

**THE USE OF ICTs IN THE PROVISION OF ACCESS AND REFERENCE  
SERVICES AT THE NATIONAL ARCHIVES OF NAMIBIA**

by

Lukas N Ikanda

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the Bachelor's Degree in Records and Archive Management in the Faculty of  
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**Supervisor: Prof C. T. Nengomasha**



## **ABSTRACT**

This research aimed at investigating the use of ICTs in the provision of access and reference services at the National Archives of Namibia (NAN). The specific objectives were: to access the types of ICTs in the provision of access and reference services at the NAN; to find out the legal and regulatory framework that governs the use of ICTs at the NAN; to determine the benefits and the challenges of the use of ICTs at the NAN; and to come up with recommendations on how to enhance the use of ICTs at the NAN.

A case study research design was employed and data was collected using interviews. The population was the staff at NAN and made use of non-probability sampling specifically judgement sampling to select 2 staff members to respond to interview questions. The data collected was analysed applying content analysis.

The study revealed that the NAN had challenges of obsolete and lack of equipment, lack of staff training and expertise as well as challenge of maintaining users' confidentiality and privacy when using ICTs. Some of the recommendations from this study are that the NAN should seek funding to secure up-to-date equipment and provide staff training in the use of ICTs.

## **DEDICATION**

I dedicate this research project to my father Fillemon Ikanda. He has supported me throughout my ups and downs not only in academics but life in general. He has always been my motivator, my strength and my guide in accomplishing my goals and finish my studies. To my loving mother Linda Ikanda, you've been my rock, my pillar of strength and my support. Thank you for never giving up on me. This is for my mom and dad.

## **ACKNOWLEDGEMENTS**

Let me take this opportunity to thank all persons who in one way or the other contributed towards the success of this research project.

First of all, I wish to thank the almighty God for his sufficient grace and mercies for the gift of life, for good health and strength to conquer all obstacles throughout my study.

Secondly, I would like to thank my supervisor Prof. C.T. Nengomasha for her guidance and encouragement and for not giving up on me throughout my research project.

Thirdly, to all staff at the National Archives of Namibia who accepted to provide data used in my research project, I say thank you.

Lastly, I wish to take this opportunity to thank those people who directly or indirectly contributed to the success of this research project.

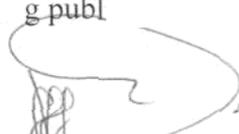
May the Lord bless them abundantly.

## DECLARATION

I, Lukas Nghidinohamba Ikanda hereby declare that this study is a true reflection of my own research, and that this work, or part thereof, has not been submitted for a degree in any other institution of higher education.

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## **ABBREVIATIONS AND ACRONYMS**

**NAN** – National Archives of Namibia

**ICT** – Information and Communication Technology

**NLAS**- National Library and Archives Service

**GRN** – Government Republic of Namibia

**ICA** – International Council on Archives

**ICQ** – Cross-platform instant messaging and VoIP client

**IP** – Internet Protocol

**VoIP** – Voice over Internet (Voice over Internet Protocol)

**USC** – University of South Carolina

## CHAPTER ONE

### INTRODUCTION

#### 1. Introduction

Chapter one introduces the research topic which is “The use of ICTs in the provision of access and reference services at the National Archives of Namibia”. The chapter consists of orientation of the study, problem statement, research objectives and significance of the study and limitations of the study and summary of the methodology.

NAN is a division within the NLAS (National Library & Archives Service) directorate under the Ministry of Education, Arts & culture regulated by the Archives act 12 of 1992 to provide for the custody, care and control over archives in Namibia including records in their current and semi current state. NAN houses 9000 linear metres of records in total. It's database catalogues over 525,000 items which include electronic records, photos, posters, audio-visual media, sound recordings (mostly oral history), maps and plans, microfilms including published material (Books, Articles, Biographies). (GRN Portal, n. d.)

#### 1.1 Orientation of the study

Access to archival information has always been part of the archival management process and as such the International Council on Archives (ICA) has created a general framework that guide archivists in fulfilling their duties. The ICA has created principles that mandate the use of information in archival settings in all media even through using ICTs. Principle 3 on the ICA's *Principles of Access to Archives* states that “Archivists have a professional responsibility to promote access to archives. They communicate information about archives through various means such as Internet and web-based publications, printed materials, public programs, commercial media and educational and outreach activities.” (ICA, 2012, p.9).

ICA also highlights that “Archivists proactively provide access to the parts of their holdings that are of wide interest to the public through print publication, digitization, postings on the institution’s website, or by cooperation with external publication projects” (ICA, 2012, p.90). A study by Nengomasha and Nyanga (2015) highlight that users gained access to National Archives of Namibia’s information through emails, catalogues and book launches. There was no website at the time of the study conducted meaning the only usage of ICTs was a computer or portable device to send email. In the same study, recommendations were made for the National Archives to set up social media for researchers and users to gain access from remote areas and limit the time spent in research rooms and thus limits the loss of records. Security can be a concern as malicious user through ICTs can be a problem due to lack of protection of data legislation.

## **1.2 Problem statement**

Article 6 of the “archivists’ *Code of Ethics* calls on archivist to “promote the widest possible access to archival material ...”. They can do this “through various means such as Internet and web-based publications, printed materials, public programs, commercial media and educational and outreach activities” (ICA, 2012). The National Archives of Namibia can benefit from efficient and effective dissemination of information to users through the usage of ICTs as a facilitator. Studies conducted by Nengomasha and Nyanga (2015) highlight the usage of emails to access information and for reference services at the National Archives of Namibia yet a study on the use of ICTs as a facilitator to access information such as websites, social media platforms and other media at the National Archives of Namibia are yet to be conducted. Insights gained from this study could highlight the ICTs being used at the National Archives, the benefits and challenges of these ICTs, the relevant legislation as well as the recommendations that would enhance the performance of the National Archives using ICTs.

### **1.3 Objectives of the Study**

The main objective of the study was to investigate the use of ICTs in the provision of access and reference services at the National Archives of Namibia. The specific objectives of the study were to:

- Access the type of ICTs in the provision of access and reference services at the National Archives of Namibia
- Find out the legal and regulatory framework that governs the use of ICTs at the National Archives of Namibia
- Determine the benefits and challenges of the use of ICTs by the National Archives of Namibia; and
- Come up with recommendations on how to enhance the use of ICTs at the National Archives of Namibia

### **1.4 Significance of the Study**

The study findings will inform policy and practice at the National Archives of Namibia regarding use of the ICTs in the provision of access and reference services as well as contribute to the body of knowledge

### **1.5 Limitations of the study**

This study does not include the users/researchers hence it does not capture their views which would have enriched the findings and generated more robust recommendations

### **1.6 Methodology**

The research design for this study was a case study which applies a qualitative approach employing a triangulation of interviews as data collection methods. Data was collected via qualitative methods using interview as a data collection method. Two archivists including Senior Archivist and Assistant Archivist were interviewed. The target population for this study

was the staff of the National Archives. The research instrument used in this study was a semi-structured interview guide. This study used non-probability sampling specifically judgement sampling technique to select 2 employees.

Reliability refers to exact replicability of the processes and the results (Leung, 2015). This means that reliability can be achieved with constant data comparison between the population of the study. Reliability can be achieved or enhanced by documenting the research process well and reporting the findings honestly. Validity in qualitative research means “appropriateness” of the tools, processes, and data. Whether the research question is valid for the desired outcome, the choice of methodology is appropriate for answering the research question, the design is valid for the methodology, the sampling and data analysis is appropriate, and finally the results and conclusions are valid for the sample and context (Leung, 2015). In this study the use of content validity will be used as it is a non-statistical form of validity. The triangulation of data collection methods would ensure validity of findings.

### **1.7 Research Ethics**

Ethical principles mean that as a researcher, you need to: (a) obtain informed consent from potential research participants; (b) minimise the risk of harm to participants; (c) protect their anonymity and confidentiality; (d) avoid using deceptive practices; and (e) give participants the right to withdraw from your research (Lund Research, 2012)

The researcher considers ethical issues. Consent will be obtained from the National Archives of Namibia as well as the staff involved. The researcher will also inform the National Archives of Namibia about the study and will operate within the parameters agreed with the National Archives of Namibia. Participants will sign an informed consent form (see Appendix A). The researcher will give participants clarity on the anonymity and confidentiality as well as the rights of the participants will be given to them before the research is conducted. In order to

ensure anonymity and confidentiality of the users, the use of pseudonyms will be used for all participants. Data will be stored on a virtual platform and disposed of after five years in line with the University of Namibia Research Ethics Policy.

### **1.8 Chapter Summary**

The study primarily focused on the use of ICTs to facilitate access and reference services at the National Archives of Namibia. The National Archives is a custodian for the national heritage of Namibia which aims to preserve and provide access to the national heritage. The statement of the problem focuses on the opinion of efficiency and effectiveness of the use ICTs in dissemination of information at the National Archives and the lack of proper channels and resources to disseminate information using ICTs. The main objective of the study was to investigate the use of ICTs in the provision of access and reference services at the National Archives of Namibia. The study was found to be significant in informing policy and practice at the National Archives of Namibia regarding the use of ICT in the provision of access and reference services as well as contribute to the body of knowledge. The study was limited to the staff of the National Archives and does not include the views and opinions of users or researchers which would have enriched the findings and generated more robust recommendations. The following chapter focuses on the literature review and conceptual framework.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

A Literature Review is a systematic and comprehensive analysis of books, scholarly articles, and other sources relevant to a specific topic providing a base of knowledge on a topic. It should offer a critical analysis of the current research on a topic and that analysis should direct your research objective. (Upstate University of South Carolina, 2021).

The literature review is presented in the following subheadings as informed by the research objectives:

- Access the type of ICTs in the provision of access and reference services at the National Archives of Namibia
- Find out the legal and regulatory framework that governs the use of ICTs at the National Archives of Namibia
- Determine the benefits and challenges of the use of ICTs by the National Archives of Namibia; and
- Come up with recommendations on how to enhance the use of ICTs at the National Archives of Namibia

#### **2.2.1 Types of ICTs in the provision of access**

The study conducted by Nengomasha and Nyanga (2015) highlights the type of ICTs used in the National Archives of Namibia in terms of access and reference services which stipulates the use of emails by users as an access and reference tool in addition to the lack of archival website in providing access to information in electronic media.

Cox (2007) highlight some of the ICTs used in the provision of access and reference services as; emails and virtual reference, video conferencing, websites, scanners to send documents electronically instead of delivering them physically, digital cameras to take pictures of documents, instant messaging, databases which store data and organised to easily update, retrieve and manage data and adaptive technology such as braille, screen enlargers and electronic magnifiers integrated into archival reference rooms. Kim (2016) also highlight another ICT in the provision of access and reference services as Virtual Reading Room, which is a digital page which preserves and provides open access to digitally reformatted collections (images, audio-visuals, oral histories, pdf documents etc.) as well as born digital collections. Social media usage as an ICT tool in facilitating access and reference services is outline by United Kingdom, National Archives (n. d.) in having seven twitter accounts to “tweets about our blogs, news, podcasts, publications and file releases, and the latest videos and publications uploaded to YouTube and Flickr” and updates on legislation, information and records management etc. They utilise Facebook by posting about new content on their website where users can comment, share and like the content. They also have a live chat service, Instagram account, YouTube to upload short videos of collection, Flickr account where members of photo stream can view images from collection, Pinterest board to find and share images from national archives, National Archives blog etc. to name a few.

Slater (2017) state that the National Records of Scotland provides access to their services by highlighting that “Our principal policies relating to access and to the collections can be seen on our website. NRS maintains a Twitter account @NatRecsScot. Scotland’s People readers who are registered on our internet service can receive newsletters and the service also maintains Facebook and Twitter accounts. Users of the Scottish Register of Tartans can receive updates when new tartans are registered and the Register staff also maintain Facebook and Twitter

accounts.” Furthermore, she highlighted that they have an email service that caters for correspondences relating to copies or answering simple enquiries.

Apart from the plethora of ICTs listed above used to access the archives, there is also a system used by the South African National Archives called the NAAIRS (National Automated Archival Information Retrieval System) which is highlighted by the Western Cape Government (2021) as an online tool for searching archival inventories. These catalogues are a list of the available archival records housed in National Archives of South Africa facilities.

Now we are going to look at the benefits as well as the challenges posed by ICTs to facilitate access and reference services.

### **2.2.2 Benefits and challenges of the use of ICTs by the National Archives of Namibia**

The benefits of using ICTs in facilitating access and reference services are; effective and efficient access to archival material to people in remote areas that cannot be able to access the Archives physically as well as to disabled and physically impaired citizens that need access and reference service to the holdings. This benefit is highlighted by Leitch (2012) who state that ICTs “exploit opportunities to make archives available on the Internet to larger audiences”.

247 Amend (2019) “people can communicate in real time without any inconvenience, also with others in different countries using technologies such as social networks that incorporate instant messages through ICQ, Yahoo, etc., voice over IP (VoIP) and videoconferencing. such as Instagram, Pinterest, LinkedIn Facebook allow users across the country, Europe, Asia and around the world to keep in touch and communicate with each other on a regular basis.”

The Director of the National Archives conceded that the 21st century is largely defined by ICTs and the needs of the digital natives. He also added that the use of ICTs made providing access to archival holdings more “efficient, more effective and a whole lot easier”. (Ngulube, Sibanda & Makoni, 2013).

ICTs pose a number of benefits in providing access to Information held in archival repositories as highlighted above but just as they have benefits, they also pose a number of challenges to the archival institutions.

Mng'ong'ose and Victor (2018) highlight some of the major challenges of ICTs as “Lack of knowledge about ICT, lack of ICT tools and expertise, and lack of government support.”

Nengomasha and Nyanga (2015) highlight the challenges of legislation whereby they state that the country's law has clauses that stipulate closure periods before public archives are made open to the public. This is a challenge in accessing archival material that has not yet reached 30 years for it to be publicly accessible.

Another challenge is security, whereby there are no adequate measure in place at the National Archives of Namibia and as such poses a threat from malicious users using ICTs. Another challenges highlighted by Nengomasha and Nyanga (2015) include lack of guidelines for privacy at the National Archives and this poses a challenge in the use of ICTs in providing access and reference services as the users do not know how the archives will ensure that their private information is used for the intended purpose. Asogwa (2012) also give an insight into the loss of privacy and security of data using ICTs by stating that” databases containing personal financial and medical records, for instance, may be extremely useful to the individuals themselves, but without proper security protections that information may also be accessed by others, thereby threatening the privacy of the owners”. He further gave an example by stating that “the risk of identity theft is now very real in the electronic world. Some unscrupulous individuals and companies compile and sell personal information about people; this information has been gathered, usually illegally, from electronic sources such as credit databases, land title files, motor vehicle records or medical files.” This means that with the

usage of ICTs to gain access to archives, malicious users pose a threat to personal information such as those highlighted above.

### **2.3 Conceptual framework**

Access to archives is governed by number of factors. The factors governing access to archives will form the conceptual framework for this study. This study is guided by the ICA principle of Access principle 3 through 4.

A conceptual framework is used in a research paper to explain the key concepts or variables and the relationships between them that need to be studied. Simply put, conceptual framework is the way ideas are organised to achieve a research project's purpose and explanation is the most common method employed (Afribary, 2020).

Access to archives is governed by number of factors which are highlighted by ICA principles of access to archives. These factors include; legislation, promotion of access, privacy and security.

#### **2.2.1 Legislation**

Legislation plays a significant role in records management. From experiences of other countries relevant legislation includes the records and archives laws, e-commerce laws, freedom of information and privacy or data protection laws. Namibia does not have a freedom of information legislation (Nengomasha, 2009).

ICA Principle 4 highlight that “Archivists ensure that the access policies and rules for their institution are published so that the restrictions and the reasons for them are clear to members of the public.”

The Director of National Archives of Zimbabwe stressed that there was a need to review the statutory and regulatory frameworks governing access to archives so that they meet needs of

21st century users (Ngulube, Sibanda & Makoni, 2013). This means that legislation needs to accommodate records in electronic records as well as facilitate the use of ICTs to access archives by transitioning and reviewing paper based legislations in providing access to archives.

Nengomasha and Nyanga in 2015 highlight that, legislation is one of the factors that guide access in archival institutions. Countries' archival laws contain clauses on access, which also stipulate closure periods before public archives are made open to the public. Such laws that governs records management in all media include: National Archives Act 12 of 1992, Electronic Transaction Act of 2019, Data Protection Bill of 2018.

It is these laws that govern and promote how access to information is obtained in electronic format using technologies such as ICTs to facilitate efficient and effective access and dissemination of information.

### **2.2.2 Promotion of Access**

Article 6 of the “archivists’ *Code of Ethics* calls on archivist to “promote the widest possible access to archival material ...”. They can do this “through various means such as Internet and web-based publications, printed materials, public programs, commercial media and educational and outreach activities”. Principle 3 of ICA states that “archivists have a professional responsibility to promote access to archives. They communicate information about archives through various means such as Internet and web-based publications, printed materials, public programs, commercial media and educational and outreach activities.”

This means that with the usage of ICTs in archives can promote, share and disseminate information to wide array of users at a time thus providing the widest possible access to archival

materials in their custody. This is achieved by the plethora of ICTs that can be used to access archival records.

Remote access to archives promote undesirable issues posed by the use of ICTs including privacy and security.

### **2.2.3 Privacy and security**

Privacy and security is highlighted by the 4<sup>th</sup> principle of ICA that states that general restrictions apply to all the archival holdings; as appropriate to the nature of the institution, they cover the protection of personal data and privacy, safety, investigatory or law enforcement information, commercial secrets, and national security. The scope and duration of the general restrictions must be clear.

Privacy as highlighted by Nengomasha and Nyanga (2015), refers to biographical data researchers are requested to provide to the National Archives. This information should be kept private as such data contain personal information and should not be used by malicious users for other use rather than that stipulated by the National Archive's guidelines for use. Privacy is one of the challenges imposed by the use of ICTs to access information held in archival setting as institutions like the National Archives of Namibia cannot guarantee privacy of information using technology such as ICTs.

Security of information held in databases cannot be guaranteed safe as malicious users such as hackers can easily access information, make alterations or deletion of sensitive, valuable information. This is due to the use of ICTs to access information held on archival repositories.

## **2.4 Chapter Summary**

This chapter discussed literature on the use of ICTs to facilitate access and reference services to the National Archives. The literature review was guided by the ICA principles of Access to Archives. This chapter also looked at the types of ICTs used in the provision of access. This

chapter also discussed the benefits as well as the challenges posed by the use of ICTs at the National Archives. The next chapter is on data analysis and presentation.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Jansen and Warren (2020) define research methodology as “simply refers to the practical “how” of any given piece of research. More specifically, it’s about how a researcher systematically designs a study to ensure valid and reliable results that address the research aims and objectives”. Paperpile (2021) underpins the definition of research methodology by stating that “research methodology encompasses the way in which you intend to carry out your research. This includes how you plan to tackle things like collection methods, statistical analysis, participant observations, and more.”

This chapter describes the methods used to collect the data for the case study on the use of ICTs in the provision of access and reference services at the NAN. This chapter discusses the research design, data collection instruments used, the research location, population of the study, sampling techniques, ethical consideration and data analysis as well as reliability and validity of the study. The chapter ends with the summary.

#### **3.2 Research Design**

The research design refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data (University of South Carolina, 2021).

Case study is a research method in which a phenomenon is investigated in its real-life context. It’s an empirical inquiry and research strategy that is based on an in-depth investigation of a group, event, or individual to explore the underlying principles causes (My Homework Done,

2021). Bhandari (2020) defines qualitative approach involving collecting and analysing non-numerical data (e.g., text, video, or audio) to understand concepts, opinions, or experiences. It can be used to gather in-depth insights into a problem or generate new ideas for research.

The research design for this study was a case study which applied a qualitative approach employing one interview guide as data collection methods. Qualitative approach is flexible thus making it ideal for the in depth information research on the use of ICTs in the provision of access and reference services at the NAN.

### **3.3 Data Collection Methods**

Data collection is a process of collecting information from all the relevant sources to find answers to the research problem, test the hypothesis and evaluate the outcomes (Business Research Methodology, n. d.)

Qualitative research can be defined as a method used for market research which aims at obtaining data through open-ended questions and conversations with the intended consumers (Voxco, 2021)

Interviews are a qualitative method of gathering data through open-ended questions. Open-ended interviews, unlike questionnaires that have pre-determined response categories, allow respondents to express their minds thereby giving accurate points of view of their experiences and phenomena under investigation (Patton, 2002).

Interviewing involves asking questions and getting answers from participants in a study. Interviewing has a variety of forms including: individual, face-to-face interviews and face-to-face group interviewing. The asking and answering of questions can be mediated by the telephone or other electronic devices (e.g. computers). Interviews can be structured, semi-structure or unstructured (Robert Wood Johnson Foundation, 2008).

Face to face interviews are highlighted by Ryan, Coughlan and Cronin (2009) who state that face-to-face interviews offer the researcher the opportunity to interpret non-verbal cues through observation of body language, facial expression and eye contact and thus may be seen to enhance the interviewers understanding of what is being said. They further highlighted that face-to-face interview permits the researcher to probe and explore hidden meanings and understandings. This type of information and in-depth understanding cannot be collected via other methods such as telephonic interviews.

Data was collected via qualitative methods using interview as a data collection method. Two archivists including Senior Archivist and Assistant Archivist were interviewed using one interview guide for each unit.

In a qualitative interview, the researcher conducted face-to-face interviews through open-ended questions.

### **3.4 Population**

Population can be explained as a comprehensive group of individuals, institutions, objects have common characteristics that are the interest of a researcher (Rafeedalie, n. d.). Therefore, the population of this study was the staff of the NAN.

### **3.5 Sample**

A sample is the specific group of individuals that you will collect data from (Scribbr, 2019). The units of analysis were reference services staff who have knowledge of the finding aids and senior archivist with knowledge and expertise of the archives' holdings and its operations. This study used non-probability sampling specifically judgement sampling technique and selected 2 employees. These selected employees include Senior Archivists and Assistant Archivist.

### **3.6 Research Instruments**

Davis (2021) states that, semi-structured interviews is a qualitative data collection strategy in which the researcher asks informants a series of predetermined but open-ended questions. A semi-structured interview guide provides a clear set of instructions for interviewers and can provide reliable, comparable qualitative data. Semi-structured interviews also allow informants the freedom to express their views in their own terms (Robert Wood Johnson Foundation, 2008).

Keller and Conradin (2020) highlight additional benefits to those highlighted above by stating that the use semi-structured interviews:

- encourages two-way communication. Those being interviewed can ask questions of the interviewer. In this way it can also function as an extension tool
- confirm what is already known but also provides the opportunity for learning. Often the information obtained from semi-structured interviews will provide not just answers, but the reasons for the answers
- When individuals are interviewed they may more easily discuss sensitive issues.

The research instrument used in this study was one semi-structured interview guide which was used for both the Senior Archivist and Assistant Archivist (see Appendix B).

### **3.7 Reliability and Validity**

Reliability refers to exact replicability of the processes and the results (Leung, 2015). This means that reliability was achieved with constant data comparison between the population of the study. Reliability was achieved or enhanced by documenting the research process well and reported the findings honestly.

Validity in qualitative research means “appropriateness” of the tools, processes, and data. Whether the research question is valid for the desired outcome, the choice of methodology is

appropriate for answering the research question, the design is valid for the methodology, the sampling and data analysis is appropriate, and finally the results and conclusions are valid for the sample and context (Leung, 2015). In this study the use of content validity was used as it is a non-statistical form of validity. The triangulation of data collection methods ensured validity of findings.

### **3.8 Procedure**

The procedure used in this study was that the researcher first got permission to conduct the study at the NAN using a research permission letter from the supervisor (see Appendix A). Once permission was granted, the researcher had meetings with the correspondents. The interview was used to explore the experiences and views on the use of ICTs in the provision of access and reference services. The researcher asked for permission from the participants to record the them. A recorder was used to ensure that all information was gathered whilst conducting the interview.

### **3.9 Data analysis**

Content analysis was used to analyse the data. It is used to analyse documented information in the form of texts, media, or even physical items (Atlan, 2019). In the case of this study, transcript data collected through interviews, were analysed not only by describing the participants' views and experiences but also in relation to the broader context.

### **3.10 Research Ethics**

Ethical principles mean that as a researcher, you need to: (a) obtain informed consent from potential research participants; (b) minimise the risk of harm to participants; (c) protect their anonymity and confidentiality; (d) avoid using deceptive practices; and (e) give participants the right to withdraw from your research (Lund Research, 2012)

The researcher considered ethical issues. Consent was obtained from the NAN as well as the staff involved. The researcher also informed the NAN about the study and operated within the parameters agreed with the NAN. Participants signed an informed consent form (see Appendix A). The researcher gave participants clarity on the anonymity and confidentiality as well as the rights of the participants were given to them before the research was conducted. In order to ensure anonymity and confidentiality of the users, the use of pseudonyms was used for all participants. Data was stored on a database and disposed of after five years in line with the University of Namibia Research Ethics Policy.

### **3.11 Chapter summary**

This chapter explained the methodology and the methods used to gather data and analysis. A qualitative approach was used to collect data using an interview guide. Non-probability sampling was used to select a number of participants who participated in this study. The chapter outlined how triangulation of interview guides would ensure validity. Furthermore, it outlined how data was collected and analysed as well as covered the issues of ethics. The next chapter is on data presentation.

## CHAPTER 4

### DATA ANALYSIS AND PRESENTATION

#### 4.1 Introduction

This chapter presents the research findings of study on the use of ICTs in the provision of access and reference services at the NAN. According to QuestionPro (2021) data analysis is the science of examining a set of data to draw conclusions about the information to be able to make decisions or simply to expand the knowledge on various subjects. It consists of subjecting data to operations. This is done to obtain precise conclusions that will help us achieve our objectives, such as operations that cannot be previously defined since data collection may reveal specific difficulties. Whilst data presentation involves the use of a variety of different graphical techniques to visually show the reader the relationship between different data sets, to emphasise the nature of a particular aspect of the data or to geographically ‘place’ data appropriately on a map. Presentation of data refers to the organization of data into tables, graphs or charts, so that logical and statistical conclusions can be derived from the collected measurements (Davis, 2021). The data collected were analysed using the content analysis.

This chapter was organized according to the themes drawn from the research objectives and within those, are subheadings based on the themes which emerged during content analysis. The headings and subheadings are as follows:

- **Types of ICTs in the provision of access and reference services**
  - Face-to-face interactions
  - Remote access
  - Physically challenged users
- **Legal and regulatory framework that governs the use of ICTs at the National Archives of Namibia**

- Electronic records management
- **Benefits of ICTs**
  - Time management
  - Business continuity
  - Preservation
  - Promotion
  - Users
- **Challenges of ICTs in the provision of access and reference services at the NAN**
  - Equipment
  - Lack of staff training/expertise
  - Security
  - Confidentiality and privacy

A section on the participants of the study highlights the codes used to identify the participants for confidentiality.

In this chapter, codes are used to refer to the respondents from different units in order to maintain the confidentiality of respondents. There is no specific reference made to any particular individual. The respondent in the study are coded as A and B. Data is presented in the form of descriptive narrative which is derived from the interview guide. This is a case study of the National Archives of Namibia which interviewed 1 Senior Archivist and Assistant Archivist.

#### **4.2 Participant in the study**

Data was gathered from a Senior Archivist and an Assistant Archivist. The details of the participants are indicated below

**Table 1: Shows the number of interviewees by position at NAN**

<u>Respondents</u>	<u>Code</u>	<u>Length of time in the position</u>
<b>Research and Publications Unit</b>		
Senior Archivist	A	10 Months
Assistant Archivist	B	5 years

The Respondent A was recently promoted to the senior archivist position after working as an archivist for 4 years and thus knew all the legal and regulatory procedures for the access and reference services as well as their generation and the measures in place. Respondent B has been using the ICTs in providing access to researchers remotely and providing reference services and has been entrusted with the website.

#### **4.3 Types of ICTs in the provision of access and reference services**

The researcher wanted to know the types of ICTs used in the provision of access and reference services in the organization.

##### **4.3.1 Face-to-face interactions**

Respondents A and B stated that the National Archives made use of databases with finding aids via face-to-face interactions when users came to visit the reading rooms. Respondent A also highlighted that they used scanners in the Archives to digitize the paper records.

##### **4.3.2 Remote access**

Respondents A and B highlighted that they used telephonic reference services where researcher made calls from outside the country and got assistance on preliminary search. They made use of emails for enquiries whereby reference was made to Germany and European countries' users who gained access and reference services via emails. The Respondents (A and B) mentioned that they made use of a website where most of the digitized finding aids are available and they

had social media platforms where so far they created three (3) which include Facebook, Twitter and Instagram accounts. Respondent B further stated, “We hold exhibitions via our website and social media platforms thus provided access to material”. Additionally, respondent B stated, “We make use of a YouTube channel facilitated by the Museum association, where we are able to post videos on heritage week.”

#### **4.3.3 Physically challenged users**

The researcher asked if the ICTs catered for all users including the disabled, Respondent A and B both weren't sure. Respondent B further stated that the website was not as interactive and that they were working on it. Respondent A, “The use of the database via face-to-face interaction is ideal as any user can gain access to the reading room once they visit the NAN but would be assisted by staff in using database”.

#### **4.4 Legal and regulatory framework that governed the use of ICTs at the National Archives of Namibia**

##### **4.4.1 electronic records management policies**

The researcher wanted to find out the policies, guidelines and legal frameworks that governed the use of ICTs at the NAN. Respondent B stated that they were not aware of any but cited the National Archives Act 12 of 1992 which has a clause on electronic records management but not inclusive on ICTs. Respondent A however stated that they used the Information Communication Act, Archives Act for provision of access, Copyright Act especially in the use of ICTs in terms of knowing the type of material that can be made available to users and further stated that they were busy compiling a policy for the use of ICTs in the provision of access at the NAN. Respondent A further highlighted that their finding aid acted as a policy that guided their collections.

## **4.5 Benefits of ICTs**

The researcher asked how the use of ICTs in the provision of access and references services had benefited the organization.

### **4.5.1 Time management**

Respondent B stated that ICTs were good for time management such as telephonic and email enquiries which saved up time and costs in transport for users that were in faraway places. Respondent A also highlighted that users did not have to spend time visiting the physical Archives but made use of the ICTs to gain access to archival material made available online.

### **4.5.2 Business continuity**

Respondent A and B highlighted the benefit of remote access of users to the NAN and business continuity in the context of the pandemic. Users were able to get assistance via ICTs and got information via website and social media platforms. Respondent B explained “The use of ICTs helped the heritage week go on despite the pandemic as we made a video and posted it on the Museum Association’s YouTube channel.”

### **4.5.3 Preservation**

Respondent A said “The benefit of using ICTs saves archives from mishandling of paper records and from exposure to light, pollution, mishandling of records by researcher thereby preserving original materials for longer.”

### **4.5.4 Promotion**

Another benefit highlighted by the respondents (A and B) was that the users were made aware of the services of the NAN i.e. website spread content, operating hours of the NAN etc. via the use of websites and social media platforms facilitated by ICTs.

#### **4.5.5 Users**

The researcher wanted to know how the users benefited from the use of ICTs in the provision of access to the NAN. Respondent B mentioned that users were more equipped with knowledge such as finding aids via websites and social media platforms. Respondent A and B both highlighted the benefit of remote access of users to the NAN in which the user accessed the NAN and got reference services anywhere in the world using ICTs.

#### **4.6 Challenges of ICTs in the provision of access and reference services at the NAN**

The researcher wanted to find out the challenges faced by the NAN in the provision of access and reference service via the use of ICTs.

##### **4.6.1 Equipment**

Respondent A highlighted poor service at slow rate because of the lack of computers in the reading room, obsolete equipment i.e. scanners only scanned page by page and slowed down the process.

##### **4.6.2 Lack of staff training/expertise**

Respondent B mentioned the challenge of expertise, by stating that there weren't a lot of people that maintained and administered the website. They further stated that "not a lot of people are on social media especially the staff who are supposed to update the sites and share the content".

Respondent A concurred with Respondent B saying that one of the biggest challenge on the use of ICTs at the NAN was that the staff lacked the training on the use of ICTs and most were nonchalant in the use of social media.

##### **4.6.3 Security measures in place in the use of ICTs**

The researcher wanted to find out the security measures applied in the use of ICTs. Responses from Respondents A and B revealed that the use of USBs by users is not allowed by NAN, computers were password protected, users were not allowed to send digitized images to their

emails and they had a user agreement whereby the user signed for the use of a particular digital image and agreed to use it for the intended purpose.

#### **4.6.4 Management of the issues of confidentiality and privacy**

The researcher wanted to find out how confidentiality and privacy of users using ICTs was ensured by the NAN. The findings show that the information was only able to be kept and filed by archives staff when the user came to the NAN to use the database but not through any other type of ICT.

#### **4.7 SUMMARY**

The chapter has presented the research data from interviews. The study found that the NAN made use of several ICTs in providing access and reference services via face-to-face interactions and remote access but few to non when it came to disabled users. The findings revealed that the organization made use of appropriate legal and regulatory framework when it came to the use of ICTs for electronic record management but not all staff members were aware of them. The use of ICTs benefited both the users and the organization via time management, business continuity, preservation and promotion. Staff member lacked the skills to administer the website content but there was a lack of social media presence by the staff. The organization had the capacity to maintain security measures when it came to the use of ICTs but could not maintain confidentiality and privacy of remote users. Finally, the use of ICTs was hindered by obsolete equipment and/or lack of equipment and lack of the use of ICTs by staff. The next chapter will be chapter 5 which will be discussion of findings, summary, conclusions and recommendations.

## **CHAPTER 5**

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

#### **5.1 Introduction**

This chapter discusses, interprets and summarises the findings as well as present the study's conclusions and recommendations.

#### **5.2 Discussion of findings**

The purpose of the discussion section is to interpret and describe the significance of your findings in relation to what was already known about the research problem being investigated and to explain any new understanding or insights that emerged as a result of your research. The discussion will always connect to the introduction by way of the research questions or hypotheses you posed and the literature you reviewed (USC Libraries, 2021).

The discussion of findings is done under the following subheadings:

- Type of ICTs in the provision of access and reference services
- Legal and regulatory framework that governs the use of ICTs at the National Archives of Namibia
- Benefits of ICTs
- Challenges of ICTs in the provision of access and reference services at the NAN

## **5.2.1 Types of ICTs in the provision of access and reference services**

### **5.2.1.1 Face-to-face interactions**

The findings revealed that the NAN used a database that contained finding aids to the collections which was used by users when they visited the Archives. Another ICT used by the NAN when it came to face to face interaction was the scanner used to digitise the paper records into electronic formats. Despite having the database and scanners, they lacked other ICTs that can be used for face-to-face interactions with the user such as digital cameras to take pictures of paper documents unless the user brought their own.

Cox (2007) highlighted some of the ICTs used when it comes to face to face interaction as scanners to send documents electronically instead of delivering them physically, digital cameras to take pictures of documents and databases which store data and organised to easily update, retrieve and manage data.

### **5.2.1.2 Remote Access**

The findings revealed that the NAN made use of a plethora of ICTs when it came to remote access to the organization. These were via telephonic reference services from users outside the country, emails where users made enquiries about materials, a website that was not interactive, few social media pages (Facebook, Twitter and Instagram) and through posting videos on the YouTube channel facilitated by the Museum Association of Namibia. Literature revealed that there are more ICTs to be used for remote access and reference. Cox (2007) highlight some of the ICTs used in the provision of access and reference services as; emails and virtual reference, video conferencing, websites and instant messaging. Kim (2016) added by highlighting another ICT in the provision of access and reference services as Virtual Reading Room, which is a

digital page which preserves and provides open access to digitally reformatted collections (images, audio-visuals, oral histories, pdf documents etc.) as well as born digital collections.

The study revealed that the NAN is not big on social media as an ICT tool to facilitate access and reference services but had embarked on the use of three (3) social media pages. These included Facebook, Twitter and Instagram as well as a YouTube channel that was facilitated by the Museum Association in which they posted a video in conjunction with heritage week. It is imperative that an Archives utilized a vast number of social media platforms to provide wide access to materials. United Kingdom, National Archives (n. d.) highlighted having seven twitter accounts to “tweets about our blogs, news, podcasts, publications and file releases, and the latest videos and publications uploaded to YouTube and Flickr” and updates on legislation, information and records management etc. They utilised Facebook by posting about new content on their website where users can comment, share and like the content. They also have a live chat service, Instagram account, YouTube to upload short videos of collection, Flickr account where members of photo stream can view images from collection, Pinterest board to find and share images from national archives, National Archives blog etc. to name a few.

### **5.2.1.3 Physically challenged users**

The findings revealed that the NAN staff were not sure if the organization used ICTs that cater for the disabled users when it came to access and reference services. They however, mentioned that the database was ideal for usage by any user when they (users) visited the physical institution with help from the research and publications staff. It is imperative that the organization provided access and reference services to all user irrespective of their physical disabilities. Cox (2007) highlighted that adaptive technology such as braille, screen enlargers and electronic magnifiers integrated into archival reference rooms.

## **5.2.2 Legal and regulatory framework that governed the use of ICTs at the National Archives of Namibia**

### **5.2.2.1 Electronic records management**

Legislation plays a significant role in records management. From experiences of other countries relevant legislation includes the records and archives laws, e-commerce laws, freedom of information and privacy or data protection laws. Namibia does not have a freedom of information legislation (Nengomasha, 2009).

The findings of the study revealed that not all the staff members of the NAN were aware of the legal and regulatory framework that governed the use of ICTs in the provision of access and reference service. They however are aware that, the National Archives Act 12 of 1992 has a clause on the management of electronic records but not inclusive of ICTs. The Director of NAZ (National Archives of Zimbabwe) stressed that there was a need to review the statutory and regulatory frameworks governing access to archives so that they meet needs of 21st century users (Ngulube, Sibanda & Makoni, 2013).

The study revealed that the staff in higher positions were the ones aware of all the laws, policies and guidelines that governed the use of ICTs at the NAN and went on to list them as: The Information Communication Act, Archives Act for provision of access, Copyright Act especially in the use of ICTs in terms of knowing the type of material that can be made available to users. The study further revealed that a policy was being formulated for the use of ICTs in the provision of access at the NAN and that the finding aid was being used as a policy to the collection.

### **5.2.3 Benefits of ICTs**

#### **5.2.3.1 Time management**

According to 247Amend (2019), one of the benefits of ICT is that it makes information processing to be more timely, with better surface area and even more cheaper. The study revealed that the use of ICTs had brought benefits of time management with the use of telephonic reference services and email to make enquiries and gain access to the collection. Users did not spent time visiting the physical Archive but gained access and received reference services via the use of ICTs as a facilitator.

#### **5.2.3.2 Business continuity**

The findings of the study revealed that despite the COVID-19 pandemic which restricted people from conducting normal day-to-day operations, the use of ICTs benefitted the NAN by providing it with opportunities for business continuity. This was made through their website, social media pages as well as posting videos on a YouTube channel. According to National Archives (n. d.) “managing digital continuity protects the information you need to do business. This enables you to operate accountably, legally, effectively and efficiently. It helps you to protect your reputation, make informed decisions, reduce costs, and deliver better public services.”

#### **5.2.3.3 Preservation**

According to Sigauke and Nengomasha (2011) “the production of digitized copies protects the valuable originals from accidental and general usage damage (a result of improper handling)”. This means that the information can be preserved in their original paper format whilst providing access to the electronic version of the record. The study revealed that the use of ICTs had benefitted the NAN by helping it preserve records in their original paper formats and saved it from mishandling of records by researchers as well as from exposure to light and pollution.

#### **5.2.3.4 Promotion**

Leitch (2012) highlighted the benefit of ICTs by stating that ICTs “exploit opportunities to make archives available on the Internet to larger audiences”. This meant that the archives can promote their services to a large audience. The study revealed that the users were made aware of the NAN services (such as operating hours, website spread content etc.) via website and social media platforms using ICTs as a facilitator.

#### **5.2.3.5 Users**

According Sigauke and Nengomasha (2011) “digital access is faster and more widely spread through technologies such as the Internet and within the institution storing the digitized records on a server for use through an intranet connected to the archives reading rooms”. The study revealed that users had the advantage of remote access to the archives via social media platforms and website using ICTs which they accessed from anywhere around the world. It further revealed that the users were equipped with knowledge such as finding aids via the website and social media platforms.

### **5.2.3 Challenges of ICTs in the provision of access and reference services at the NAN**

#### **5.2.4.1 Equipment**

Mng’ong’ose and Victor (2018) highlight some of the major challenges of ICTs as “Lack of knowledge about ICT, lack of ICT tools and expertise, and lack of government support.” The study revealed that some of challenges posed by the use ICTs in the provision of access and reference service was the lack of equipment such as computers in the reading room and obsolete equipment such the outdated scanners which thus created slow service at slow rate to the users.

#### **5.2.3.2 Lack of staff training/expertise**

The study revealed that one of the biggest challenge of using ICTs at the NAN in providing access and reference services was the fact that staff lacked the skills and training in ICTs. The

study further revealed that the staff were nonchalant when it came to the use of social media especially the ones that were supposed to update and share content on the website. The NAN lacked expertise especially when it came to administering and maintenance of the website. Such sentiment would be in line with Mng'ong'ose and Victor (2018) that mentioned some of the challenges of adopting ICTs as “Lack of knowledge about ICT, lack of ICT tools and expertise, and lack of government support.”

#### **5.2.3.3 Security measures in place in the use of ICTs**

Asogwa (2012) mentioned that “databases containing personal financial and medical records, for instance, may be extremely useful to the individuals themselves, but without proper security protections that information may also be accessed by others, thereby threatening the privacy of the owners”. Therefore, it is imperative that the NAN provides security measures that protects information to be accessed using ICTs. The study revealed the security measures as prohibition of use of USB by users, computers which were password protected, prohibition of sending digitized images to users' emails. Another security measure in place was the user agreements whereby the users signed for the use of a particular digital image and agreed to use it for the intended purpose. These were some of the security measures in place at the NAN in the use of ICTs.

#### **5.2.4.4 Management of the issues of confidentiality and privacy**

Nengomasha and Nyanga (2015) highlight some of the challenges of ICTs which include lack of guidelines for privacy at the National Archives. This poses a challenge in the use of ICTs in providing access and reference services as the users do not know how the archives will ensure that their private information is used for the intended purpose. The 4<sup>th</sup> principle of ICA that states that general restrictions apply to all the archival holdings; as appropriate to the nature of the institution, they cover the protection of personal data and privacy, safety, investigatory or

law enforcement information, commercial secrets, and national security (ICA, 2012). The scope and duration of the general restrictions must be clear. The study revealed that confidentiality and privacy is only ensured when the user visited the physical Archives in using the database and not through other types of ICTs. This was done via filing of user information by the archives staff. The privacy and confidentiality guidelines when it came to the use of ICTs at the NAN is lacking.

## **5.2 Summary of findings**

This section summarises the findings presented in the following subheadings according to the thematic issues.

### **5.3.1 Types of ICTs used in the provision of access and reference services at the NAN**

The NAN used several types of ICTs in the provision of access and reference services via face-to-face interactions, remote access but less to non when it came to disabled users. The types of ICTs ranged from telephonic, emails, databases, scanner, several social media platforms, website and YouTube channel.

### **5.3.2 Legal and regulatory framework that governed the use of ICTs at the National Archives of Namibia**

The study revealed that not all the staff at the NAN were aware of the legal and regulatory framework that governed the use of ICTs for provision of access and reference services. The study however revealed that, the senior staff was aware of the electronic records management policies and procedures when it came to the use of ICTs. The policies and procedures that guide the use of ICTs at the NAN were; National Archives Act which has a clause on the management of electronic records, Information Communication Act and Copyright Act. The study also revealed that the staff mentioned finding aids acting as a policy for the management of collections.

### **5.2.3 Benefits of ICTs**

The study revealed that the use of ICTs had benefits of time management, business continuity, preservation and promotion to the NAN as well to the users in terms of remote access and knowledge gained.

### **5.2.3 Challenges of ICTs in access and reference services to the NAN**

The study revealed that the challenges posed by the use of ICTs at the NAN ranged from obsolete and lack of equipment, lack of skilled personnel and expertise, security measures to privacy and confidentiality. The study further revealed that confidentiality and privacy of users' information via remote access to the NAN was not ensured.

## **5.2 Conclusions**

The study is on the use of ICTs in the provision of access and reference services at the NAN.

This section briefly shows if research objectives have been met.

### **5.4.1 To access the type of ICTs in the provision of access and reference services at the National Archives of Namibia**

The NAN did not utilise all the available ICTs in the provision of access and reference services and lacked ICTs for the disabled users. The study concluded that the NAN does not conform to the best practices of ICT utilization in the provision of access and reference services.

### **5.4.2 To find out the legal and regulatory framework that governs the use of ICTs at the National Archives of Namibia**

The NAN made use of the legal and regulatory framework that governs the use of ICTs but not all staff were aware of these policies and procedures. The National Archives Act has a clause on electronic records management but not inclusive of ICTs. Furthermore, only the senior staff of the NAN were aware of the policies and procedures that guide the use of ICTs for the provision of access and reference services.

### **5.4.3 To determine the benefits and challenges of the use of ICTs by the National Archives of Namibia**

The benefits of ICTs ranged from time management, business continuity, promotion of services, preservation of original paper records as well as benefitted the users in terms of remote access and knowledge gained on finding aids.

The challenges posed by the use of ICTs in the provision of access and reference services were obsolete and lack of equipment, lack of staff training and expertise in the use of ICTs, security measures that govern the use of ICTs as well as the challenge of maintaining users' confidentiality and privacy.

### **5.2 Recommendations**

Taking into account the finding of the study, the use of ICTs at the NAN needs to be improved. One of the objectives of the study was to "Come up with recommendations on how to enhance the use of ICTs at the National Archives of Namibia". The study recommends the following:

1. The NAN should seek funding from national and international organizations such Government of the Republic of Namibia, UNESCO, UN etc. to help secure up-to-date equipment and tools.
2. The staff should be trained in the use of ICTs and advised to make use of social media platforms.
3. The NAN should be adequately staff. NAN is a national organization housing most if not all public and private records of the country and as such needs more staff in all corners of the management, preservation and access and reference services.
4. The NAN should provide training and awareness of the use of ICTs to the organization as well as to the users.

## **5.2 Areas of further research**

Further research on the factors that impede the use of ICTs at the National Archives of Namibia would inform the government, other archival institutions, public as well as the private sector on what enablers are there to effectively utilise ICTs.

## **5.2 Final Conclusion**

Archival institutions can benefit from the use of ICTs. However, there are barriers to overcome in order for the benefits to be fully realised. In order to fully utilise the benefits posed by the use of ICTs, the NAN needs to overcome its barriers and tackle all challenges. ICTs are part of the 3<sup>rd</sup> Industrial Revolution and the NAN needs to keep up with the times if it is to effectively and efficiently provide access to information.

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## APPENDIX A

### INFORMED CONSENT FORM

**Title of Research Project:** The use of ICTs in the provision of access and reference services at the National Archives of Namibia

**Researcher:** Lukas N Ikanda

201508326

Cell: 0817522812

Email- [lukeistheoneikanda@gmail.com](mailto:lukeistheoneikanda@gmail.com) or [taatishiweda@gmail.com](mailto:taatishiweda@gmail.com)

**Supervisor:** Prof. C. T. Nengomasha

University of Namibia, Department of Information and Communication Studies

Tel: 061 206 3641

[cnengomasha@unam.na](mailto:cnengomasha@unam.na)

#### Information

This research aims to investigate the use of ICTs in the provision of access and reference services at the National Archives of Namibia. All the information gathered as part of this study will be kept confidential. No name will be published in the write up of the findings and confidentiality and anonymity will be adhered to at all times. Your records will be kept confidential and will not be released without your consent.

This study is important as it will benefit the National Archives of Namibia in accessing the types of ICTs used in the provision of archives. It may identify the benefits, challenges and come up with recommendations on how to enhance the use of ICTs at the National Archives of Namibia

For further queries and clarifications do not hesitate to contact me or my supervisor. Contact details are provided above.

Participation is voluntary, and you may choose not to participate or withdraw from participation at any time. I however appeal to you to help in the success of this research through your participation.

If you voluntarily agree to participate in this research, kindly indicate your consent by signing below.

Do you agree to be digitally recorded? YES  NO

**Signature**

**Date**

\_\_\_\_\_

\_\_\_\_\_

## APPENDIX B

### INTERVIEW GUIDE FOR SENIOR ARCHIVIST AND ASSISTANT ARCHIVIST

**Instructions: Everything in bold is for the attention of the interviewer and not to be read out to the interviewee.**

Position of respondent	
Number of years in current job position	

#### **Types of ICTs used at the National Archives**

1. What types of ICTs does the NAN use in providing access and reference services?
2. In your experience, do the ICTs used in providing access cater for all the users including the disabled?
3. To what extent does the NAN provide access to archival material using ICTs?

#### **Legal and regulatory framework**

1. What policies, guidelines and legal frameworks do you follow when using ICTs in the provision of access and reference services?
2. What is the policy or guideline that governs the use of ICTs at the National Archives of Namibia?

#### **Benefits of ICTs**

1. What are some of the benefits you've encountered of using ICTs to provide access and reference services at the NAN?
2. How have the users of the National Archives benefitted from the use of ICTs?

#### **Challenges of ICTs**

1. What type of challenges have you encountered when using ICTs in the provision of access and reference services?
2. What security measure are in place in the use of ICTs to provide access and reference services at the NAN?
3. How do you manage the issues of confidentiality and privacy of users using ICTs?
4. What could be done to address the challenges (if any)?

