continued, rapid and radical changes taking place in ICTs. Hong Kong is one of the major cities/countries, which widely adopt ICTs in both public and private sectors. As of 2003, Hong Kong reached 104 percent of mobile phone penetration rate, one of the highest rates in the world. About 68 and 60 percent of households used PCs and the Internet, respectively. PC and Internet service use by enterprises were 55 and 48 percent, respectively (Government of the HKSAR 2004) (Choi, 2004). According to Fuchs (2007), technological support by advanced ICT systems like web 2.0 can help NGOs in improving their operations and reach. New web based media can support communication among stakeholders. Plan Finland have found ICTs to be very beneficial for NGOS and their beneficiaries from “improving service delivery and outreach, to increased participation in governance and enabling people make better informed decisions.” Case studies collected by (O'brien 2011) for ICTs for development showed how ICTs were changing practice in international development. One of the case studies showed the use of ICTs in form of SMS messages were being used in Pakistan province of Sindh in a programme entitled “SMS for Better Schools in Sindh”, which aims to build the gaps between governments, schools and the local communities in order to improve education delivery. Another case study in South Africa

ICTs have been used to improve health care by an NGO named Cell-Life which utilises mobile technology to help improve the lives of HIV sufferers. The above discussions in the paper show the possibility that adoption of ICTs can bring in the communities we live in.

Africa is not left behind in adoption of ICTs in NGOs to improve the way they operate their day to day activities. In Tanzania a case study presented by a local NGO in collaboration with UK-based Daraja Trust, is encouraging citizens to text their problem with their rural water supplies; this information is sent to district officials and media which in turn spread the information this makes improvement of water services through political pressure (O'brien' 2011). In Kenya Abantu for Development a local NGOs has used ICTs to address gender equality issues. They implemented a project 'Gender and ICT' to train various women's group in basic software and Internet skills and by bringing these groups and the policy makers together to produce new gender-sensitive ICT policies. Ushahidi, a non-profit tech company which develops open source software for information and data collection, visualization and interactive mapping helped journalists and Kenyan citizens during the 2008 post-election violence (PEV) by collecting information from other ICT sources such as SMS, videos, blogs phone calls, pictures then map them in real time.

### **2.3 Data Management and Nature of ICTs**

Technopedia states data management encompasses a variety of different techniques that facilitate and ensure data control and flow from creation to processing, utilization and deletion. Data management is implemented through a cohesive infrastructure of technological resources and a governing framework that define the administrative processes used throughout the lifecycle of data. According to business dictionary it defines data management as the administrative process by which the required data is acquired, validated, stored, protected and processed, and by which its accessibility, reality and timelines is ensured to satisfy the needs of data users. Data is very important to NGOs since it is used to help



organizations monitor and evaluate projects they are implementing. Hence, importance of data management to NGOs, the more effective and efficient organizations manage their data the better they will be at monitoring and evaluating their projects. Adoption of ICTs in organization based on discussions done above indicates there is change in the way organization conduct business. The study seeks to find out if adoption of ICTs in data management has helped improved for the target population. A case study presented by Cell-Life a local organization in South Africa decided to use mobile phones to capture data using their Aftercare workers for patients living with HIV receiving ART treatments. The data collected is not only used for the patient but also to increase the knowledge base for HIV and AIDs treatment programmes in South Africa. Conclusion reached by Dochas report was that the use of ICTs to improve the efficiency of an organization in terms of planning implementation and evaluation of development, in terms of research and data collection. Data management in this study entailed the process at which organization collect, process, store and validate the data they use.

### **2.3.1 Data Collection**

Data collection is a systemic approach to gathering information from variety of sources to get complete and accurate picture of an area of interest. There are various methods of collecting data which is determined by what type of data being collected, the accuracy required, type of variable, collection point and the individual collecting data.

Hempel, Kevin and Fiala, (2011) argues that one way to facilitate (and often reduce cost) of primary data collection is the use of new ICTs. Examples of ICT-based data collection techniques are, mobile phones, mobile PCs or Personal Digital Assistants (PDAs), web based Survey, photo/video monitoring, social media and mapping of geographical information. All the above organization need to plan on the best suited method based on variables they are collecting. The advantage of use of ICTs methods is that data collections become real time reporting and this contributes organization ensuring one dimension of quality like timeliness. Use of ICTs does not lack disadvantages which range from cost of tools for collecting and reliability due to some biasness the pros outweighs the cons.

### **2.3.2 Data Processing and Analysis**

These Operations performed on a given set of data to extract the required information in an appropriate form such as diagrams, reports, or tables. Data analysis refers to transforming data to meaningful information or knowledge. To process data by use of ICTs there is need for computer software' s examples SPSS, SAS, STATA just to mention a few other simple computer application used to process data are Microsoft Excel, Microsoft Access which are a bit simpler to use. The data

### **2.3.3 Data Storage and Security**

Data is raw facts that can transform into meaningful information. For future reference there is need to store data and therefore, data storage comes into place which may raw storage of this

raw facts or meaningful information for future reference. Data can either be stored physically i.e. in lockable cabinets, physical files or physical safe. Limitation of physical storage is accessibility, where one needs to be physically where data is stored. ICTs addressed this by putting in place the possibility of storing data electronically. According to Technopedia data storage is a general term for archiving data in electromagnetic or other forms used by a computer device. There is a common distinction in storage which is physical data storage associated with Random Access Memory (RAM) and secondary storage which is on external drives. Storage has evolved to new technologies like cloud computing which storage of data in virtual drives over the internet. With this an issue arises on security of data stored. With the physical storage where lockable cabinets are used security is the relative and it is easily breached. Data security is the ability to secure data that it is accessible by only authorized people, this ensures quality by minimizing tampering or being accessed by individuals who may not know how to handle it.

#### **2.3.4 Data Use**

After generation of collection of data and it is processed to meaningful information, then we organizations are faced with the next big thing which is data use. Coogshall (2009), states that since organizations learn from experience incrementally in response to feedback about outcomes, the increase in sheer volume of information provided by a strengthened state accountability system may provide the experience necessary for high-level learning. This means that data use promotes learning and better projects and sustainable projects will be implemented by NGOs.

#### **2.4 Barriers of adoption of ICT in Organizations**

Information Communication Technologies have played key role in organization development. Or According to Gurstein (2001) new ICTs have been used to diffuse information to rural

communities in developing countries. There are factors or determinants that influence adoption of ICTs, these determinants can also be what hinders NGOs not to adopt ICTs in their data management processes. These are:

#### **2.4.1 Cost of Implementation**

Tusubira and Mulira, (2004) argues that many organization in developing countries tend to have their “head in the sand” approach to the challenge of sustainability. They recognize it as an issue but it is assumed that someone will worry about the cost. It is found important policies addresses the specifics of how sufficient funding will be raised to sustain services and systems. The cost of implementing ICT in developing countries is high from the cost of bandwidth to the cost of infrastructure, replacement of computers and ICT training for personnel.

#### **2.4.2 Donor requirements**

Donors imposed a lot of requirement on organizations implementing projects they are funding. Donor may demand certain conditions be fulfilled for continuous funding. Escudeiro (2014) Many NGOs have a “multiple donor” funding structure and so must fulfill requirements coming from various donors who are very diverse, with varying degrees of exactitude and not always mutually compatible, on the same issues. This is at odds with the need for every organisation to have shared and established policies and operating frameworks in regard of the legal and regulatory structures to which it is subject. Due to this fact it becomes challenging for organization to perfect use of ICTs since different donor may come with different requirements.

#### **2.4.3 Knowledge and Skill of Users**

Afande (2013) say that studies suggest inadequate ICT skills training in eastern Africa and reveal that a total of 57.8% of professionals coming out of institutions of higher learning

rated their institutions as being “less professionally capable of dealing fully with ICT training needs” with only “28.1% of the professionals rating the institutions as capable”. Wessels’s (2005) account of developed countries shows the magnitude of seriousness placed on the ICT competency by skilled professionals in other parts of the world. NGO staffs are all at different levels in knowledge and skills of ICTs and for this reason each have different perception of the use of ICTs within the organization. The need to have staff in an organization to understand the objective of the organization is important. Different individuals in an organization interact with ICTs differently and it’s the responsibility of the organization to ensure that all understand and are performing as expected.

#### **2.4.4 Perceived Ease of Use**

Davis (1989) defines perceived ease of use as the extent to which a person believes that using a particular system would be free from effort and perceived usefulness as the degree to which a person believes that a particular system would enhance his or her job performance. Davis (1989) found out that perceived ease of use is a secondary determinant of people’s intention to use computers. Further discussions have been made through the Technology Acceptance Model (TAM) David, (1993); David, (1998); Pam, (2002) to point out that perceived ease of use affect intention of use. Kaasinen (2005) in TAM for Mobile Services suggests that perceived ease of use, perceived value and trust affects the intention to use a mobile service. Based on studies made we see that perceive ease of use affects adoption and this study intends to find out to what extent it affects adoption of ICTs.

#### **2.4.5 Perceived Usefulness**

Davis (1989) defines perceived usefulness as the degree to which a person believes that using a particular system would enhance his or her job performance. He further argues that perceived usefulness is a primary determinant in peoples’ intention to use computers. Having

this is in mind the study intends to find out if perceived usefulness affects adoption of ICTs in the targeted population.

## **2.5 Theoretical Framework for Adoption of ICTs**

There are three possible approaches to adoption of ICT: a diffusion approach, adoption approach and a domestication approach.

### **2.5.1 Diffusion Theory**

Roger's Diffusion of Innovation theory cited by Van Akkeren and Harker, (2003), p205 argues that the media and interpersonal contacts provides information that influences a person's opinion and judgment. It has four elements which are invention, diffusion through social networks, time and consequences. According to this theory there are five categories of adopters which are 25% are innovators, 13.5% are early adopters, 34% early majority, 34% late majority and Laggards at 16%. This model shows that opinion leaders or members held highly by the society may influence adoption of ICTs, the theory further argues that social networks may influence rejection or adoption of technologies.

### **2.5.2 Adoption Approach**

In this approach it describes how users will apply different decision making theories. Three widely known are:-

#### **2.5.2.1 Technology Acceptance Model (TAM)**

The model was proposed by Davis (1989) whereby it was developed to study the acceptance of technology by an individual taking into account perceived usefulness and ease of use of the technology being studied. This model helps researchers to not only predict use of technology but also identify technology that may be appropriate to use.

### **2.5.2.2 Theory of Reasoned Action (TRA)**

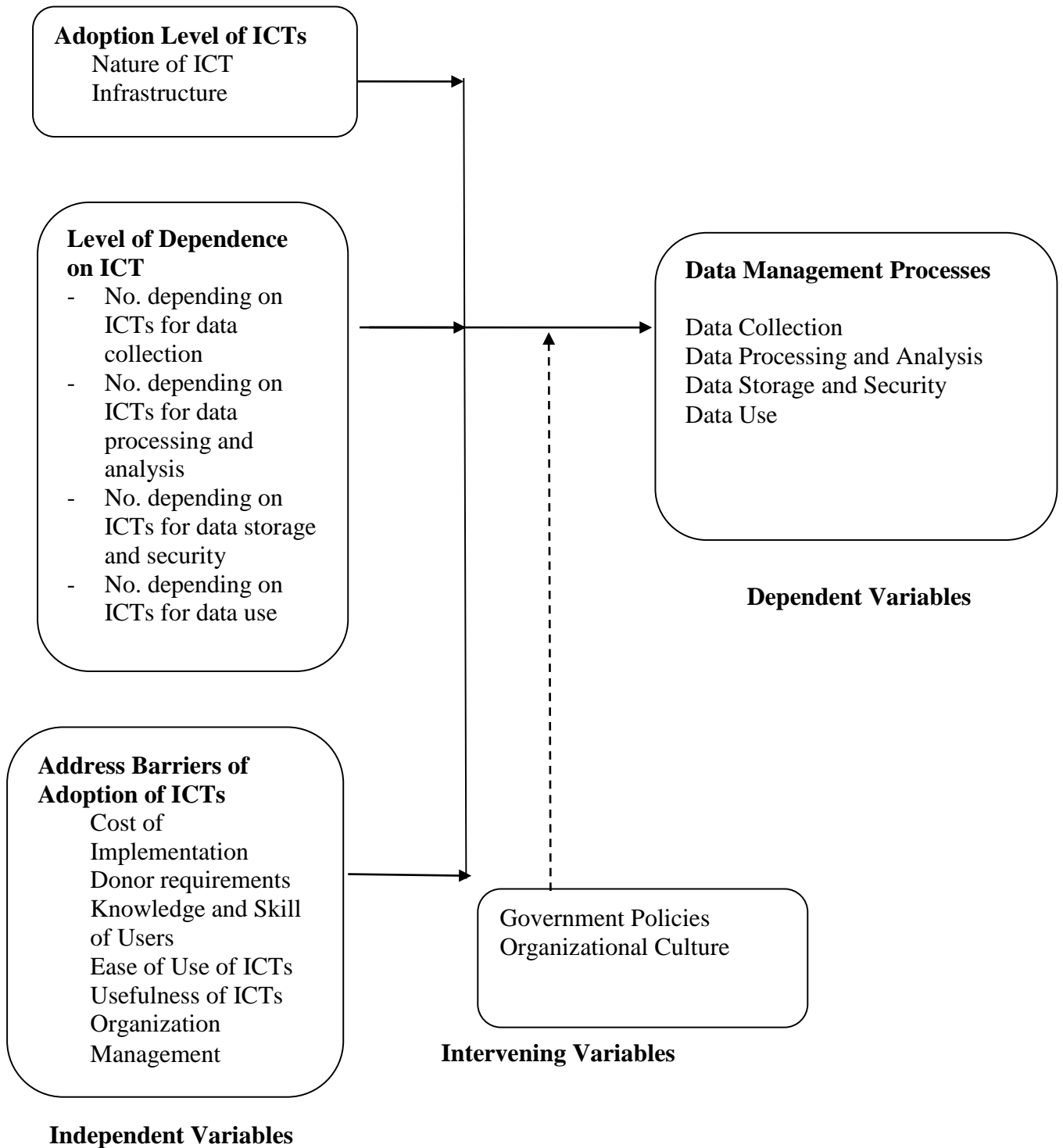
Theory of Reasoned Action by Fishbein and Ajzen (1975) explains an individual's behavior based on his or her behavioral intention, which is influenced by his/her attitude toward the behavior and perception of the subjective norms regarding the behavior. In this theory there are three main factors; subjective norms, attitudes and perceived control behavior.

According to Davis cited by van Akkeren and Cavaye, (1999) point out that when a user is presented with new technology, there are a number of factors that influence their decision on how they will use it, this include perceived usefulness and perceived ease of use. The TAM approach does not consider other factors like economic factors, competitor and customers and supplier influence van Akkeren and Cavaye, (1999).

### **2.5.2.3 Domestication Process**

This approach focuses on technology becomes an integral part of our day to day activities. These distinctions are in turn applied to new phenomena's. This distinctions include work and leisure context; end-users that belong or do not belong to a demographic group; and the private and the public Pedersen, (2003).

## 2.6 Conceptual Framework



**Figure 1: Conceptual Framework**



## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter outline the description of the research methodology that was undertaken while conducting the study. It contains the research design, target population, location of the study, sampling procedures, research instruments, methods of data collection, data analysis and presentation, validity and reliability.

#### **3.2 Research Design**

Kothari (2004) defines a research design as a conceptual structure within which a research is conducted. Trochim (2002) further alludes that the research design provides the glue that holds the research project together, in that it shows how the various components of the study work together. The study adopted a mixed research design where both the qualitative and quantitative approaches was considered. Walliman (2011) distinguishes the two based on their characteristics, arguing that quantitative research records information by way of numbers, while qualitative research records the data that cannot be reduced to numbers in words; such as feelings, emotions and ideas. Both approaches were used to complement each other since the attitudes, behaviour and experiences was need to be captured qualitatively, while quantitative gave a statistical backing for the objectives of the study to be realized.

#### **3.3 Target Population**

Mugenda and Mugenda (2003) defines target population as the members of a real or hypothetical set of people, events or objects the researcher would wish to generalize the results of the research. Kahn (1992) further defines target population as a small portion of the population selected for observation and analysis. The target population comprised of the 249

active NGOs in Nakuru County. The study focused on members of staff of these organizations i.e. the project coordinators/managers and monitoring and evaluation team cum data team.

### **3.4 Sampling Size and Sampling Technique**

Trochim (2002) defines sampling as the process of selecting units from a population of interest so that by studying the sample there may be a fair generalization of the results back to the population from which they were chosen. Ten percent of the population was determined based on (Mugenda & Mugenda, 1999) assertion that in descriptive research, a researcher can use 10% or 20% of the accessible population. The sample size therefore was. 25 NGOs selected randomly. Purposive sampling was used to select the project coordinators and the data team that's is the data clerk and monitoring and evaluation officer. Coolican (2014) opines that purposive sampling is not random and that choices are made by the researcher on the basis of those who are most representative for the issues involved in research or who are likely to have appropriate expertise in the matter. Borg & Galls (1999) also argue that purposive sampling allows the researcher to select cases that are likely to be information rich with respect to the study.

### **3.5 Validity**

Rubin and Barbie (2011) contend that Validity is the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration. Jackson (2011) describes validity as an indication of whether the instrument measures what it claims to measure. The coding of the questionnaire was done carefully so as to avoid overlaps in coding.

### **3.6 Reliability**

Reliability refers to the consistency of the scores obtained in reference to how consistent they are for each individual from one administration on an instrument to another and from one set of items to another Fraenkel and Wallen, (2003). Popham, (2000) explains reliability as the consistency with which the test measures what it is measuring. In this study reliability was be established by test and retest method. To ensure the credibility of the study is not jeopardized, the researcher conducted a pilot exercise of the tools to be used before the actual research is undertaken. This mock exercise was to help address impeding issues relating to the data collection tools so as to make ensure they realize the intended purpose and more so be able to establish reliability coefficient. The results of the piloted study was be used to calculate the reliability coefficient. This was calculated using the Cronbach formula and reliability of 0.7 and above would be acceptable for this study Selltiz, Wrightsman & Cook, (2002).

### **3.7 Data Instrumentation**

The study employed one research tool; a questionnaire. A questionnaire was be applied to interviewees selected purposively from the randomly selected NGOs. The questionnaire was be easy to analyse and was allow for in-depth responses and deeper insights.

### **3.8 Data analysis and Interpretation**

The data collected was coded and then analysed using descriptive statistics with the aid of SPSS (Statistical Package for the Social Science) version 20 computer software application. The questionnaires with closed-ended items based on a Likert scale. In agreement with Dawson (2002), on the analysis of qualitative data, the study was analyse the data progressively as the study continues, continually refining and reorganizing the data in light of the emerging results.

### **3.9 Data Presentation**

The quantitative data in the study was presented using visual techniques which included graphs, pie charts and tables. This was useful in providing some sense of order and establishing a trend which might help in forecasting. Qualitative data was analysed thematically as well as based on common phrases and/or recurring patterns.

### **3.10 Ethical Considerations**

Jackson (2011) says when conducting research with human or nonhuman participants, the researcher is ultimately responsible for their welfare and to protect them from harm. The researcher observed the discipline of the highest levels of ethics in the course of the study and was guided by principles as outlined by MacDonald and Headlam, and Coolican (2014) of integrity and quality, informed consent, confidentiality of the information given by respondents and the anonymity of the respondent, privacy, and the independence of the research. Proper acknowledgment of the works of other authors used in this study was done, with proper citations. Proper consent was sought with the relevant authorities before the study embarks in the field.

## CHAPTER 4

### DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSIONS

#### 4.1 Introduction

This chapter presents findings of the study. The study sought to find out if there is influence of ICTs on data management processes in NGOs in Nakuru County: to establish the nature of ICTs available in data management processes, to examine the extent to which NGOs depend on ICTs in data management processes and to investigate how NGOs address barriers of adoption of ICTs in data management processes. To accomplish the above objectives data was collected from NGOS staff, specifically the project coordinator/managers and one person from the monitoring and evaluation team. A total of 100 questionnaires were distributed and the response rate was as indicated in Table 4.1 below.

**Table 4.1: Response Rate**

	<b>No. of questionnaires returned</b>	<b>Target No. of Questionnaire</b>	<b>Response Rate</b>
<b>Project Coordinator/ Manager</b>	33	40	83%
<b>Data Clerk/Officer</b>	17	20	85%
<b>Monitoring and Evaluation Officer</b>	35	40	88%
<b>Total</b>	85	100	85%

The study was able to get a response from the 85 from the 100 respondents selected. The response rate was 85%. The reason cited for the no response was unavailability of the respondents.

#### 4.2 Presentation of Findings

In this section presentation of findings arising from data analysis, which analyzed; the general characteristics of the respondents, the level of ICT adoption of in data management processes

in terms of infrastructure, the influence of ICT on data management processes and the hindrances of adoption of ICTs in data management processes.

## 4.2. General Characteristics

### 4.2.1 Gender of the respondent

The gender of the respondents was sort and they were as presented in Table 4.2

**Table 4.2: Gender of the Respondents**

Position in your organization	Male		Gender Female		Total	
	F	%	F	%	F	%
Project Coordinator/ Manager	25	76%	8	24%	33	39%
Data Clerk/Officer	6	35%	11	65%	17	20%
Monitoring and Evaluation Officer	19	54%	16	46%	35	41%
	<b>50</b>	<b>59%</b>	<b>35</b>	<b>41%</b>	<b>85</b>	<b>100%</b>

Provide a key

The majority of the respondents were males 59% of them being males. This implies that majority of the NGO staff are males. The gender imbalance implies the need for more awareness to be created for women them to be involved in careers in the development sector.

### 4.2.2 Age of the Respondent

The study sort?? out to know the age respondents of the study. The age groups were as presented in Table 4.3.

**Table 4.3: Age of the Respondents**

Position in your organization	What is your age							
	25 years or below		26-30 years		31-35 years		36-40 years	
	F	%	F	%	F	%	F	%
Project Coordinator/ Manager	0	0%	8	24%	15	45%	10	30%
Data Clerk/Officer	5	29%	7	41%	5	29%	0	0%
Monitoring and Evaluation Officer	0	0%	18	51%	8	23%	9	26%
	<b>5</b>	<b>6%</b>	<b>58</b>	<b>68%</b>	<b>13</b>	<b>15%</b>	<b>9</b>	<b>11%</b>

Majority of the respondents (68%) were between 26 – 40 years which means that most of NGO employees are young. This may imply that they are more enthusiasts about development since most NGOs deal with development. 11% of the respondents were between the ages of 41 – 45 years and all were project coordinators/managers and monitoring evaluation officers which may imply that they are mature and hence are well equipped in dealing with managerial and data issues of an organisation.

#### **4.2.3 Respondents' length of service at the NGOs**

The study sort to seek the length of service of the respondents and the response are in Table 4.4.

**Table 4.4: Respondent length of Service at the NGOS**

Position in your organization	Less than 2 years		2-5 years		6-10 years		over 10 years		Total
	F	%	F	%	F	%	F	%	
Project Coordinator/ Manager	3	9%	24	73%	4	12%	2	6%	33
Data Clerk/Officer	2	12%	14	82%	1	6%	0	0%	17
Monitoring and Evaluation Officer	0	0%	28	80%	5	14%	2	6%	35
<b>Total</b>	<b>5</b>	<b>6%</b>	<b>66</b>	<b>78%</b>	<b>10</b>	<b>12%</b>	<b>4</b>	<b>5%</b>	<b>85</b>

Majority of the respondents (78%) had worked in the organization between 2 -5 years, 12% had worked for 6 -10 years and 5% had worked for over 10 years. This indicates that 90% of the respondents had worked in the organizations for over 2 years which implies they have good knowledge of the various data management processes that are in place in the organisations.

#### 4.2.4 Respondents Level of Education

The study sort to find out the respondents computer proficiency skills and the responses are as presented in Table 4.5.

**Table 4.5 : Respondents on Computer Proficiency**

Position in your organization	Computer skills Competency						Total
	Basic		Intermediate		Advanced		
	F	%	F	%	F	%	
Project Coordinator/ Manager	7	21%	21	64%	5	15%	33
Data Clerk/Officer	5	29%	9	53%	3	18%	17
Monitoring and Evaluation Officer	0	0%	4	11%	31	89%	35
<b>Total</b>	<b>12</b>	<b>14%</b>	<b>34</b>	<b>40%</b>	<b>39</b>	<b>46%</b>	<b>85</b>



Majority of the respondent 40% and 46% computer skills were at intermediate level and advanced respectively. This implies that there is still need for NGOS hire staff that have knowledge and skills in computer only 14% of the respondents were at basic proficiency skills, and these were project coordinators and data clerks. This implied that NGOs considered the computer skills competency to be important for adoption of ICTs to be successful.

#### 4.2.5 Respondents Level of Education

The study also sort to find out the highest level of education of the respondents and the results are as presented in Table 4.6.

**Table 4.6: Level of Education of the Respondents**

Position in your organization	Highest level of education						Total
	Certificate Level		Undergraduate Level		Postgraduate		
	F	%	F	%	F	%	
Project Coordinator/ Manager	0	0%	25	76%	8	24%	33
Data Clerk/Officer	4	24%	12	71%	1	6%	17
Monitoring and Evaluation Officer	0	0%	31	89%	4	11%	35
<b>Total</b>	<b>4</b>	<b>5%</b>	<b>68</b>	<b>80%</b>	<b>13</b>	<b>15%</b>	<b>85</b>

80% of the respondents indicated the highest level of education as the undergraduate, 15% of the respondents' highest level of education is postgraduate and only 5% had attained Certificate Level respectively. The finding implies that most employees in the organization are competent to handle their job tasks and that the organisation though the level of education to be important in order for one to be able to be effective and efficient.

### 4.3 Nature of ICTs Available

#### 4.3.1 Nature of ICT Infrastructures in NGOs

The study sort to find out what infrastructures are in place in Non-Governmental Organization and the responses are as presented in the Table 4.7 below.

**Table 4.7: ICTs in place for use in NGOs**

<b>Nature of ICTs in your Organization</b>	<b>F</b>	<b>%</b>
<b>Computer</b>	85	100%
<b>Laptop</b>	63	74%
<b>Internet</b>	77	91%
<b>Mobile Phones</b>	63	74%
<b>Computer Applications</b>	77	91%
<b>Others: Tablets</b>	26	31%

The responses indicated that majority of the NGOS have ICTs in place with presence of computer being the highest, 100% of the respondents indicated they use computers in their work place. This implies that the adoption of ICTs in terms of infrastructure is evidence.

100% of the respondents said that use of ICTs promoted better and faster service delivery to the beneficiaries they serve. 79% of the respondents said that they adopted ICTs to stay relevant and follow strategies set by top management of the organisation. 33% said they adopted ICTs because they were advised by consultants, only 12% said adoption was due to government requirements. 100% of the respondents also said they adopted ICTs due to demands from the donors.

#### 4.3.4 Nature of ICT for Data Management Processes

##### 4.3.4.1 Data Collection

The study sorts out to find out adoption of ICTs in data collection and also find out the data collection methods in place. The responses are presented in Table 4.10 and Table 4.11 respectively.

**Table 4.8: Response of ICTs in place for data collection**

<b>What ICTs are in place for data collection</b>	<b>Frequency</b>	<b>Percent</b>
<b>Manual (paper work)</b>	69	81.2%
<b>Both (ICTs &amp; Manual)</b>	16	18.8%
<b>Total</b>	85	100%

The responses in Table 4.10 indicates that adoption of ICTs in data collection is still not adequate since 81.2% of the respondents still rely on manual data collection i.e. papers work. Only 18.8% of the respondents indicated use of ICTs in data collection and this is through mobile phones and tablets. This indicated that nature of ICTs though available the NGOs are not fully benefiting from them.

The study also sort out to know the methods of data collecting in the NGOs under study and the responses are as presented in the Table 4.11 below.

**Table 4.9: Responses of Methods of Data Collection**

<b>What methods are used in your organization for collecting data</b>	<b>Frequency</b>	<b>%</b>
<b>Interviews</b>	85	100%
<b>Questionnaires</b>	77	90.6%
<b>Direct Observation</b>	52	61.2%
<b>Reporting</b>	78	91.8%
<b>Registrations</b>	39	45.9%

Interviews (100%) as method of data collection was the most favored by most NGOs, followed by questionnaires (90.6%), use of registrations (45.9%) as a method of data collection is the least favored. From the above results we can see 91.8% of the respondents use reports as a way of collecting data. This implies though manual this reports are key to the organizations. The findings also indicate that though not much of ICTs is used for data collection this does not hinder organization to collect data. There is also need to sensitize organization on the various ICTs for data collection. The respondents felt that there are not enough ICTs in place for data collection.

#### **4.3.4.2 Data Processing and Analysis**

The study sorts out to know what organisation use for data processing and analysis. The responses are as shown in Table 4.12.

**Table 4.10: Responses on Data Processing and Analysis**

<b>What ICTs are in place of data processing and analysis</b>	<b>Frequencies</b>	<b>%</b>
<b>Microsoft Excel</b>	85	100%
<b>Microsoft Access</b>	63	74.1%
<b>Epi-info</b>	63	74.1%
<b>SPSS</b>	63	74.1%
<b>Custom Made Software</b>	41	48.2%

The responses indicated that all organization used some form of ICT application in data processing and analysis. Though most respondents favoured Microsoft Excel (100%) which is a spread sheet software that helps in data processing and analysis and it's easily available. Use of custom made software was least favoured with a 48.2% most respondents felt its expensive to develop a software that is customised to the needs of the organisation, and the organizations using it used it since it was imposed by donors. Some of the custom made softwares used by NGOs are longitudinal databases and web based application.

#### **4.3.4.3 Data Storage**

The study sorts out to know the various ICT storage methods in place for data storage

**Table 4.11: Respondents on NGOs data storage**

<b>How do you store data in your organization</b>	<b>Frequencies</b>	<b>%</b>
<b>Physical files</b>	85	100%
<b>External drives</b>	63	74.1%
<b>DVD/CDs</b>	63	74.1%
<b>Flash drives</b>	63	74.1%
<b>Cloud Storage</b>	52	61.2%
<b>Internal drives</b>	74	87.1%

The respondents indicated that use of files (100%) as a form storage though manual it was still the most favored. ICTs use on data storage is still in use in most organizations. The list favored ICTs in data storage is cloud storage (61.2%) and this is due to lack of knowledge of cloud technologies. ICTs for data storage are used but NGOs are not fully benefiting from the technologies already in place.

#### **4.3.4.4 Data Security**

The study sorts out to find out ICTs in place in NGOs for data security. Responses are indicated in Table 4.14.

**Table 4.12: Respondents on data security**

<b>How does your organisation ensure data is secure?</b>	<b>Frequencies</b>	<b>%</b>
<b>Update antivirus</b>	85	100%
<b>Do backups</b>	71	83.5%
<b>Password protected computers/laptops</b>	85	100%
<b>User passwords on data systems</b>	77	90.6%

The respondents in most organisation do all it takes to ensure their data is secure with most of them ensuring Antivirus are updated (100%), they perform data backups (83.5%), They use password protected computers/laptops (100%), for NGOs that have data systems they also provide user passwords for those accessing the systems (90.6%), this is to ensure users of data are accountable for data they deal with, it becomes their responsibilities to ensure security of data. This implies that NGOs depend highly on ICTs for data security.

#### **4.3.2.5 Data Use**

The study sort out to find out NGOs use data they generate and the results are as presented in Table 4.15.

**Table 4.13 Respondents on data use**

	Frequency	%
<b>Do you use ICT to facilitated data use?</b>	85	100%

Responses presented in Table 4.15 indicate all organisations use data they generate. The respondents indicated mostly the use of ICTs has promoted data use, especially the use of internet as a means of sharing lessons learnt through data generated. Use of ICTs in presentation of data when doing presentation, i.e. presentation of data through with graphs, pie charts and trend graphs just to mention a few. 4.4 ICT Dependency on Data Management Processes

#### 4.4.1 Dependent of ICTs to do Data Management Processes

The study sorts out to find out the level of dependability of NGOs in data management processes. The Table 4.16 presents the findings.

**Table 4.14: Respondents on ICT dependability**

Depend on ICTs	Lowly dependent		Moderate dependent		Highly dependent	
	F	%	F	%	F	%
<b>Data collection</b>	70	82.4%		0%	15	17.6%
<b>Data processing and analysis</b>				0%	85	100%
<b>Data storage and security</b>				0%	85	100%
<b>Data use</b>			37	43.5%	48	56.5%

The above responses indicated that most NGOs depend on ICTs for data management processes. On data processing and analysis respondents (100%), indicated they were at highly dependent on ICTs, on data storage and security respondents (100%) also indicated they were highly dependent on ICTs and data use 56,5% of the respondents were highly dependent and 43.5% were moderately dependent. This indicates dependency of ICT in data management influences adoption, those that highly depend on ICT to do data management processes are more inclined to adopt ICTs in data management. On data collection only 17.6% of the

respondents were highly dependent on ICTs and this indicates there is need to explore the nature of ICTs for data collection.

#### 4.4.2 Benefits of ICTs adoption in Data Management Processes

The study sort to find out the benefits ICT adoption has on data management processes, the respondents are as presented in Table 4.16.

**Table 4.15: Respondents on Benefits of ICTs adoption in data management processes**

	Strongly Disagree		Agree		Strongly Agree	
	F	%	F	%	F	%
ICT make a difference to the way you collect data in your organization	71	83.5%	0	0%	14	16.5%
ICT improved the way you process and analyse data	0	0%	0	0%	85	100.0%
ICT use has changed the way we store data	0	0%	0	0%	85	100.0%
Use of ICTs improved the way we ensure data security	0	0%	13	15.3%	72	84.7%
Use of ICT encouraged knowledge sharing and data use	0	0%	17	20.0%	68	80.0%
ICTs improves cost effectiveness	0	0%	7	8.2%	78	91.8%

On collection of data the respondents strongly disagreed 83.5% on statements if ICT made a difference in the way they collected data in their organization. Only 16.5% strongly agreed that ICT made a difference on the way data collection was done in their organization. 100% Respondents strongly agreed and agreed on the benefits achieved by adoption of ICTs in data processing and analysis and data storage. On the way organization ensures data security respondents strongly agreed (84.7%) and agreed (15.3%) on the improvement made by use of ICTs. Respondents strongly agreed (80%) and agreed (20%) that use of ICTs has encouraged data use and knowledge sharing. The above findings implies organizations are enjoying the benefits of use of ICTs apart from in data collection where there is need to create awareness of the benefits of use of ICTs in data collection. Cost effectiveness was another benefit the



respondents felt that adoption of ICTs brought about to the originations that have adopted ICTs in data management.

#### 4.5 How NGOs Address Barriers of Adoption of ICTs in Data Management Processes

The study sort out to find out what are some of the hindrances for adoption of ICTs in data management, the responses are as shown in Table 4.16.

**Table 4.16: Respondents on How Barriers are addressed**

Ways of Addressing Barriers	Disagree		Neutral		Agree		Strongly Agree	
	F	%	F	%	F	%	F	%
Organizations encourage feedback from you on how to improve ICTs in place?	14	16.5%	0	0%	49	57.6%	22	25.9%
Donor is willing to change the ICTs in place based on the feedback from users	37	43.5%	0	0%	37	43.5%	11	12.9%
Donors consult your organization on the nature of ICTs they are recommending to the organization	4	4.7%	14	16.5%	19	22.4%	48	56.5%
Organization management support ICTs adoption process by providing technical support	0	0%	0	0%	26	30.6%	59	69.4%
Your organization enhance your skills of on ICTs to help in adoption process?	0	0%	22	25.9%	4	4.7%	59	69.4%
Your organization considers background knowledge of employees (such as ICT knowledge)	0	0%	24	28.2%	0	0%	61	71.8%
The top management cares about the employees' attitude towards ICTs when adopting new ICTs in the organizations	10	11.8%	19	22.4%	0	0%	56	65.9%
Before adoption of ICTs the organization ensures there is enough budgets for the ICTs to be put in place	0	0%	12	14.1%	46	54.1%	27	31.8%
The organization considers security of information while using ICTs	10	11.8%	34	40.0%	0	0%	41	48.2%
The organization considers the ease of use(complexity) of the ICTs to be used	35	41.2%	23	27.1%	0	0%	27	31.8%

The above findings indicated that ways that organisation handled challenges that might affect adoption of ICTs. 57.6% and 25.9% of the respondents agreed and strongly agreed that the organisation considered the feedback they gave on improvement of ICTs in the organisation. This implies that the adoption of ICTS can be influenced by the way organisation addresses

the challenges. On improvement of ICTs by donors when they get feedback from users 43.5% strongly agreed and 12.9% agreed an indication donors are willing to improve ICTs they impose on NGOs to help the adoption process. 43.5% of the respondents disagreed on improvement of ICTs given feedback from users. This implies that there is need for donors to strengthen relationships with the organisations to allow feedback to improve the ICTs they require the organisations they are funding to adopt. 4.7% of the respondents disagreed on the statement that donor consults them on the nature of ICTs they are want the organisation to use, while 16.5% were neutral and the 22.4% and 56.5% agreed and strongly agreed respectively on the issue.

On technical support from the organisation on ICTs issues e.g. malfunction 30.6% and 69.4% agreed and strongly agreed that the organisation offer support on ICTs technical issues. 25.9% of the respondents were neutral on if organisation offer ITC training if needed while 4.7% and 69.4% agreed and strongly agreed that the organisation enhance the knowledge and skills of its staff on ICTs. 71.8% of the respondents strongly agreed if the organisation considered the ICT background knowledge of the employee before they are hired for an ICT related job. 54.1% and 31.8% agreed and strongly agreed on the statement if the organisation ensures there is budget allocated for the ICTs to be adopted by the organisation while 14.1% of the respondents were neutral on this subject. Ensuring the security of data of the organisation 11.8% of the respondents felt the organisation did not consider the security of the information, while 48.2% strongly agreed and the rest of the respondents were neutral. 41.2% of the respondents disagreed that the organisation considered the ease of use of the ICTs they are adopting, while 31.8% of respondents strongly agreed on the same issue.

The above responses indicate that the way organisation handle the barriers to adoption of ICTs in data management influences the adoption of ICTs and hence affects the benefits that ICTs bring to the organisation.

#### **4.6 Respondents Challenges**

When asked to share challenges that hinder the adoption respondents said top management lacking knowledge and skills since they do not advocate for acquisition of the ICTs for the organization. Most respondents indicated that complexities of some of the ICTs in place becomes difficult to use without training and times they are required to learn on job which at times is not enough. Constant upgrade of the ICTs is another challenge that the respondents cited since when the upgrades require to learn how to use. Weak ICT infrastructure was another challenge the respondents cited they face, slow internet speeds or lack therefore at times. Respondents also sited power outages affected continuous use of ICTs, power outages are very frequent and hence the need to still rely on manual ways of data management. Lack of continuous training also is a challenge as respondents cited changes in ICTs is very rapid. With all the above challenges it becomes evident to realize the full benefits of ICTs in data management there is need to address some challenges the organization are facing. How this challenges will be addressed will also determine the influence ICTs will have on data management.

#### **4.7 Discussions**

Tracking progress for NGOs is important and challenging. The importance of tracking this progress bring rise to the need for data in these Organization, the data is needed for reporting as it is a requirement by donors who fund these organization. This study intention to find out the influences ICTs has on data management stems from this need, since when data management in an NGO is done well then it has effects on other sections of the organization.

The findings in this study concur on with studies by World Bank (December, 2013) on how ICTs benefits forest and agriculture. Where benefits in adopting ICTs in data collection proved to be very beneficial. Obrien, (2011) states ICTs are changing practice of international development. The findings in the study have clearly shown there are changes in the way organization are doing data management processes. More NGOs are dependent on use of ICTs presently.

Davis, (1989) indicated some the barriers that affect adoption to skills and knowledge and ease of use, in this study findings indicate that this same barriers if not handled well affect adoption and in turn influences the adoption processes of ICTs.

## **CHAPTER 5**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter summarises and concludes the research findings. At the end of the chapter are recommendations proposed by the researcher to the NGOs under study in order to solve the problem under study, based on the research findings. Conclusion of the chapter will be contributions made to the body of knowledge. The purpose of the study was to study the influence of Information and Communication Technologies on data management processes in Non-governmental organization in Nakuru County, Kenya.

The study was guided by the following objectives:-

- i. To establish the nature of ICTs available for data management processes in Non-Governmental Organisations in Nakuru County
- ii. To examine the extent to which NGOs depend on ICTs in data management processes in non-governmental organizations Nakuru County
- iii. To investigate how NGOs address barriers of adoption of ICTs in data management processes in non-governmental organizations Nakuru County

#### **5.2 Summary of findings**

This section includes the summary of findings arising from the study. The section summarizes how each objective was addressed.

To establish the nature of ICTs available in data management processes the study found out that the NGOs under study had the most common ICTs used and these were sufficient for ICTs to influence the data management processes. The study found out that most of the NGOs have some form of ICTs and they are using the ICTs in place for data management. The study also found out that in data collection, even though there are ICTs in place for data collection they are not being utilised.

The second objective was to examine the extent to which NGOs depend on ICTs in data management processes and on this the study found that the NGOs under study relied on ICTs to perform various data management processes. The only processes that the NGOs were not using ICTs was data collection and this was not due to lack of ICTs but lack of knowledge and skills to use the ICTs available for data collection. There is also need to have technical support to make ready the mobile phones for data collection. The implication of cost involved for supplying those who collect data with phones that are capable of data collection was a barrier to adoption of ICTs in data collection.

The final objective was to investigate how NGOs address barriers of adoption of ICTs in data management processes. The NGOs under study were handling the barriers they faced though not fully, the study found out how they handled this barriers influenced the adoption of ICTs.

### **5.3 Conclusions of the Study**

Based on the results of the study, it was it has come out clearly the nature of ICTs available of lack of them affects the adoption of ICYs in NGOs. In data collection though there is ICTs like phones available the organization are not enjoying the benefits that can come from using the mobile phones to collect data, benefits like real time reporting and minimization of use of papers are some of the benefits the organization are not realizing are missing out on.

Level of dependency on ICTs is high on the organizations under study in most other data management processes apart from data collection. The extent to which these NGOS depend on ICTs determines the influence the ICTs have on data management processes. The more they depend on them the higher the benefits they realize.

Barriers to adoption on ICTs in data management are many and how this barriers are addressed affect adoption of ICTs, this is because if they are not handled well and timely the adoption of these ICTs is affected. Lack of knowledge and skills in ICTs as a barrier if not

addressed correctly affects the adoption of ICTs. Knowledge and skills of ICTs affects the user of the ICTs he/she may be underutilizing the benefits that can be experienced. The study findings found out the organization under study are able to handle the barriers to adoption even though on addressing the ease of use as a barrier still need to be addressed well, also on the need for top management to be conversant on ICTs issue is key on adoption process.

#### **5.4 Recommendations**

NGOs should lay emphasis on hiring staff that have knowledge and skills in Information Communication Technologies Nevertheless, the staff should be frequently trained to ensure continued competence level. In addition, the NGO should put in place ICT policies that govern issues related to Information Communication Technologies. This will minimize donor imposed Information Communication Technologies. There is need for all NGO staff to have some basic knowledge and skills in Information Communication Technologies irrespective of their area of specialization. It is also important to ensure that the cost of Information Communication Technologies is considered while budgeting and sourcing for funds from donors

#### **5.5 Suggestions for further research**

The following areas are recommended for further research;

- i. Identifying factors influencing implementation of Information Communication Technologies in data collection
- ii. An investigation of challenges faced by Non-Governmental Organizations in implementing Information Communication Technologies imposed by donors

- iii. A study on how level of computer skills and knowledge affects implementation of Information Communication Technologies projects in Non-Governmental Organizations

## REFERENCES

- Apulu, I., & Latham, A. (2010). Benefits of information and communication technology in small and medium sized enterprises: a case study of a Nigerian SME. *Proceedings of the 15th Annual Conference on UK Academy for Information Systems*, March 23-24, Oriel College, University of Oxford.
- Beynon D. P. (2002). *Information Systems: an Introduction to Informatics in Organizations*. Palgrave Publishers Ltd. USA.
- Borg, R. W. Gall J. P. and Gall, M. D. (1996) *Educational Research: An Introduction*. New York, Longman Publishers.
- Choo, C.W. (2006). *The Knowing Organization*. 2nd edition. Oxford University Press.
- Coolican H. (2014) *Research methods and statistics in psychology*, 6<sup>th</sup> ed, Psychology Press, London.
- David, F.D. (1993). *User acceptance of information technology: System characteristic, user perception and behavioral impacts*. *International Journal of Man Machine Studies*, 38, 475-487.
- David, F.D. (1998). *Perceived Usefulness: Perceived ease of use and user acceptance of Technology*. *MIS Quarterly*, 13(3), 317-337.
- Dawson C. (2002) *Practical Research Methods: A user-friendly guide to mastering* December 12<sup>th</sup>, 2003. *International Telecommunication Union. Declaration of Principles*. Retrieved November 24<sup>th</sup>, 2014, from <http://www.itu.int/wsis/docs/geneva/official/dop.html>
- Ocen G. (2015). *Organisational Implementation of ICT: Findings from NGOs in the United Kingdom and Lessons for Developing Countries*. Retrieved March 27<sup>th</sup>, 2015 from [http://cit.mak.ac.ug/iccir/downloads/SREC\\_07/Dr%20Geoffrey%20Ocen\\_07.pdf](http://cit.mak.ac.ug/iccir/downloads/SREC_07/Dr%20Geoffrey%20Ocen_07.pdf)
- DS Bateson Consulting Inc, (2002). "Health, HIV/AIDS and Information and Communication Technologies: A Needs Assessment," May 21, 2002, conducted for the Digital Task Force of the G8 countries, at 7. Available online at



[http://www.dotforce.org/teams/health\\_hiv\\_aids\\_ict\\_report.doc](http://www.dotforce.org/teams/health_hiv_aids_ict_report.doc), last modified 10 February 2003.

Fraenkel, J.R. & Wallen, N.E. (2003). *How to design and evaluate research in education* (5<sup>th</sup> ed). New York: Mc Graw-Hill companies Inc

Tusubira, F. F. & N Mulira, (2004, September). *Integration of ICT in organizations: Challenges and best practice recommendation based on the experience of Makerere University and other organizations*. Paper Presented to Conference on “Universities: Taking a leading role in ICT enabled human development”, 6 – 8 September 2004, Kampala, Uganda. Abstract retrieved from [http://www.fftusubira.com/publications/Integration\\_of\\_ict.pdf](http://www.fftusubira.com/publications/Integration_of_ict.pdf)

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior*. Reading, MA: Addison-Wesley.

Fuchs, C. (2007). *Towards a dynamic Theory of Virtual Communities*. *International Journal of Knowledge and Learning*. 3(4/5), pp. 372 – 403.

Githua, B. N. (2002). ‘Factors related to the motivation to learn Mathematics among Secondary School Students in Kenya’s Nairobi Province and Three Districts of Rift Valley Province’. Unpublished Phd. Thesis, Egerton University, Njoro.

Gurstein, M. (2001). Community Informatics, Community networks and strategies for flexible networking In L. Keeble and B. Loader (eds). *Community Informatics: Shaping computer*

Islam, M. S., & Islam, M. N. (2007). Use of ICT in libraries: An empirical study of selected libraries in Bangladesh. *Library Philosophy and Practice (e-journal)*, 143.

ITU (2014), ITU World Telecommunication Indicators Database, <http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2014-e.pdf>, Accessed on 10/12/2014

Jackson, E.T. (2013) *Interrogating the Theory of Change: Evaluating Impact Investing where it Matters Most*. *Journal of Sustainable Finance & Investment*

Kalibala, S. and Mulenga D. (2011). “Situation assessment of the HIV response among young people in Zambia.” Geneva: UNAIDS.

- Kituyi-Kwake, A. and Adigun (2008). Analyzing ICT use and access amongst rural women in Kenya *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 2008, Vol. 4, Issue 4, pp. 127-147.
- Kothari, C.R (2004) *Research Methodology: Methods and Techniques*, 2<sup>nd</sup> ed. New Age International Publishers, New Delhi
- MacDonald, S. & Headlam, N. (2012). *Research Methods Handbook Introductory guide to research methods for social research*, Centre for Local Economic Strategies, Manchester. Retrieved March 30<sup>th</sup> 2015 from <http://www.cles.org.uk/publications/research-methods-handbook>
- Marcelle, G. (2002). “*Information and communication technologies and their impact on the advancement and empowerment of women: report from the online conference conducted by the division of the advancement of women*”. Retrieved March 30<sup>th</sup> 2015 from <http://www.un.org/womenwatch/daw/egm/ict2002/reports/Report-online.PDF>
- Meso, P. (2005). Towards a model of consumer use of mobile information and communication technology in LDCs: the case of sub-Saharan Africa. *Information Systems*, April 2005, Vol. 15 Issue 2, p119.
- Mugenda, O. M. & Mugenda, A. G. (2003). *Research Methods: Quantitative & Qualitative Approaches*. Nairobi: Acts Press.
- Musa, P. F., Mbarika, V. W., & Meso, P. (2005). *Calling for programmed technology transfer and adoption strategies for sustainable LDC growth*. *Communications of the ACM*, 48(12), 111-116.
- O'Brien, C. (June 2011) *ICTs and Development Organisations*. Retrieved from March 27<sup>th</sup>, 2015 [www.dochas.ie/.../Dochas\\_ICT\\_and\\_Development\\_Organisations\[1\].pdf](http://www.dochas.ie/.../Dochas_ICT_and_Development_Organisations[1].pdf)
- Ofunya F. A. (2013). *Factors affecting use of donor aid by international non-governmental organizations in Kenya: A case of USAID*. *International Journal of Business Management and Administration* Vol. 2(5), pp. 089-116, May 2013.
- Pam, D. (2002). *Reducing computer anxiety in adults learning to use microcomputers*. *Journal of Extension*, 40(5), Retrieved March 26<sup>th</sup> 2015 from <http://www.joe.org> .
- Griffiths P. June 17<sup>th</sup>, (2010). *Slideshare. On ICT for NGOs*. Retrieve November 26<sup>th</sup>, 2014, from <http://www.slideshare.net/ict4devwg/ict-for-ngos-4522502>
- Pedersen, P.E. (2003). *Adoption of mobile Internet services: An exploratory study of mobile commerce early adopters*. Retrieved March 27<sup>th</sup>, 2015 from <http://www.citrenz.ac.nz/conferences/2007/175.pdf>

- Popham, W.J. (2000). *Testing: What every parent should know about school tests*. London: Allyn and Bacon.
- Rogers, E. M. (1997). *Diffusions of Innovations Theory*. Retrieved March 29th, 2015 from [http://www.indiana.edu/~t581qual/Assignments/Diffusion\\_of\\_Innovations.pdf](http://www.indiana.edu/~t581qual/Assignments/Diffusion_of_Innovations.pdf)
- Rubin, A and Babbie, E. R. (2011) *Research Methods for Social Work*, 7<sup>th</sup> ed, Brook/Cole, Belmont *Research techniques and projects*, How To Books Ltd, Oxford
- Ssewanyana, J. (2007). "Adoption and usage of ICT in developing countries: Case of Ugandan firms. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 2007, Vol. 3, Issue 3, pp. 49-59.
- Stenvall, J., Syväjärvi, A. & Harisalo, R. (2007). The Information Steering in Government Information Resource steered by Administration in Welfare Sector. *Managing Worldwide Operations & Communications with Information Technology*, pp. 13951399.
- Study Guides and Strategies. What is Data Management? Retrieved November 24<sup>th</sup>, 2014, from [http://www.libraries.psu.edu/psul/pubcur/what\\_is\\_dm.html](http://www.libraries.psu.edu/psul/pubcur/what_is_dm.html)
- TechTarget. What is Data Management? Retrieved March 27<sup>th</sup> 2015, from <http://searchdatamanagement.techtarget.com/definition/data-management>
- Trochim, W.M. (2002) *Research Methods Knowledge Base*, Cornell University, <http://trochim.human.cornell.edu/kb/> (1 of 3)2004/01/23 04:49:45 PM
- Van Akkeren J. and Harker, D., (2003). *The mobile Internet and small business: An exploratory study of needs, use and adoption with full-adopters of technology*. *Journal of Research and Practice in Information Technology*, 35(3), 205-220.
- Walliman Nicholas (2011) *Research Methods: The Basics*. Rutledge, London

APPENDICES

Appendix 1

Research Questionnaire for Project Coordinators/Manager

**Informed Consent**

My name is Millicent Nyambura, a student at University of Nairobi, currently pursuing a Master's Degree Program in Project Planning. I am conducting a research study entitled, **Influence Of Adoption Of Information And Communication Technology On Data Management Processes** to be submitted in partial fulfillment of the requirements for the award of Master's of Arts degree. Whatever information you provide will be kept strictly confidential. We would very much appreciate your participation in this study. At this time, do you want to ask me anything about the study?

Do you agree to participate in this survey? Yes [ ] No [ ]

**Thank You**

Signature of the Interviewee: \_\_\_\_\_ Date: \_\_\_\_\_

**You are kindly requested to answer the questions by putting a tick (√) against the correct choice(s).**

**Section A: Bio Data**

1. What is your gender?

Male ( ) Female ( )

2. What is your age?

25 years or below ( ) 26-30 years ( )

31-35 years ( ) 36-40 years ( )

41-45 years ( )

3. What is your position in this organization? (please tick 1)

Project Coordinator/ Manager [ ] Data Clerk/Officer [ ]

Monitoring and Evaluation Officer [ ] Field Officer/Social/social worker [ ]

4. What is the highest level of education?

O – Level [ ] Undergraduate Level [ ]

Certificate Level [ ] Postgraduate [ ]

5. Computer Skills: What is the level of your proficiency skills?

Basic [ ] Intermediate [ ] Advanced [ ]

6. How long have you been associated with the organization?

Less than 2 years ( ) 2-5 years ( )

6-10 years ( ) Over 10 years ( )

## SECTION B: LEVEL OF ADOPTION

1. What ICTs are in place for use in you organisation? (*Tick all applicable*)
- |               |                          |                          |                          |
|---------------|--------------------------|--------------------------|--------------------------|
| Computer      | <input type="checkbox"/> | ICT enabled applications | <input type="checkbox"/> |
| Laptop        | <input type="checkbox"/> | Other:                   |                          |
| Mobile Phones | <input type="checkbox"/> | _____                    |                          |
| Internet      | <input type="checkbox"/> |                          |                          |

2. What ICTs are in place for data collection?

Mobile Phones

Manual (paper work)

3. What methods are used in your organization for collecting data? (*tick all applicable*)

Interview	<input type="checkbox"/>	Reporting	<input type="checkbox"/>
Questionnaires	<input type="checkbox"/>	Registrations	<input type="checkbox"/>
Direct Observation	<input type="checkbox"/>		

4. What ICT applications are in place for data processing and analysis? (tick all applicable)

Microsoft Excel	<input type="checkbox"/>	Epi Info	<input type="checkbox"/>
Microsoft Access	<input type="checkbox"/>	SPSS	<input type="checkbox"/>

Custom made applications (kindly name the software): \_\_\_\_\_

5. At your level how do you store data? (*tick all applicable*)

Files	<input type="checkbox"/>	Internal drives	<input type="checkbox"/>
External Drives	<input type="checkbox"/>	DVDs/CDs	<input type="checkbox"/>
Cloud Storage	<input type="checkbox"/>	Flash drives	<input type="checkbox"/>

Other: \_\_\_\_\_

6. How do you ensure data is secure at your level?

Update antivirus	<input type="checkbox"/>	User passwords for data systems	<input type="checkbox"/>
Password Protect Computer	<input type="checkbox"/>	Do backups	<input type="checkbox"/>

Other: \_\_\_\_\_

7. Do you use ICT for data use? Yes  No . If so how? (Name at least 3)

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**SECTION C: DEPENDENCE OF ICT ON DATA MANAGEMENT PROCESSES**

8. To what degree do you depend on ICTs to do the following data management processes?

**Lowly dependent – 1 Moderate dependent – 2 Highly dependent - 3**

Statement	1	2	3
i. Data Collection			
ii. Data Processing and analysis			
iii. Data storage and security			
iv. Data Use			

9. To what extent do you agree with the following statements on adoption of ICTs to accomplish the various data management processes?

**Strongly Disagree – 1 Disagree – 2 Neutral -3 Agree – 4 Strongly Agree - 5**

Statements	1	2	3	4	5
i. ICT make a difference to the way you collect data in your organization					
ii. ICT improved the way you process and analyse data					
iii. ICT use has changed the way we store data					
iv. Use of ICTs improved the way we ensure data security					
v. Use of ICT encouraged knowledge sharing and data use?					
vi. ICTs improves cost effectiveness					

**SECTION D: HOW BARRIERS TO ADOPTION OF ICT ARE HANDLED BY NGOS**

1. To what extent do you agree with the following statements about your organizations?

**Strongly Disagree – 1 Disagree – 2 Neutral -3 Agree – 4 Strongly Agree - 5**

Statements	1	2	3	4	5
i. Before adoption of new ICTs the background knowledge of employees (such as ICT knowledge) is considered					
ii. The top management cares about the employees’ feeling when adopting new ICTs in the organizations					
iii. Before adoption of ICTs the organization ensures there is enough budgets for the ICTs to be put in place					

iv. The organization considers security of information while using ICTs					
v. The organization considers the ease of use of the ICTs to be used					

2. In your own opinion what are the other challenges do you face in your day to day activities as you use ICTs in place? Kindly name three.

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