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Digital Preservation Readiness for Legal Deposit Materials at the Msunduzi Municipal
Library in KwaZulu-Natal

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DECLARATION

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I, Zibusizozami Nozibusiso Mpanza declare that this study titled: Digital Preservation Readiness of Legal Deposit Materials at the Msunduzi Municipal Library in KwaZulu-Natal is my own study, and I cited all the sources used including those directly quoted. I have indicated these sources in the list of references.

Miss Zibusizozami Nozibusiso Mpanza

Date

DEDICATIONS

I would like to dedicate this work to my late grandmother, Mrs. Sebenzeni Cathrina Mpanza who shed light on my life and education. I also dedicate it to my foundation (Cathrina's Light Foundation) named after my grandmother. The dedication also goes to my sister, Nombuso Mpanza, and my niece, Syamthanda Mpanza for a support system and happiness they bring to my life.

I also dedicate this work to my fellow academic friends who look up to me, and this is the footstep I am leaving behind for you to see the light. To the library users who will be privileged to read this work, may your curiosity be educational and informative.

I similarly dedicate this work to Mandisa Msomi, Ndumiso Shelembe, and the Msunduzi Municipal Library staff for their tremendous support throughout this study.

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May the good God bless you hearts and your families.

“Colossians 3: 12-17”.

ABSTRACT

The study investigated a digital preservation program readiness of legal deposit materials at the Msunduzi Municipal Library in KwaZulu-Natal. This study looked at the readiness to undertake the digital preservation programme, whether they meet the requirements for digital preservation programme in order to undertake it, and if the staff members have skills and competencies for digital preservation. It also checked if they have enough storage capacity for digital preservation program.

The study recruited fifteen (15) participants, and all of them, 15 (100%) participated in the study. This study adopted qualitative research method and used a case study research design. The researcher employed semi-structured in-depth interviews to obtain data, and analysed it using a thematic analysis.

The library was found facing challenges such as a lack of storage server to store and back-up digitally preserved materials, a lack of funds, a lack of in-service training for its staff, faulty and or non-functioning digitization machines, a lack of adequate maintenance of equipment, and a lack of enough equipment in preparation for digital preservation programme. The recommends that the Msunduzi Municipal Library and other institutions preparing for the digital preservation programmes should prepare enough storage servers and back-up storage facilities to store and back-up digitally preserved materials before undertaking a digital preservation programme.

Keywords: Digital preservation, Digitization, Legal deposit, Readiness, Digitally preserved materials, Msunduzi Municipal Library, KwaZulu-Natal.

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LIST OF ABBREVIATIONS AND ACRONYMS

4IR	Fourth Industrial Revolution
DPM	Digital Preservation Management Model
GIS	Geographic Information Systems
HoD	Head of Department
IMLS	Institute of Museum and Library Services
IMS	Information Management System
KZN	KwaZulu-Natal
LoI	Letters of Inquiries
MML	Msunduzi Municipal Library
NLSA	National Library of South Africa
NPC	National Planning Commission
NSF	National Science Foundation
OAIS	Open Archival Information System
PDF	Postscript and Portable Document Format
SA	South Africa
UKZN	University of KwaZulu-Natal

CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1. Introduction

For years, legal deposit libraries have managed their materials or collections manually and are now changing to digital era as we are embarking on the Fourth Industrial Revolution (4IR) (Gbaje, 2007). One of the legal deposit libraries in South Africa called Msunduzi Municipal Library is preparing to commence a digital preservation programme of their legal deposit materials. Kannappanavar, Rajanikanta and Tandur (2010) suggest that any digital transformation programme should be goal-driven rather than technology-driven, and those libraries planning digital preservation programmes should research what other libraries have done, and review their successes and lessons learned. Selection of material may be based on a desire to educate and provide access to "hard-to-find" items of great fundamental value. Otubelu and Ume (2015) add that there is a need to assess digital preservation readiness in order for the process of preserving and maintaining the valuable materials to be successful.

According to Jone and Beagrie (2002), digital preservation is referred to the series of managed activities necessary to ensure continued access to digital materials for as long as necessary. Conversely, EL Idrissi (2019) observes that digital preservation implies the preservation of rare, and delicate materials and objects through digitization using computers, electronic equipment, mobile phone, digital cameras and digital display. Hughes (2004) also asserts that digital preservation could also be seen as the process by which analogue contents are converted into a sequence of ones and zeros and put into binary code to be readable by computer. According to Otubelu and Ume (2015), digital preservation is basically a platform for sharing and duplicity of data, and networking because of the digital form of content. According to EL Idrissi (2019), the goal of digital preservation is to keep digital objects accessible, authentic, understandable, and intact for an indefinite amount of time.

In addition, Cornell University Library (2001) states that digital preservation is the transformation of information from whatever forms or from whatever support to digital code using computer technology. This may include electronic snapshots taken of a scene or photograph, films, manuscripts, printed texts and artworks scanned from documents. Keith (2019:166) adds that an interconnected infrastructure known as information and communication technology (ICT) is necessary for digital preservation. Personal and handheld

computing devices, other items with embedded microprocessors or network connectivity, data centres, cellular towers, satellites, and the networking infrastructure that connects them all are all part of this infrastructure.

Digital preservation can meet more people's use requirement and thereby improve the document's ratio, because it can provide access to different people in different places simultaneously (Hocky-Yu, 2006:7). According to ISO 15489-1:2001, digital preservation entails processes and operations involved in ensuring the technical and intellectual survival of authentic records through time. In a library setting, selection often implies preservation, but this does not automatically guarantee survival.

1.1.1. Importance and benefits of digital preservation

According to Otubelu and Ume (2015), digital preservation enhances the life span of records as well as securing data and records that would have been eliminated due to their age. Every effort should therefore be made to digitize and promote digital preservation, particularly in libraries where information is essentially meant for the consumption of communities users with different information needs. Chen (2017) mentions a few benefits accruable from adopting digital preservation. These benefits are as follows:

- It holds the advantage of providing useful information to society without giving originals, which can protect the original by decreasing the using and wear of them,
- It can rescue the originals, and
- It is an important method to save the information of documents in the meantime.

Relatedly, Otubelu and Ume (2015) have also shared the benefits of digital preservation which include improvement in having access to library resources in a way that users can access the same material at the same time without limitation; and possibility to search for collections rapidly and comprehensively from anywhere at any time. It also removes the problem of distance, as a user do not have to travel to libraries that possess the hard copies of library materials before they can access and use such materials for learning, teaching, and research works. Otubelu and Ume (2015) conclude that making high-quality digital unpagged available electronically will reduce wear and tear of fragile materials.

1.1.2. Challenges and issues on digital preservation

According to El Idrissi (2019), when the objectives of digital preservation are to guarantee the accessibility, authenticity, intelligibility, and integrity of digital objects over extended periods of time, this may be unrestricted. The author above has however noticed that there are a lot of challenges facing the setting of a digital preservation, digital library or conversion to digital status. Fubunmi and Paris (2009) highlight some of the challenges facing digital preservation programme such as financial constraints are to be taken into consideration when planning or preparing for a digital preservation programme. This is crucial to ensure a continuation of the programme even after the conversion programme. It is therefore advisable that the library management has to source for fund for the digitization project. Fubunmi and Paris (2009) further ruminate over the challenge of the lack of technical-know-how; which is highly responsible for making most programmes to frequently run into difficulties. There is a need to design flexible and compatible programmes and also undertake a psychological preparation of the employees, so that they will not resist digital preservation of diverse library materials.

Most studies like Perry (2014), Bee (2008), Mutula (2014), Le Roux (2016), Adu and Ngulube (2017) to mention few, had looked at the digital preservations challenges such as: obsolescence of older technology and format, human error, copyright issues, errors or data loss among others. The underlining threats on archival provenance of integrity, authenticity, and reliability of digitalized materials over time have not received attention and therefore not well established. Also, Nsibirwa (2007) states that preservation of library collections in general has often challenged because of certain continuous hindrances of restricted funding, deficient staffing and nonexistence of expertise.

1.2. Definition of terms

For the purpose of clarity of concepts and terminologies employed in this study, some relevant terms and concepts are defined below.

1.2.1. Digitization

According to Bandi, Angadi and Shivarama (2015:333), digitization is "a process to capture an analogue signal into digital form". It is a process of converting electronic versions of 'real world' objects to enable it to be stored, displayed, and manipulated on a computer and disseminated over networks and/or the web (Bandi, Angadi & Shivarama, 2015). Similarly, Hughes (2004: 3) defines digitization as the process of converting analogue contents into a sequence of ones (1s) and knots (0s), thus making the contents readable by a computer by

putting them in binary codes. In the context of this study, the definition of digitization by Bandi, Angadi and Shivarama (2015) will be adopted.

1.2.2. Digital preservation

Mukasa and Kamusiime (2012:75) articulate that preservation is associated with the protection of objects; and they also define digital preservation as “a series of adopted management activities necessary to ensure a continued access to digital materials for as long as necessary”. Chen (2007) adds that digital preservation means the preservation of rare, delicate materials and objects through digitization using computers, electronic equipment, mobile phones, digital cameras, recorders, and digital displays.

1.2.3. Digital preservation for posterity

Briefly, posterity entails the situation of making future generation inherit already digitally preserved knowledge. Digitization is the process of prolonging the existence of any information preserved, it means that digital preservation for posterity specifies that information will ever exist as long as the digitization lives or utilized. A little literature has come out about digital preservation for posterity; nevertheless, Milic-Frayling (n.d) states that preserving information for posterity going digital is the answer. Milic-Frayling (n.d) further explains that identifying methods and strategies for ensuring the long-term preservation of the digital format is of utmost importance for the survival of data and information created in the digital era. The above further reinforces that there should be strategies in place on how to maintain materials for as long as they are needed, and this is the principal focus of this study.

1.2.4. Legal deposit

The term "legal deposit" refers to the requirement that a precise quantity of duplicates of publications and collections created inside the authority's restrictions be deposited with a particular institution. Legal deposit applies to all publications systems and media, but traditional printed matter, which is the most frequently deposited material, will be referred to first (Lunn, 1978:1).

1.3. Location and context of the study

The Legal Deposit Act of South Africa, According to Section No. 54 of 1997, all domestic publishers are required to deposit free copies of their publications with a legal depository of their choice. Legal depositories in South Africa include the National Library in Pretoria and

Cape Town, Mangaung Library Services (formerly Bloemfontein Public Library), Cape Town's Library of Parliament, Pietermaritzburg's Msunduzi Municipal Library (MML), and Pretoria's National Film, Video, and Sound Archives (Fourie & Burger, 2007:3; Butterworth's South African Statutes, 2007: 224). Behrens (2000:132), and Penzhorn (2005) have also enlightened that South African's legal depositories are tasked with collecting, bibliographically controlling, preserving and making accessible to current and future generations the sources of documentary material.

The study focused on digital preservation readiness of materials relating to law set up at the municipal being studied on. The background or location of the Msunduzi Municipal Library is presented below.

1.3.1. Msunduzi Municipal Library

According to Shelembe (2021: 2), and Msunduzi Municipality (2018), MM Library (formerly known as the Natal Society Library) has been providing public library services for the people of Pietermaritzburg since 1850. On April 1, 2004, Natal Society employees and libraries were merged into the Msunduzi Municipality to form MM Library Services. The main library named the Bessie Head Library, together with ten branches of the library, and one mobile library targeted provision of a comprehensive library service to all residents of the Msunduzi Municipal area. Moreover, the Msunduzi Municipal Library (MM Library) was given a legal deposit status as some of the five legal deposit libraries in South Africa in 1960. This privilege has made this library one of the most important research and information centres in South Africa. As the long-term custodians of this nation's cultural wealth and information, legal deposit libraries play a unique and crucial role. All South Africans have access to this vast collection through the Adult Reference Library and Periodicals Department.

1.4. Problem statement

The rise in demand for digital content is compelling libraries and information resource centers to focus on the development of digital collections (Sinclair, Duckworth, et al,2011). Recently, libraries and other information institutions are embarking on digitization and digital preservation programmes. Msunduzi Municipal Library is also preparing to embark on their digital preservation of legal deposit materials. However, according to evidence given by Ntombela (2018, pers. comm. 26 July), the Msunduzi Municipal Library is facing problems in

preparing for this digital preservation programme. Fabunmi *et al.* (2009:27) agree with Ntombela (2018) that there are challenges facing the conversion of the traditional library to digital status, and these challenges include electronic storage, and funding. Furthermore, the above authors state that digitization takes time and it is costly to undertake. Similarly, Shelembe (2021:7) has noticed in his study which was on preparedness of digitization projects in KwaZulu-Natal information providing agencies that some information institutions did not consider necessary requirements for a digitization project in a preparation stage. That implies that such libraries are faced with complications such as lack of policies and guidelines, lack of required infrastructure, lack of steps involved in the digitization process, financial issues, lack of staff training and legal issues for their digitization projects. The researcher visited the Msunduzi Municipal Library in the year 2018; and during the visit, the researcher and other students were orientated on all library sections/departments. When oriented on the periodicals department, it was mentioned that the department had been undertaking a digital preservation programme using a digitization machine. The programme eventually failed because the library's staff members lacked relevant skills and competences for digital preservation and there was no enough storage for digitally persevered materials.

There are few empirical studies on this topic of digital preservation in the province of KwaZulu-Natal that can be found in the literature and specifically at the Msunduzi Municipal Library. The most two relevant studies have been conducted at this province, and both of them focused on digitization projects. The first study was conducted by Nyide (2014), and the focus was on “the digitization of theses and dissertations at the University of KwaZulu-Natal” which examined how the University of KwaZulu-Natal (UKZN) is digitizing its library material, with a particular reference to theses and dissertations. A second study was conducted by Shelembe (2021), and the researcher focused on the “Preparedness for digitization projects in KwaZulu-Natal information providing agencies” and that study investigated how KZN information providing agencies do prepare for their digitization projects. Both studies conducted by Nyide (2014) and Shelembe (2021) did not investigate issues relating to readiness. Sinclair, Duckworth, et al (2011) highlighted that observing into different types of threats, digital collections call for necessary preservation actions and that prompted the researcher of this study to focus on digital preservation readiness of legal deposit material at the Msunduzi Municipal Library in KwaZulu-Natal.

1.5. Aim of the study

The aim of the study was to assess the digital preservation readiness of legal deposit materials at the Msunduzi Municipal Library in KwaZulu-Natal.

1.6. Research objectives

The research objectives of the study were:

- a) To find out if the Msunduzi Municipal Library is ready to undertake the digital preservation programme.
- b) To determine if the Msunduzi Municipal Library meets the requirements for digital preservation program in order to undertake it.
- c) To ascertain if the staff members at the Msunduzi Municipal Library have skills and competencies for digital preservation.
- d) To establish if the Msunduzi Municipal Library have enough storage capacity for digital preservation programme.

1.7. Research questions

The following were the research questions of the study that were generated in order to achieve the above research objectives of the study.

- a) Is the Msunduzi Municipal Library ready to undertake the digital preservation programme?
- b) Does the Msunduzi Municipal Library meet the requirements for digital preservation programme in order to undertake it?
- c) Do the staff members at the Msunduzi Municipal Library have skills and competencies for digital preservation?
- d) Does the Msunduzi Municipal Library have enough storage capacity for digital preservation programme?

1.8. Importance of the study

Ramadass (2009: 8) affirms that different reasons push people to embark on research with an aim of getting a research degree along with its important benefits and sometimes with a desire to face the challenge/s to solve the unresolved matters. This study has potential to help the staff adequately prepare for digital preservation programme at the Msunduzi Municipal Library and

other organizations planning or preparing for such programme. The above is achievable as the study intends to find the readiness to undertake the digital preservation programme; and it intends to determine the requirements for digital preservation programme in order to be undertaken. The study is also useful to ascertain whether staff members have relevant skills and competencies for digital preservation. Through this study, the nature and status of any storage capacity for digital preservation programme can be established. Lastly, the study has the capacity to indicate various aspects of digital preservation to be looked at before embarking on a digital preservation programme for the benefits of those preparing or planning to undertake it or want information about it.

1.9. The assumption of the study

The following are assumptions in which the study is based on.

- a) The Msunduzi Municipal Library is ready to undertake the digital preservation programme even though it has some challenges.
- b) The Msunduzi Municipal Library meets the requirements for digital preservation programme in order to undertake it.
- c) Staff members at the Msunduzi Municipal Library have skills and competencies on digital preservation that they acquired through self-taught and practicing.
- d) The Msunduzi Municipal Library does not have enough storage capacity prepared for the digital preservation programme but they will have back-up storage.

1.10. Delimitation and limitation of the study

This study set out to assess the readiness for digital preservation programme of legal deposit materials at the Msunduzi Municipal library in KwaZulu-Natal (KZN). The study was therefore limited to only staff members involved in a preparation for digital preservation programme of legal deposit materials at the Msunduzi Municipal library KZN. These staff members include those from Periodicals Department, Administration Office, Cataloguing Department, and Adult Reference Section. The study focused on the developments of digital preservation such as readiness, requirements, skills and competencies, storage capacity, and back-up. It would be great to compare more libraries across the province of KwaZulu-Natal since they prepare for digital preservation programme in different ways that require vast time and resources, which are not available to the current study. Consequently, this study excluded all libraries and those

who did not form part of the targeted population and lacked any form of encounter with digital preservation.

1.11. Chapters layout

The layout of this dissertation consists six (6) chapters, and each of them is briefly discussed below.

Chapter 1: Introduction and background

This chapter discusses the background and contextual settings of the study. Further, it provides definition of terms, the problem statement, aim of the study, objectives, research questions, importance of the study, and scope and limitations of the study

Chapter 2: Literature review and theoretical framework

This chapter provides literature review on digital preservation based on the theoretical framework that was chosen to guide the study.

Chapter 3: Research methodology

This chapter focuses on the research methodology of the study by discussing the research paradigm, research approach, research design, target population, sampling, data collection instrument, trustworthiness and credibility, and ethical consideration.

Chapter 4: Presentation of findings

The results of the semi-structured in-depth interviews that the researcher conducted are presented in this chapter.

Chapter 5: Discussion and interpretation of findings

This chapter discusses the main findings based on the critical questions generated to address the objectives of the study. These main findings are discussed in the context of the theoretical framework and other relevant literature.

Chapter 6: Summary, conclusions and recommendations of the study

This chapter summarizes the main findings of the study. It also draws conclusions and makes recommendations for the study.

1.12. Summary

This chapter gave an overview of the background and contextual settings. Further, it provided a definition of terms, the problem statement, aim of the study, objectives, research questions, and limitation of the study. The following chapter presents literature review and the theoretical framework adopted for this study.

CHAPTER 2

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. Introduction

The previous chapter gave an overview of the background and contextual settings. Further, it provided a definition of terms, the problem statement, aim of a study, objectives, research questions, and lastly, delimitation and limitation of the study. This chapter presents discussions on the theoretical framework that underpin this study. It explains the concepts of digital preservation, readiness for legal deposit materials and the strategies to enhance digital preservation in South Africa. This chapter also reviews relevant empirical studies on the phenomenon. Further, the chapter explores Digital Preservation Management Model as the theoretical framework for the study. This chapter outlines literature evaluation of applicable and linked studies on the key concepts of the study as well as an explanation of the appropriateness of the on Digital Preservation Management Model to the study.

2.2. Theoretical framework

According to Timasheff (1937: 228), “Law is a cultural force which serves the function of imposing norms of conduct or patterns of social behavior on the individual will”. Similarly, Banakar (2000: 291) posits that “Law provides a basis upon which a “neutral’ third party can adjudicate, arbitrate, or mediate in disputes.” This implies why legal deposit materials must be well preserved to serve legal references from generations to generations. Hence, digital preservation becomes a well acceptable option to preserve legal deposit materials. Thus, digital preservation is advancement on ease of accessing information. This has become a global trend that many African countries are adopting as the reliable system of keeping records or collecting information electronically (Ngulube, Mangena & Nkala, 2012). It is critical that the shift from the old ways to the new is done correctly and perfectly. The smoothness of the shift requires every stakeholder involved to participate and do what is required of them so it becomes a success (Tharakan, 2015).

Corrado and Moulaison (2014) opine that digital preservation involves three key aspects: content-centered activities, technological-related activities and management-related activities. The content is the main core of digital preservation. The adoption of a theoretical framework into a research study enables the research to situate a clear understanding of the phenomenon. As the theory underpins and frame the in-depth meaning to the problem. Hence, the theoretical

framework of a study strengthens the basis for conducting a research. According to Kawulich (2009: 9), “theoretical framework which is a theory/model is a helpful tool to interpret reality”. Conversely, the theory of Digital Preservation Management Model was last modified by McGovern in 2014.

2.2.1. Digital Preservation Management Model

The Digital Preservation Management Model was developed by Nancy McGovern in 2003 in her bid for digital preservation. According to McGovern (2007), digital preservation is needed to preserve and manage metadata or institutional repositories. The gaps in digital preservation led to McGovern’s (2003) Digital Preservation Management Model to focus on three key components of digital preservation development as its core aspects. The organizational infrastructure, technological infrastructure, and the requisite resources reflect the three key components. The three key components have been described as a three-legged stool for effective digital preservation in Figure 2.1 below (McGovern, 2003). The model has been explored in various studies on digital preservation of information, records and archives (Duranti, 2010). The model provides the study with in-depth understanding, evaluation and strategies on readiness in legal deposit, institutions or any establishments for digital direction in preservation of important records, documents and other materials (Conway, 2010).

Conversely, Digital Preservation Management Model refers to all diverse preservation processes that can be adopted to implement policies and to set preservative mechanisms or systems for preservation of metadata or state information for future access (Cornado & Moulaison, 2014). The focus of this model is to maximize evolving technologies for preservation domains or environments of materials relating to law set up at the municipal being studied on. These preservation environments explore various preservation infrastructures, characterization/classifications of changes in policies for preservation and rule-oriented data grids for capabilities. This model is symbolically described as a stool in a diagram below:

Digital preservation is more than technology

Technology

- Storage and Back-Up
- Repository & preservation Systems
- Tools
- Security



Resources

- Business Planning
- Cost modelling
- Funding
- Sustainability
- Staff skills

Organisation

- Policy & Strategy
- Procedures
- Risks and Benefits
- Staffing

Image Source: Kenney & McGovern, 2003, <http://www.dpworkshop.org/dpm-eng/conclusion.html>

Figure 2.1: Digital Preservation Management Model (McGovern, 2014).

The Digital Preservation Management Model sets the repository in the context of the three main requirements, namely; organizational infrastructure, technological infrastructure and resources (McGovern, 2014). These components are explained as follow:

2.2.1.1. Organizational infrastructure

This leg refers to what an organization considers to be “what” can be preserved digitally, which further translates to the scope, the mandate, the objectives, the responsible staff for digital preservation of materials. This explains why legal materials deposit need to be preserved, what materials, why should it be preserved and by who, and at where should it be preserved. The existing policies to sustain digital preservation within an organization come in to play here to address the process. This leg covers storage and back-up, repository and preservation systems, tools, and security. According to Kenney and McGovern (2003), the key components of digital preservation for any organization, which are: “OAIS compliance, administrative responsibility, organizational viability, financial sustainability, technological and procedural suitability, system security, and procedural accountability”.

McGovern (2014) opines that organizational readiness is best reflected in the development and adoption of explicit policies that address digital preservation commitments and decisions. This implies that an organization needs to ensure that necessary and appropriate policies are in place before undertaking a digital preservation program to control the deposit. Hence, organizational infrastructure consists of mission, policies and procedures, authority, and implementation. The policies and other documentation of rational decisions and appropriate actions in the development of the organization leg are known as Digital preservation policy development. Building a strong foundation for a strong digital preservation program in any organization entails four key components. These are “support and buy-in from stakeholders; “good enough” practices implemented now; collaborations and partnerships; and documentation for policies, procedures, and standards” (Allen, 2006:4). Table 2.1 below lists the digital preservation policies to enhance digital preservation (Adopted from McGovern, 2007).

Table 2.1: Brief list of digital preservation policies to enhance digital preservation (Adopted from McGovern, 2007)

1996	<u>Digital Library Sun SITE</u>
2000	<u>Columbia University Libraries</u> (rev. 2006)
2000	<u>The National Archives UK</u>
2001	<u>The National Library Australia</u>
2002	<u>British Library</u>
2003	<u>National Library of Wales</u>
2004	<u>Arts and Humanities Data Service</u>
2004	<u>Cornell University Library</u>
2005	<u>Library and Archives Canada</u>
2005	<u>North Carolina Department of Cultural Resources</u>
2005	<u>UK Data Archive</u>
2007	<u>Inter-university Consortium for Political and Social Research</u> (draft)

The organizational leg provides the structure that is needed as evidence for audit and certification in digital preservation for any organization. This implies that legal materials deposit must be committed to a well written policy that enhances historical proof of legal institution's commitment to legal materials deposit that can be preserved for now and long into the future, for evident references. The initiatives for audit and certification evidences demonstrate self-assessments and audit system for strengths and weaknesses of digital preservation process for trusted digital repositories (Allen, 2006; Kenney & McGovern, 2003; McGovern, 2007). Thus, the organizational leg and technology need to be coordinated to develop digital preservation strategies that can be integrated into action. McGovern (2007) opines that as technology is evolving or advancing, digital preservation skills must evolve to manage the stool. McGovern (2007:4) asserts that a valuable hybrid skillset would be a digital preservation metadata specialist who is competent to carry the best of both together and to apply the policies and requirements at high and low levels of granularity. As digital preservation strategies emerge and advance linked hybrid roles that consist of organizational and technical skillsets may be needed for certain types of digital content such as archival storage management and digital preservation workflow management.

2.2.1.2. Technological infrastructure

This is another leg in digital preservation stool. The technological leg explains “how” digital preservation is carried out. Thus, it encompasses: the strategies, the staff, tools and gadgets, and other things to attain digital preservation goals in any organization (Allen, 2006). Organizations tend to rely on or create digital content first and address long-term access later. The technological leg addresses current and planned digital objects and collections, storage management, and depositories (McGovern, 2014). Technological infrastructure ensures systematic integration of software, hardware, storage media, appropriate formats, security measures, networks, procedures, workflows, documentations, existing protocols, technical skills and archival skills. Seemingly, the technological leg consists of: digital collection, archival storage, storage practice, obsolescence, depository, depository development, security, OAIS compliances.

McGovern (2007: 2) acknowledges the advent of the World Wide Web as a boost to digital preservation. “The advent of the World Wide Web, which was also in its nascent stage in 1996, has made possible more effective and global exchange of information about policies and

practices”. McGovern (2007: 3) organizations today are embracing modern approach of disseminate information through the use of websites to present information and to deliver services to their targets. In same manner, the Msunduzi Municipal Library should maximize the benefits of the World Wide Web to make services available to their users.

McGovern (2007) posits that in attempt to strengthen digital preservation stool, the technological leg becomes critical to the effectiveness of digital preservation. This accounts for technological innovation such as Open Archival Information System (OAIS), open source repository software, and tools in digital preservation. Thus, legal materials deposit situates appropriately within this innovation. According to McGovern (2007), the OAIS with high-level in digital preservation can function in any organization. It also can provide the organization with a common language as well as a set of appropriate functions that can be used in organizational discussions and also for mapping out functional organizational developments in digital preservation. This implies that legal materials deposit can adopt the process in the diagram to ensure effective digital preservation. Available technology in legal institution will provide means to effectively deposit legal materials for digital preservation management. This leads to capability to easily customize, define, extend or change a digital preservation management flow in legal institution. The easy integration of various tools in the workflow move individual tool to suit workflow that can be adopted, shared and exchanged within an organization. According to Kenney & McGovern (2003); Allen (2006) the matrix promotes trusted digital repositories in many organizations for digital preservation. It follows a set of sound and continuous workflow that leverage both capacity and capability for audit and certification in repositories that can be adopted for convenient and affordable digital preservation.

2.2.1.3. Resources infrastructure

This is the leg that explains various necessary factors that are responsible for integration of diverse human, financial, technological resources in digital preservation. This implies that “how much” of technology, personnel and finance are needed to digitally preserve legal materials deposit in the municipality library. The resources encompass how much a digital preservation process cost? McGovern (2007: 5) declares that “unlike the organizational leg that is embodied in the TDR document and the technological leg that is defined in the OAIS Reference Model, the resources leg of digital preservation has no community document that

expresses its scope and requirements”. McGovern (2014), states that, once the need to establish a digital preservation program is recognized and there is the will to do so, the organization must be ready to build and sustain the program. Therefore, this requirement contracts only with resources that should be prepared in order for digital preservation program to go smoothly. However, ability of any organization to balance time and resources in developing repositories for both internal and external access, remain critical to digital preservation developments (Allen, 2006). Extant literature revealed that gap about the Digital Preservation Management Model. The model is yet to be significantly used in by most researchers (Cornado & Moulaison, 2014).

2.2.2. Relevance of the Digital Preservation Management Model to the Study

This study adopted Digital Preservation Management Model to guide the study in terms of what to consider for a digital preservation program. The researcher found this model related to the study as it looked at the readiness for the digital preservation program and it assisted the researcher in achieving the objectives of the study. This framework covers different components of digital preservation such as organizational infrastructure, technological infrastructure, and resources infrastructure. The first two objectives of this study was to find out if the Msunduzi Municipal Library is ready to undertake the digital preservation program and if they meet the requirements for digital preservation program in order to undertake it. These two objectives where determined by looking at the overall components of Digital Preservation Management Model under its three legs such as organizational leg, technological leg, and resource leg. By do so, the study determined if the Msunduzi Municipal Library is ready to undertake the digital preservation program and if they meet the requirements for digital preservation program in order to undertake it. The third objective was to ascertain if the staff members at the municipal being studied have skills and competencies for digital preservation, which was covered by this model under “staff skills” in resource leg. The fourth and last objective was to establish if the Msunduzi Municipal Library have enough storage capacity for digital preservation program, and this was covered by this model under “storage and back-up” in technology leg.

2.3. Literature review

The importance of literature review is shared by Luthuli (2017: 16) when she says that literature review allows the researcher to develop a pure understanding of the selected research

topic, establish what has been researched already on the topic, and ascertain gaps which the researcher's own study can fill. Duke University (2012) added that literature review is a critical analysis of relevant studies that have been previously conducted to establish validated findings on a specific social problem. Boote (2005) posits that literature review is described as a critical evaluation of previous empirical studies which are related to the present social problem or the phenomenon of study. The study aimed to assess the digital preservation readiness for legal deposit materials at the Msunduzi Municipal Library. Currently there are limited studies that deal with digital preservation readiness. However, parts of the topic such as organizational infrastructure requirement covering the first and second objective, technological infrastructure requirement covering the third objective and resource requirement covering the last objective are extensively covered in this literature. To achieve the aim and objectives of the study, this literature review section discusses topics related to the research such as

- Organizational infrastructure requirement
- Technological infrastructure requirement
- Resources requirements

2.3.1 Organizational infrastructure requirements

To find out if the Msunduzi Municipal Library is ready and meets the requirements for digital preservation program in order to undertake the digital preservation programme

According to McGovern, (2014), organizational infrastructure enhances organized commitment to digital preservation, by setting the goals and priorities for the program, and acknowledges accepted community practice and standards. Mesgarzadeh and Sepehr (2010) avow organizational readiness as the best revealed in the development and adoption of explicit policies that address digital preservation commitments and decisions. Organizational readiness includes mission, policies and procedures, authority and implementation (McGovern, 2014). Where mission statement can be interpreted as supporting a long-term commitment to the preservation of evaluable digital materials that the deposit libraries has acquired or created; policies and procedures be written policies and procedures that address long-term access policies and guidelines covering selection, de-selection, and acquisition also, explicitly defined preservation strategies that are appropriate to digital collections and objects that the deposit libraries have committed to preserving, furthermore, Authority which can be the digital preservation documents vetted by senior management and lastly the Implementation which also

include implemented policies and practices contained in a form of a documents as explained by McGovern (2014).

There are different aspects of what constitutes an organisation, it's the underlying foundation or basic framework, and the resources such as personnel, buildings, or equipment required for an activity. Therefore, the infrastructure of an organization is everything that makes the organization move forward. (Ngulube, Mangena, & Nkala, 2012). Hence, organizational infrastructure requirement is necessary for the enhancement of legal materials deposit in the Msunduzi Municipal Library.

2.3.2 Technological infrastructure requirements

To establish if the Msunduzi Municipal Library have enough storage capacity for digital preservation programme.

Technological readiness is critical to current and planned digital objects and collections, storage management, which take account of digital collections, archival storage, storage practice, Obsolescence, depository and depository development and lastly, security (McGovern, 2014). The technological infrastructure translates the objectives of the program into technical requirements, recommends and initiates appropriate solutions, and assumes responsibility for ensuring that the organization is able to meet the technological needs of the program over time. According to McGovern (2014), the digital collection is made up of various formats which include the following types of digital objects that deposit libraries has committed to maintaining over time, could it be: Licensed e-journal files (articles, issues, journals), Institutional records (in any format), Websites, Email, Word processing files, Digital image files, PDF files, Numeric data files, Databases and spreadsheets, Geographic information systems (GIS) and, Audio-visual files. A suitable technological infrastructure, including both hardware and software, must be available before a digital preservation program can be started or implemented. The institutions' ability to run successful digital preservation initiatives may be hampered by the lack of such infrastructure (Rafiq, 2022).

Tharakan (2015), the foundation on readiness of deposits of any information on organizations from indigenous systems to digital systems, is the readiness of the infrastructure itself. Therefore, questions arise, before everything is digitized are means of digitizing available?

How ready is the equipment used to store and to access stored information? How easy is accessing the information? Hence having the infrastructure ready is the number one priority. That infrastructure being the building, equipment and personnel as alluded above. However, the readiness of infrastructure is very tardily moving, more specially on technology-based infrastructure. Hence, ensuring legal material deposits at the Msunduzi Municipal Library requires provision of adequate technologies for digital preservation.

According to a report done by the National Planning Commission (2020) the lack of readiness, of updated computers, software's used to store and backup data to be specific, alongside computers to be used in accessing data or information by the masses. On a bigger scale this halts progress and delays the advancement on the implementation of the fourth industrial revolution which makes everything related to digitizing in public sectors very slow on both national and municipal level. Undeniably the fourth industrial revolution is expanding worldwide, it is unfolding new horizons, driven by the new era in digital technologies such as the internet of things as they call it, high performance computing, cloud filing, big data, mega space, robotics, artificial intelligence along with other innovative things. This change of paradigm has a profound impact on products, processes and business models in every industry, (NPC 2020).

As the study of the National Planning Commission (2020) states, the digitization is transforming industries, making impossible models possible and providing the masses with unmatched opportunities in maximizing their potential in creation. However, unleashing that level of distinction requires persistent effort. Therefore, this sort of studies will furnish every stakeholder with unaccustomed opportunities to maximize the benefits of this digitization. Moreover, acquiring knowledge on how digital technologies make value and how this value can be captured for government, industry and society is the winner. This can help break ground for national digital transformation with effective strategies, guidelines, and investment routes to correctly power economic growth, across all sectors to the benefit of all (NPC 2020).

After everything is said and done, how safe is this digital world? The security measures implemented to keep data and information safe need to be able to withstand every possible trouble that may arise as time progresses. More especially when technology is concerned, readiness also means having counter measures in place for when the inevitable happens

(Ngulube, Mangena, and Nkala; 2012). Safekeeping of legal materials deposit at the Msunduzi Municipal Library through digital preservation can only be achieved by adequate training of staff members on technical know-how of all available modern technologies for digital preservation.

2.3.3. Resources requirements

To ascertain if the staff members at the Msunduzi Municipal Library have skills and competencies for digital preservation.

It is expected that all relevant resources for digital preservation are made available to libraries or places for digital preservation. The resources for digital preservation of legal deposit material in the Msunduzi Municipal Library include financial, human, and technical. Sustainable funding influences whether the legal deposit currently have funding dedicated for the long-term maintenance of their digital collections, the nature of funding and potential sources and plans for acquiring the funding. Of paramount relevance to digital preservation are resource commitments such as funding, staff, training, services, etc. and all that that need to be identified and secured as an on-going commitment of the deposit libraries (McGovern:2014). Basically, the resources requirements Msunduzi Municipal Library needs to have a smooth digital preservation programs are funding, staff, training, services, administrative structure as mentioned above. McGovern (2014) further asserts that once the need to establish a digital preservation program is recognized and there is the will to do so, the organization must be ready to build and sustain the program with the appropriate resources. These resources must be adequate for effective digital preservation programs of the libraries.

Conversely, supporting companies to accomplish their digital transformation means advising and training them on relevant digital technologies for their organization, and to make sure that everybody in that organization has sufficient digital skills to execute needed duties inside the organization and in helping the society if need it be (Ngulube, Mangena & Nkala: 2012). Requirements of a perfect shift include everything from what infrastructure entails, to what the technology required, without excluding the society. If the implementation of such measures takes place, the society should also endeavour to meet the measures and standards of this digitization process. Organization digital platforms need to be designed and implemented through open specifications and implementations, preventing dominant positions of individual stakeholders and allowing all to take part (NPC 2020).

According to Rafiq (2022), Funding is one of the major issues faced by organizations in the implementation of digital preservation programs. Libraries around the world are facing the issue of budget cuts. Consequently, most of the empirical studies on digital preservation pointed out a lack of dedicated funding for preservation programs. Thus, the organizations must fund such programs from the operational budgets. The study by National Planning Commission (2020) stated that the government and private stakeholders need to dedicate adequate funds for capital investments in digital tools, technologies and skills. While additive process changes might help to create some value, and unlocking the total value might also require giving up infrastructure and investments to promote adoption of new tools and technologies. Government structures need to embrace digital technologies to enable transparency and ease of service implementation across the public services.

2.4. Legal deposit

A provision that authorizes and mandates the deposit of copies of publications in designated locations or public libraries is known as a legal deposit (Larivière, 2001). In addition, Larivière (2000:3) argues that it is essential to ensure that legal deposit legislation covers all published materials in multiple copies and that they are made to the public regardless of the means of transmission in order to distinguish them from archives, which are typically one-of-a kind items that are not available for public distribution and are more of a private or personal nature.

Legal deposit can also be described as all legal documents, records or publications that are made available and analyzed as legal deposit for which its purpose are core components of legal institution (Penzhorn, 2007). Legal deposit process entails collecting and recording all published materials for preservation. The process of legal deposit enables society to be provided with preserved legal materials deposit they can access for legal references. The deposit can be accessed as the published heritage for precedents in making ethical, governmental, creative, or fictional decisions (Larivière, 2000). The process became prominent at the emergence of the printing press. This began in France in 1537 when the then-King Francois I issued the so-called Ordonnance de Montpellier (Willemse, 1963a; Davinson, 1965; Larivière, 2000; IFLA (International Federation of Library Associations and Institutions), 2000; *New world encyclopedia*, 2008; Rabina, 2009). Similarly, Larivière (2000) and IFLA (2000) state that an attempt to preserve both current and future valuable books as original that can be accessed without any modification, prompted this in France. Seemingly, the *New world*

encyclopedia (2008: History) posits that the kings of Alexandria demanded all books from visitors to be deposited into the Library of Alexandria while copies were given to the visitors. This signified the practice of legal deposit across different part of the world could during the ancient times.

Thus, the King Francois 1 was recorded as the initial person to start the practice of deposit system with the main goal of preserving original materials for his personal royal collection. Larivière (2000) affirms that though the decree was not effectively implemented but served as principle for other countries. The legal deposit was used as a strategy to stock various national libraries in a very low cost (Davinson, 1965; Partridge, 2008). The legal deposit for the King Francois 1 covered original books from the 16th century to the 18th century (Larivière, 2000). Over the time, changes affected legal content requirement and was made to contain new categories of legal publications in the 19th century, which include audio-recorded sound and microfilm materials, audio-visual objects or materials as well as all electronic publications in the 20th century (Larivière, 2000).

The legal Deposit Act, also known as the British Copyright Act, was passed into law in South Africa by parliament in 1842 (Tuckett, 2003; Burger and Fourie, 2007). According to Willemse (1963b:59), the British Copyright Act of 1842 applicable to the whole British Empire began the history of South Africa's legal deposit in the middle of the 19th Century. The Imperial Copyright Act of 1842 and the International Copyright Act of 1886 applied to the South African colonies Partridge writes (2008:3). Additionally, it was noted that various pieces of legislation were implemented in various parts of South Africa (Cape Colony, Natal, Transvaal, and Orange River Colony). However, copies of every legal publication were required to be deposited at the British Museum within a year of publication (Willemse, 1963b:60).

Nonetheless, after 1910 when the union was established in South Africa, unified laws known as the legislation for all the various provinces came into existence (Willemse, 1963b). The various laws were replaced with the Copyright Act No. 9 (1916) as a uniform legislation for the entire union (Willemse, 1963b; Partridge, 2008). The South African Public Library, the State Library, the National Society Library, the British Museum were all required by this act to keep a copy of any published book (Willemse, 1963b:72; Partridge, 2008:190). Within a month of the book's publication, a deposit was required for these books; failure to do so resulted in a fine of up to \$5 in addition to the book's value, which had to be paid to the defaulting libraries (Willemse, 1963b:72; Partridge, 2008:190).

With the advent of democratic government in 1994, legal deposit legislation in the Republic of South Africa changed again. The new legislation became necessary due to changes in major government structures to pave way for an autonomous and non-racial country (Lor, 2003). Furthermore, in 1996, a new democratic constitution came into existence to reflect republican status of South Africa. Human rights, information preservation, and mandatory access to information were all protected by a new set of laws. The National Archives and Records Services Act No.43 of 1996, the Legal Deposit Act No.54 of 1997, the National Library of South Africa Act No.92 of 1998 and the Promotion of Access to Information Act No.2 of 2000 (Ngoepe & Makhura, 2008). The Legal deposit of Publications act no.17 of 1982 was superseded by the Legal Deposit Act No.54 of 1997 says Ngoepe and Mukhura (2008).

According to Muir (2004), numerous nations, including South Africa, have expanded the scope of their laws governing legal deposits to include digital publications, including CD-ROMs and DVDs containing legal documents. Therefore, the National Film, Video, and Sound Archives the depository for audio-visual publications and the Official Publications Depositories (OPD) for deposit of government publications are included in the broad definition of legal deposit (Muir, 2004:69). As a result, these "non-specific terms mean that the legislation does not need to be amended to accommodate change or when new media come on the market "Africa, South

Regulations on legal deposit are made available in various government gazettes at different years. According to Mpholefole (2012), the Legal Deposit Committee is tasked with making periodic recommendations to the Minister or responding to requests for legal deposit amendments to the Cultural Laws and Amendment Bill.

2.5. Preservation

Cloonan (2007) opines that preservation evolved over the years, and in the 12th Century it denoted collection or the act of obtaining and classifying some valuable materials in an organization. A process of acquiring for restoration and physical preservation of items is known as preservation. Preservation of massive valuables became necessary after the World War II to preserve many items from external hazards or the environment and disaster risks. Preservation gained more prominence in 1980s as an approach to preserve various collections. Many reasons for preservation after the 1980s include:

- The need to increase depositories and archival materials;

- The increase in credible publications;
- The reduction in quality materials from 1850;
- The threat and loss of large documents and useful information; and
- The need for publication on new carriers for different preservation systems (Varlamoff, 2004a).

According to Adcock, Varlamoff, & Kremp (1998):5, All of the strategies and methods of action for preserving library and archival material and the information within them including managerial, financial, storage provisions, staffing levels, policies, and techniques are included under the umbrella term preservation. According to Harvey (1993), the idea of preservation holds that valuable educational materials, from past facts to the present, are of great importance to the human race and must therefore be preserved or saved.2002, Ngulube;2004 (Feather).Thus, permanence and is a vital principle in retaining a cultural heritage and building up the resources that enrich culture, facilitate research, and bring wider social and economic benefits to society is the meaning of preservation of cultural heritage (Mason, 2007:201). Furthermore, Mason (2007) states that cultural collection of cultural materials for preservation is an approach to save the cultural materials for permanent access. However, Conway (2010:64) notes that traditional preservation has been in existence for long, and its aims at preserving organic materials as useful information source. According to Cloonan (2001:235), "the paradox of preservation is that it is impossible to keep things the same forever," this appears to be the case. This suggests that restoring, preserving, or conserving something is to change it.This preserved object will deteriorate or alter its surroundings despite its preservation.

According to Harvey and Howell (2004):1, The intellectual substance of what we preserve, the pleasure, enjoyment, or aesthetic reward we receive from our cultural heritage, and the utility and economic sense of preserving some materials are additional dimensions of preservation. While Kahn (2004) and Conway (2010:68) posit that preservation should not be limited to physical objects but also the intellectual contents of any electronic publication or material. Conversely, preservation is the responsible act of safe keeping or preserving material's original structure in a stronger system (Cloonan, 2007; Conway, 2010). According to Conway (2010:64), preservation specialists in museums, archives, and libraries share a commitment to safeguard the cultural material in all its manifestations perhaps even the built environment, which contains the history's raw materials and the evidence that nourishes our memories. This explains the process of preserving legal materials deposit.

Preservation is not all about conservation or preservation of documents but it involves wholly preservation of all collections (Varlamoff, 2005; Cloonan, 2001, Millar, 2010). The term "preservation" refers not only to the preservation of collections, but also to "preservation management," "training of staff and preservation methods," "classification of priorities," and "integration of new technologies". According to Kalusopa and Zulu (2009:98), the majority of librarians and archivists use the term preservation to describe all of the policies and options for action, including conservation treatments for various informational media. Conway (2010) in his own views, emphasis that preservation today enables the specialists to assess and decide appropriate technical details of legal materials to save cost. However, Cloonan (2001) avows that technical solutions must be designed for materials with technical problems which address its social dimensions.

Despite their chemical and physical structures, the majority of legal deposit libraries and archives strive to maintain materials in usable conditions (Webb, 2004; 2000 (Morrow). According to Lavoie (2004):45 since the beginning of recorded information, librarians have struggled with preservation issues, and these old challenges will continue to be larger and more rigid than ever. Smith (2004a:6). Webb (2004) asserts that preservation of digital information has taken a further step where only symbols understandable by the machines and the programs that run them are used.

The digital age of the 21st century has brought significant preservation innovation (Lavoie, 2004; Conway, 2010). This, Mason (2007:201) This, Mason (2007:201) emphasizes remains a considerable challenge in developing digital collections, anticipating and meeting the needs of researchers, and addressing digital preservation issues. When it comes to developing new methods for collecting electronic publications, there are numerous unknowns. Hence, preservation in libraries and archives has continued to witness rapid development of technology. The use of technology increases the electronic materials and reduces further creation of legal materials printed on. However, the preservation of library collections remains a challenge as a result of various challenges and limitations such as limited funding, insufficient staffing and training, and many more in South African context (Nsibirwa, 2007).

2.6. Digitalization

Digitalization is regarded as a trending significant in technology, directed at preservation of materials or conversion of material content for easy access now and in future to come (Leviakangas, 2016; Parviainen, Tihinen, Kaariainen & Teppola, (2019). The use of digital

technologies in driving many activities and sectors worldwide is gaining more momentum, as many business and government structures are under pressure to adopt the use of digital technologies (Kohli & Melville, 2019). Digitalization is beneficial to many spheres and sectors but goes with costs and significant investments (Bejtkovsky, Rozsa & Mulyaningsih, 2018). Increase in digital technologies, requires further usage of digitalization in almost everything as being pushed by the scholars and academics for easy access to materials and preservation for future use (Bejtkovsky, Rozsa & Mulyaningsih, 2018). Exploring the various and current state-of-the-art technologies enhances clear understanding of digitalization. Interestingly, extant literature on digital transformation indicates the gap on digitalization of materials for various institutions (Henriette, Feki & Boughzala, 2015; Gebayew et al., 2019; Reis et al., 2018; Vukšić et al., 2018; Vial, 2019). The term "digital transformation" was coined by experts in business sector and was later adopted by academics. The knowledge gap in digitalization at various government structures is evident in various studies (Reis et al., 2018). In attempt to improve government service delivery in public sectors, transformation to digitalization is embraced (Mergel et al., 2019). Kuusisto (2017) and Parida et al. (2019) posit that digitalization is a framework that ensures preservation and linking business model innovation, structures, processes and materials for sustainability.

2.7. Digital preservation

Digital preservation is described as all digital curator activities to protect and save the digital contents of valuable materials in usable digital formats that can be used and accessed by present and future users, without any media limitations or technological challenges. Digital content is the information content created or converted to digital formats (Digital Preservation Coalition, 2006). Digital content comprises of wide-ranging information like images, text, audio, geospatial data and video. Digital materials are deposited or acquired by various libraries using different procedures or channels to buy the digital contents from the publishers or purchasing of licensing rights to the online databases and Journals. Moreover, many libraries around the world embark on different schemes to convert analogue collections to digital formats for easy access to these resources, without any limitations.

It is crucial to digitalize to enhance full operational system for preservation and sustainability of preserved materials (Jantz & Giarlo, 2005). The risk of losing data in various content formats promotes or leads to digital conversion of all forms of physical materials. Access to digital resources can be threatened by technological undesirability for digital media that are fragile.

The Fourth Industrial Revolution has impacted digital preservation and information content is made accessible to users for decade. However, digital preservation is a challenging issue for traditional resources. The digital preservation of digital content relies on existing and various forms of information technology. The technologies include:

- The software packages that are used in creating, storing, managing, processing, and providing access to the digital content,
- Digital preservation that supports various file formats through different software packages that can be used for creation or conversion into digital content,
- The software packages are also used to transfer content for digital formats,
- The software packages and file formats are regularly subjected to update, new extensions, and new trending features. The digital storage media for the digital content can be stored and transferred,
- Different operating systems are combined with different computer programs, using secured mechanisms, various computer hardware, and any communication network that can be used in creating, managing, protecting, and accessing the digital content, and
- The standards for digital preservation formats depend on information technology and other communities.

Recently, several scanning technologies are trending, this includes the 3D scanning technology which is useful in cultural heritage modeling and digitization (Remondino, 2011; Bandiera et.al, 2011; Benedetti et. al, 2010; Andreozzi, 2003).

2.8. Importance of digital preservation

The importance of digital preservation is based on certain factors that influence library materials. According to Ghawana and Kumar (2017), rapid growth in digital resources for libraries indicates a new era that is powered by the Fourth Industrial Revolution. In the old days, libraries have always been known of keeping hard books and other materials. However, concern for the management and preservation of libraries' materials for future access has led to digital transformation of content for digital preservation. Digital preservation of books is carried out by scanning the pages of the books with Scanner. The challenges of conserving the physical books and journal issues of many centuries in national libraries and the university libraries propelled the copies of old centuries' books and materials to be preserved in pristine condition. The onus is on libraries today to preserve library materials as heritage of the various institutions. Chowdhury (2010:208) posits that "The importance of digital library as a

workspace, and the importance of user annotations of digital content, has been discussed by some researchers”. This implies that there is a lot of potentials to exploit legal materials deposit in municipality libraries, as it will enhance the digital library resources to provide adequate access to valuable legal materials.

There is a known paradigm shift in the approaches to how materials or content for digital formats are created, distributed and used as information. It has affected users’ habits in the way information is accessed and used in the digital world of legal institutions. Seemingly, Kuusisto (2017) asserts that digital preservation has been of immense benefits to many government structures, organizations and individuals in preservation of valuable records, documents or deposits, and these deposits can be preserved for many generations, with easy access provided by the digital world. These deposits cut across different spheres of lives and can be accessed at the comfort of our homes through various digital formats, as driven by Fourth Industrial Revolution ((Remondino, 2011; Bandiera et.al, 2011). Storage of records, documents and other valuable materials can be stored through digital preservation for many years, and these deposits can be accessed for many decades, these serve as heritage, references, information and archival deposits (Mergel et al., 2019).

2.9. Summary

This chapter provided review of relevant literature on the study. The researcher explained digital preservation theory as it underpinned the study. Various concepts such as digitalization, preservation, digital preservation and importance of digital presentation were all discussed to give clear understanding on the phenomenon. The organizational infrastructure requirements, the technological infrastructures requirements are critical components of digital preservation for legal material deposit in the Msunduzi Municipal Library, in order for the digital preservation program to run smoothly. The next chapter, which is chapter 3, will discuss the research methodology for the study.

CHAPTER 3

RESEARCH METHODOLOGY

3.1. Introduction

The previous chapter provided a review of relevant literature on the study and framework adopted. This section discusses the methodology that was used for carrying out the research. It also provides an explanation on different methods that a researcher can use when conducting a research. The research design, research methodology, research paradigm, research methods, targeted population, research approach, sampling procedures, data collection procedures, research instruments, and data analysis are discussed in this chapter. Graziano and Raulin (2004: 56), reiterate the importance of this by saying that that a research methodology is vital in research as it is concerned with methods of answering specific research questions.

3.1.1. Methodological dashboard of the study

Below is the methodological dashboard of the current study as formulated by the researcher.

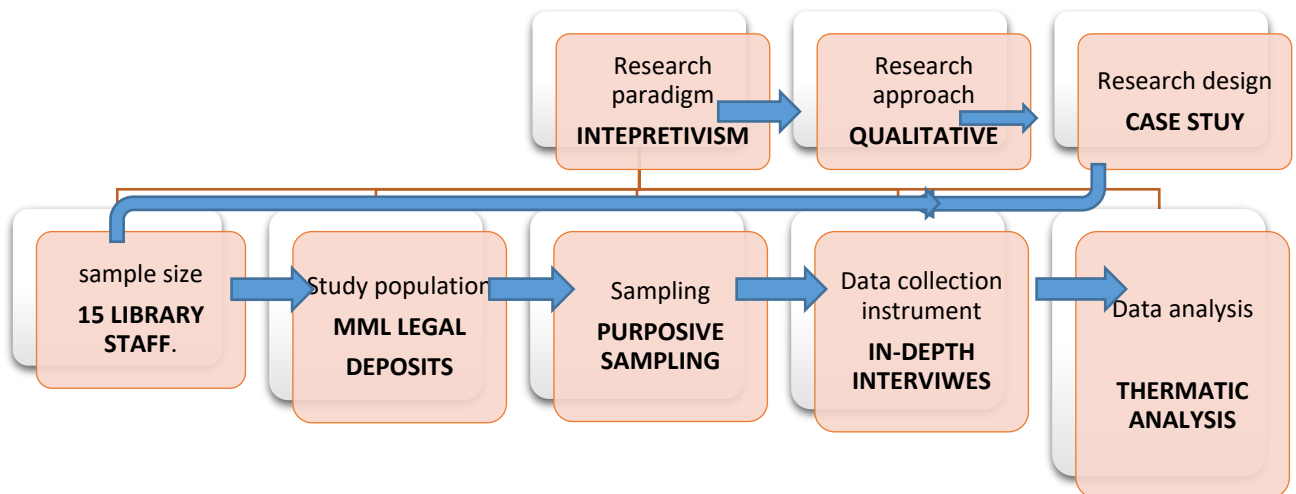


Figure 3.1: Methodological dashboard of the study (Author, 2021)

3.2. Research methodology

A scientific investigation of the methodical execution of a research project is known as the research methodology. It is the way to systematically solve the research problem by logically adopting various steps. Jackson (2006:12) states that research methodology defines what the activity of research is, how to proceed, how to measure progress and what constitutes success. It provides researchers with the advancement of a wealth of human knowledge, tools of the trade to carry out research, tools to look at things in life objectively, development of a critical and scientific attitude, disciplined thinking to observe objectively, scientific deduction and inductive thinking, and skills of research particularly in the 'age of information'. Research methodology is therefore an important part of the study whereby a researcher clarifies which methods, techniques or plans did he/she use to conduct a study in order to achieve valid conclusions at the end of a study.

According to Bless and Higson-Smith (2005), in social science, research methodology can be considered as the mixture of the rationalistic and the empirical methods. It is a group or body of methods of collecting data. There are two widely used methods of carrying out research namely the qualitative and the quantitative approaches. Methodology plays an important role in implementing a research study and in giving direction to its design and implementation (Jili, 2012). In this study therefore, a qualitative method was adopted.

The researcher chose qualitative method because people's perceptions, views were analysed; and the researcher was in a position of understanding people's opinions. According to Lopez and Abod (2013), qualitative method is useful in identifying problems areas from any organisation and the researcher will be able to observe the behaviour of participants and it also enables the understanding of reality through social construction.

3.3. Research paradigm

The research paradigm is defined as general organising framework for the research that involves general assumptions, models of quality research, underlying issues, traditions and methods for finding solutions (Neumann, 2014: 96). Denzin and Lincoln (2000) define paradigms as human constructions, which deal with first principles or ultimately indicating where the researcher is coming from so as to construct meaning embedded in data. Below is an

interpretation of ontology and epistemology as branches of paradigm, and as a philosophical perspective of research.

There is a difference between these two philosophical assumptions. First, ontology refers to the reality itself, and it is the nature of reality; therefore, the reality is always there, whether it is researched or not. Ontology is a branch of philosophy that is concerned with the assumptions we make in order to believe that something makes sense or is real, or the very nature or essence of the social phenomenon we are investigating (Scotland, 2012). Sukamolson (n.d: 6) reveals that objectivism presents reality as objective and singular apart from the researcher, while subjectivism presents reality as subjective and multiple as seen by participants in the study. According to Maree (2016:67), realism claims that there is an external reality which exists independent of people's beliefs or understanding of it, meaning that there is a distinction between the way the world is, and the meaning and interpretation of that world held by individuals. This study adopted idealism as an ontological stance. This is because the researcher believes that perceptions are interpreted and they exist based on the interpretation individuals give to it. Perceptions are socially constructed.

The epistemology can either be positivism or interpretivism (Maree, 2007: 57). While some scholars have also added that positivism aspect of epistemology is generally appropriate in a quantitative research; on the other hand, interpretivism is appropriate in a qualitative research (Zungu, 2019). This study adopted interpretive paradigm. According to Goldkuhl (2012), qualitative research is often associated with interpretivism, but alternatives do exist. Besides critical research and sometimes positivism, qualitative research in information systems can be performed following a pragmatism paradigm. With that being said, interpretivism paradigm is largely associated with qualitative methods but quantitative methods can also be used as an alternative. Goldkuhle (2020) further states that, the core idea of interpretivism is to work with these subjective meanings already in the social world; i.e. to acknowledge their existence, to reconstruct them, to understand them, to avoid distorting them, and to use them as building blocks in theorizing.

Interpretivism paradigm is therefore found suitable for this study, as it helped the researcher to emphasise the meanings made by individuals as they interpreted reality in a natural setting, and because the researcher considered that the legal deposit library staff's perceptions could only be clarified by interpreting the responses supplied by the respondents. The researcher also believed that perceptions of legal deposit library staff programme and its career could be based

on their experiences, observations, and lastly, the researcher found that legal deposit library staff members construct their own understanding and knowledge about the programme through their experiences.

3.4. Research approach

Thompson (1994:14) defines qualitative research as “a collection to inquiry, all which relies on verbal, visual, and auditory data”. Qualitative research normally studies people or systems by interacting with and observing participants in their natural environment and focusing on their meanings and interpretations. Barbour (2014) believes that this approach enables one to examine people’s experiences in detail by using data collection instruments such as in-depth interview, focus group discussion, observation, content analysis, visual methods, and life history of biographies. On the other hand, deductive approach being the quantitative approach is referred to a numeric representation and manipulation of observations with the purpose of describing and explaining the phenomena in which are depicted by observation (Sunkamolson, 2007). Lastly, the adductive approach, which is regarded as a mixed method is the combination of both inductive and deductive approaches.

Qualitative method emphasises personal experiences and interpretation over quantification, and it is more concerned with understanding the meaning of social phenomena and focus on links among a larger number of attributes across relatively few cases. It refers to an approach to the study of the world, which seeks to describe and analyse the behaviour of humans from the point of view of those being studied (Mouton, 1983). Meanwhile, qualitative method was found appropriate for this study because data was interpreted according to the responses of the selected population before generalization of the results and conclusion were made. This study also adopted qualitative approach because the researcher was able to interact and observe participants adequately using this approach. The researcher also found qualitative research approach suitable for this study as she was able to survey the participant’s experiences through face-to-face in-depth interviews. This study therefore utilized qualitative method to assess the readiness of digital preservation of material in the Msunduzi Municipal Library.

3.5. Research design

Maree (2007:50) defines research design as a methodical plan that focuses on determining the nature of the nexus between variables because it indicates what was carried out in the research, how it was carried out, and the reasons behind carrying it out in a particular manner, research

design is also a particular procedure that needs to be followed in order to carry out the research process. The use of qualitative design in this study enabled the researcher to obtain a better understanding of the research problem through people's views. The researcher produced a rich detailed data directly from the participants with their perceptions remaining unchanged. There are a variety of qualitative research designs, and they include narrative, phenomenological, survey, experiment, observation, and case study. This study used the case study research design.

3.5.1. Case study

The case Study is an empirical study that aims at investigating present phenomenon within the real world where it is taking place, and usually when the distinction between the phenomenon and the context in the real world are not distinctly evident (Yin, 2003). This study is exploratory and employed a case study research design. According to Yin (2009:46), there are four types of case studies namely single case studies, multiple case studies, holistic case studies, and embedded case studies.

This study adopted a single case study research design using fifteen library staff members comprising eight digitizing team from Periodicals Department, one from Cataloguing Department, five from Adult Reference Section, and one from Administration Office. A case study research design was found more appropriate for this study as one of its main objectives and aims can help researcher to make recommendations that enable libraries to implement and apply practical plans for the long-term digital preservation.

3.6. Target population

McLeod (2014) defines a target population as an individual or individuals from the group on which the study will be based, so that the result can be generalized to the entire group. The targeted population for this study included all staff members involved in a preparation for digital preservation programme of legal deposit materials at the Msunduzi Municipal library in KZN. This population was from different departments of the library namely Periodicals Department, Administration Office, Cataloguing Department, and Adult Reference Section. Table 3.1 below represents the number of staff members involved in a preparation for digital preservation programme of legal deposit materials at the municipal being studied.

Table 3.1: Name of department and the number of staff members

Institution	Department	Number of staff members
Msunduzi Municipal Library	Periodicals Department	09
	Cataloguing Department	01
	Adult Reference Department	04
	Administration Office	01
Total		15

3.7. Sampling

Sampling is a way or method of selecting the individual or unity from a large group of population to represent the group in a study with an aim of applying the results to a whole group. When a subset of the population is used to serve as whole population, it is known as sampling (Mugera, 2013).

3.7.1. Non-probability Sampling

According to Mugera (2013), non-probability sampling is a method of sampling that gathers unit but not every member or individual got a chance to be selected to present the population. It is a method that is mostly used when a study is to find or validate very precise information or whereby a participant is significant within the population. There is a variety of methods that can be used with non-probability sampling, and these include purpose sampling, quota sampling, theoretical, sequential, and snowball samplings. This study adopted purposive sampling, and in support, Gelo, Braakmann and Benetka (2008) have indicated that purposive sampling strategy is mostly employed by research using a qualitative approach. Other authors like Shelembe (2021) who conducted successful similar study in the LIS profession titled: *“Preparedness for digitization projects in KZN information providing agencies”* also adopted purposive sampling. Purposive sampling is broadly discussed in the next section (3.7.1.1), and it focuses on what it is, and how it was applied in this study. The researcher selected a population of the study that was related to the purpose of the research by utilizing and applying the purposive sampling technique.

3.7.1.1. Purposive sampling

In purposive sampling, participants should meet a particular standard to be included in the sample of the study (Maree 2016). Kumar (2012) agrees that purposive sampling is when a researcher selects only those people who in the researcher’s opinion are expected to have the required information and willing to share it. Similarly, Bless *et al.* (2013) explicate that the

assumption on which purposive sampling leans on is making the researcher to understand what sorts of participants are needed for his/her study. The participants in the study were chosen from the population based on their perceived level of knowledge, their level of experience, their direct involvement with the digital preservation program, and their capacity to provide pertinent information about the phenomenon being studied. In this study, the researcher interviewed all staff members involved in the preparation for digital preservation programme of materials relating to law set up at the municipal being studied.

3.8. Data collection instrument

Data collection instrument refers to an instrument/tool/device used with an aim of obtaining information for the study. It is used to collect information from the sources for a study. Annum (2016) states that it is a method of fact-finding or it is a tool for data collection; and this tool may be questionnaires, in-depth interviews, observation, or document analysis. To also achieve validity and reliability of research, data depends on the appropriate instrument the researcher must choose correct (Annum, 2016). The researcher collected data using the semi-structured in-depth interviews from all library staff members involved in the preparation for digital preservation programme of legal deposit materials at the municipal being studied. This data collection instrument made it possible for the research to probe deeply and get an in-depth understanding of the state of the digital preservation program. Semi-structured in-depth interviews were appropriate for this study for the reason that it offered the researcher an opportunity to ask follow-ups questions in order to get more information.

3.8.1. In-depth interviews

As the researcher used semi-structured in-depth interviews to collect data, Annum (2016) explains that an “in-depth interview” is an interview that is subjective based on the experience and knowledge of the interviewee on that particular subject. Furthermore, Annum (2016) adds that in-depth interviews are formal interview with a set of questions posed to an interviewee by a means of a questionnaire so that respondents can fill it in or respond to verbally. The semi-structured in-depth interviews were used to cover intended scope and explore knowledge and perceptions of the library staff members involved in a preparation for digital preservation programme of legal deposit materials at the Msunduzi Municipal library in KZN about digital preservation readiness.

3.9. Data collection procedure

For this study, semi-structured in-depth interviews were used as an instrument to collect data. The researcher designed interview questions guide based on the problem statement of the study, objectives of the study, relevant literature, and theoretical frameworks adopted in order to explore knowledge and perceptions about digital preservation readiness. In-depth interview guide was emailed to the library manager prior the main interview in order for the manager to examine the questions, and for an approval. After an approval, the researcher scheduled appointments with the heads of departments (HoDs) to conduct the interviews. Thereafter, the researcher went to collect data based on the agreed dates and times. While collecting data, the researcher followed COVID-19 regulations and made use of recording devices to record the entire all the interviews with the respondents, and some notes were made to buttress the recordings.

3.10. Data analysis

Data analysis according to Kumar (2011) entails detailed scrutiny or analysis of pieces of information received from the study participants. The researcher analyzed the data that was collected from the library staff members who got involved in the preparation of the digital preservation programme at the Msunduzi Municipal Library. The data was analysed thematically, and it followed a qualitative data analysis and interpretation processes. The researcher analysed the collected data according to themes and sub-themes in order to achieve the existed research objectives. Maguire and Delahunt (2017) affirm that doing a thematic analysis involves identification of themes and patterns emerging from the collected data. The information was therefore grouped or broken down into themes and sub-themes where necessary.

3.11. Trustworthiness and credibility

This section covers trustworthiness and credibility of research methods used for the current study.

3.11.1. Trustworthiness

When qualitative researchers speak of trustworthiness, the question being posed is: can the findings of a qualitative study be trusted? There are several definitions of trustworthiness, and Pilot and Beck (2014) describe trustworthiness as the level of confidence in data, interpretation, and methods used to ensure the quality of a study. Lincoln and Guba (1994) however talk about credibility, transferability, dependability and conformability as the ways of achieving

trustworthiness. According to Law (2002), the establishment of trustworthiness of a study usually makes readers to have confidence in the findings, and to pay more attention to them. To ensure trustworthiness on this study, the researcher thereby compared and cross-checked the constancy of data collected at various respondents and by various means. Gunawan (2015) points out that trustworthiness has been divided into credibility (which corresponds roughly with the positivist's concept of validity, and dependability), and which relates more to reliability, transferability, (a form of external validity); and conformability, which is largely an issue of presentation. Moreover, Williams and Hill (2012) aver that the qualitative researchers established that the findings of a study must be credible, transferable, confirmable, and dependable.

3.11.2. Credibility

The credibility of the study and or the confidence in the study is the most fundamental criterion (Polit & Beck, 2014). According to Shenton (2004), one of the key criteria addressed by qualitative researchers is that the internal validity which aims at ensuring that their study measures or tests what is actually intended. Credibility deals with correction of the analysis of data and how corresponding are the findings with the reality (Merriam, 2005). Ensuring credibility is one of the essential factors in establishing trustworthiness (Lincoln & Guba, 1985). Researchers can make certain provisions to promote sureness in the truth of the study (Connelly, 2016).

In this study therefore, the researcher utilized member check to establish credibility of the findings. Member check is considered as the most single important provision that can be made to boost a study's credibility. The researcher had structured and follow up interview questions to check whether their words match what they intended to say. Shenton (2004) says checking related to the accuracy of the data may take place on the spot; while Gunawan (2015) affirms that member checking can also mean returning to participants at the end of data analysis. This study conducted member check, and it was easy to achieve as the participants involved were those who were directly affected by the problem that was investigated; therefore, they responded adequately to that request. The researcher presented the findings of the study to the Msunduzi Municipal Library and to University of Zululand upon the completion. Findings obtained were neutral and the participants' responses remain unchanged after member check. Lastly, there was no biasness in this study.

3.12. Ethical consideration

The University of Zululand research ethics guide of 2013 states that research ethics should be taking into consideration as there is involvement of people either direct or indirect. It also emphasizes that ethical concerns should be applied during the conduct of a study, and that confidentiality and privacy of the participants must be considered. This research was conducted by following ethical concern. Participants were asked to participate willingly without being paid for their contribution. Respondent's anonymity was guaranteed, and personal privacies were left alone. This study also concerned by ethical research in University of Zululand therefore used source are acknowledged and list reference of used sources are given.

3.13. Summary

This chapter outlined the research methodology used in this study. The chapter discussed the identification and discussion of the research design adopted which is qualitative approach. The chapter also explicated a research design whereby a case study research design was employed, target population which included Msunduzi Municipal Library staff from Periodicals Department, Administration Office, Cataloguing Department, and from Adult Reference Section. In this chapter, the researcher indicated that the study employed purposive sampling method, semi-structured in-depth interview for data collection, and the collected data was analysed using a thematic analysis. Lastly, trustworthiness and credibility, and ethical issues were discussed. The next chapter, which is Chapter 4, discusses the research findings of this study which emanated from the participants' responses based on the questions formulated from the research problem, research objectives, and a framework underpinned the study.

CHAPTER 4

PRESENTATION OF FINDINGS

4.1. Introduction

The previous chapter has outlined the research methodology adopted in conducting this research, which covered a research paradigm, research approach, population of the study, sampling method, data collection instrument, and ethical considerations. The results of the semi-structured in-depth interviews that the researcher conducted are presented in this chapter. According to Aitken (2010), and Lea and Stierer (2011), presentation of findings raises awareness of important matters, or it is for students' evaluation and creation of debates. Presentation of findings also helps to create the scholarly identities of students and early career academics in knowledge communities; that is, among those doing knowledge work in the related topic or field. Bekker and Clark (2018: 1) submit that presentation of qualitative research findings serves many important knowledge-related functions to students, academics, disciplines, and communities alike; thus, extending to both workplaces and the work itself. The aim of this study was to assess the digital preservation readiness of public deposit materials at the Msunduzi Municipal Library in KZN to enable the researcher make suitable recommendations that will assist all information professionals regarding digital preservation programme. The research objectives of the study are re-presented below.

- To find out if the Msunduzi Municipal Library is ready to undertake the digital preservation programme,
- To determine if the Msunduzi Municipal Library meet the requirements for digital preservation programme in order to undertake it.
- To ascertain if the staff members at the Msunduzi Municipal Library have skills and competencies for digital preservation.
- To establish if the Msunduzi Municipal Library have enough storage for digital preservation programme

4.1. Response rate and respondents' profile

The researcher collected data from fifteen (15) staff members involved in preparing for digital preservation programme in the Msunduzi Municipal Library in KZN using semi-structured interviews. The Msunduzi Municipal Library asked the researcher to strictly follow the South

African rules and regulations on COVID-19 to protect and avoid the spread of the virus. Consequently, the researcher strictly followed the South African rules and regulations on COVID-19 when conducting the interviews. The respondents held varied positions such as Library Intern, Cataloguer, Library Assistant, Library Manager, Librarian, and Senior Librarian. To maintain anonymity of the respondents, they were profiled and coded as shown the below Table 4.1:

Table 4.1: Profile and codes for respondents

Respondent	Position	Code
Respondent 1	Senior Librarian	SLB1
Respondent 2	Library Assistant	LA1
Respondent 3	Library Assistant	LA2
Respondent 4	Library Assistant	LA3
Respondent 5	Library Assistant	LA4
Respondent 6	Librarian	LB1
Respondent 7	Library Assistant	LA5
Respondent 8	Librarian	LB2
Respondent 9	Librarian	LB3
Respondent 10	Librarian	LB4
Respondent 11	Senior Librarian	SLB2
Respondent 12	Library Manager	LM1
Respondent 13	Library Intern	LI1
Respondent 14	Cataloguer	CAT1
Respondent 15	Library Assistant	LA7

4.2.The process of data analysis

Thematic data analysis was used to present, interpret and analyse the results of the study. This method of analysis was discussed in Chapter Three. The researcher designed an interview schedule (refer to Appendix C) for the study, and used a recording device to record the interviews. The researcher listened to all recordings and transcribed them to familiarize herself with the data. Thereafter, the researcher manually picked each transcript, and analysed it carefully until all of the transcripts were analysed. Similar ideas were grouped and coded, and categorized to form themes.

4.3. Biographical information

The researcher wanted to know the name of the institution surveyed, its department, the respondents' current position, their qualifications, and how long they had worked in digital preservation in this section.

4.3.1. Name of institution surveyed

A total number of fifteen (15) staff members who were involved in the preparation for digital preservation programme at the Msunduzi Municipal Library in KZN participated in the current study. These participants were asked to state the name of their institution to ensure that they were the right population of the expected institution for the study. Table 4.2 below presents the name of institution and the departments in which the 15 interviewed respondents belong.

Table 4.2: Name of institution and departments surveyed (N=15)

Institution	Department	Frequency
Msunduzi Municipal Library	Periodicals Department	09 (60%)
	Cataloguing Department	01 (7%)
	Adult reference Department	04 (27%)
	Administration Office	01 (7%)
Total		15 (100%)

The current study revealed that the majority (8 i.e. 53%) of the 15 respondents were from the Periodical Department, while only 1 (7%) was from the Cataloguing Department and Administration Office respectively. This information helps the readers and institutions preparing for digital preservation programme to note department or sections of the library that are or are to be involved when preparing for digital preservation programme.

4.3.2. Current position of respondents

The study sought to establish the current position of the respondents, hence the researcher asked respondents to mention their current positions during the interview process. The study revealed the positions of the staff members who were involved in preparation for digital preservation programme municipal being studied:

- One (7%) of the 15 respondents was a Library Intern,
- One (7%) of the 15 respondents was a Cataloger,
- Six (40%) of the 15 respondents were the Library Assistants,

- One (7%) of the 15 respondents was a Library Manager,
- Four (27%) of the 15 respondents were the Librarians, and
- Two (13%) of the 15 respondents were the Senior Librarians.

The current study discovered that 6 (40%) of the 15 respondents for the study were in the Library Assistant position. Information in this section helps the readers and institutions preparing for digital preservation programme to examine the staff positions to consider when preparing for digital preservation programme.

4.3.3. Qualification of the respondents

The researcher wanted to reveal the qualifications of staff members preparing for the digital preservation programme at the Msunduzi Municipal Library in KZN, and the respondents were asked to confirm their educational qualifications and the results are presented below.

- Six (40%) of the 15 respondents possessed a Postgraduate Diploma in Information Studies.
- Five (33%) of the 15 respondents possessed Master's degree in Information Studies.
- Two (13%) of the 15 respondents obtained Matric (Grade 12).
- One (7%) of the 15 respondents obtained a Honors/Bachelor's degree in Library and Information Studies.
- One (7%) of the 15 respondents earned a National Diploma in Library and Information Studies.

These results have shown that Postgraduate Diploma in Information Studies dominated the qualifications of the participants with 6 (40%) participants. This was followed by the participants with a Master's degree in Library and Information Science, who were 5 (33%).

4.3.4. Years of experience in digital preservation

The respondents were asked to indicate the years of experience in digital preservation of the staff involved in the preparedness for the digital preservation programme at the Msunduzi Municipal Library in KZN. They were asked to state their years of experience in digital preservation. The current study established the following results.

- Ten (67%) of the 15 respondents had between 0 years of experience in digital preservation, and
- Five (33%) of the 15 respondents had 1-5 years of experience in digital preservation.

The current study found that most (10, i.e 67%) of the respondents had 0 (0%) year of experience in digital preservation while only 5 (33%) of the respondents had 1-5 years of experience in digital preservation.

4.4.Readiness to undertake the digital preservation program

The study sought to reveal if the staff members involved in preparing for a digital preservation programme at the Msunduzi Municipal Library are prepared for a digital preservation programme, and to ascertain if they are faced with challenges in their digital preservation programme, and to find out if they are aware of digital preservation programme requirements. The themes that emerged from the data as pertained to the above questions are the following.

- Readiness to undertake the digital preservation programme
- Challenges for the digital preservation programme
- Identified challenges for digital preservation programme
- Requirements for the digital preservation programme.
- Risks behind digital preservation
- Materials prepared for digital preservation
- Selection criteria for materials to be digitally preserved
- Digital preservation plan and strategy
- Digital preservation policies and guidelines
- Digital preservation procedure
- Sustainability of the digital preservation programme.

4.4.1. Readiness to undertake the digital preservation programme

The study hoped to find out if the respondents think their library is ready for a digital preservation programme, therefore, the researcher asked the respondents if they think their

library is ready for a digital preservation programme. The following are the responses given by the respondents during the interviews

SLB1 answered thus:

“Not at all. We are not ready because we have the server problem or the space is not enough to carry out the entire program”.

LA1 stated in detail their readiness towards digital preservation programme by saying:

“Yes, because the materials keep getting bigger they will need more space to keep them and the technological era is moving faster but we are currently facing server issues so as much as the library is ready for that kind of transition, we are not ready in terms of storage or information server”.

CAT1 also expressed his opinion about their readiness this way:

“Yes, because we have newspapers, journals, government publications that date back to 1800 that are manually preserved and till today still preserving those, which now needs to be stored digitally for better future use unfortunately the library has the server problem and as we all know we cannot attempt to start digitizing those materials with less storage”.

LA2 simply said:

“No because we don’t have enough space”.

In her view, LA3 expressed that:

“Yes, it is ready, with all the digitizing equipment such as scanners, computer and other digitizing machines in place and people’s capital in place”.

In addition, LA4’s opinion is captured below.

“Yes, because it has digitization equipment such as digitization machines, scanners, dedicated computers, digitization space, etc. However, it lacks the enough storage for digitally preserved collection and staff training on digital preservation”.

LB1 answered:

“Yes, the library is more than ready as we are facing an issue of information overload and running out of space, unfortunately even the server does not have enough space to store materials online or electronically”.

LA5 indicated that:

“No, because of the server, there is no space to run or store the information server”.

LB2 replied by saying:

“Not yet, there is no server to store digitally preserved materials”.

LB3 stated that:

“The staff is ready. However, we have been waiting for finance to kick start the program for over 5 years now”.

LB4 said:

“Not ready, because some resources needed for digitizing have not been purchased”.

SLB2 responded with:

“No, only have machines and very little scanning training and no other training”.

LM1 answered:

“Yes, we are ready as the library and staff members but we are facing challenges such as the server which limits us to the storage and we have space inadequacy”.

LI1 replied as follows:

“Yes, the Msunduzi Library is the only local deposit library in KZN; therefore, digital preservation is vital to keep the information resources safe”.

LA7 said:

“Yes, because they already have the needed equipment for digitizing just that is not enough to maintain the whole proposed program for years”.

Most respondents mentioned that the Msunduzi Municipal Library seemed unready due to insufficient storage server and funding challenges which proscribed the digital preservation programme from being implemented officially.

4.4.2. Challenges for the digital preservation programme

The study aimed to find out if the respondents are faced with challenges regarding their preparation for digital preservation programme. All the respondents reliably confirmed that they were faced with challenges regarding their preparation for the digital preservation programme. Furthermore, the respondents echoed those challenges as presented below.

SLB1 said:

“Yes, the funding for server space and training is the biggest challenge”.

LA1 replied:

“Yes, the library has no financial support for such complex programs”.

LA2 agree with respondent SLB1 and LA1 as he replied by saying:

“We have the challenges of server and financial problems”.

LA3 stated that:

“Not necessary me as an individual but as the entire department, which is work overload and staff training as well as funding”.

LA4 indicates the overall challenges:

“Yes, as I have mentioned that even though I think it is ready but it lacks the enough storage for digitally preserved collection and staff training on digital preservation, which I think are the main challenges and funding is one of these challenges”

LA5 mentioned that:

“Challenges are the server and financial crisis”.

LB2 replied:

“We are still waiting for a server and budget constraints”.

LB3 said:

“Yes, the library is facing financial challenges”.

SLB2 said:

“Yes, we do not have a server and have not been trained another thing is that’s some machines are not working”.

LM1 outlined the most challenge that needs to be looked at as shown below.

“Yes, many challenges such as funding, server, service level agreements in terms of equipment servicing”.

LI1 added:

“Yes, the ratio of digital preservation equipment versus library materials is much less. We need more equipment to successfully implement this idea”.

LA7 responded that:

“The machines are not yet fully functioning”

LB1, LB4, and CAT1 confidently maintained a “no” response to that question. For instance, LB1 put it this way:

“We have not started the digital preservation process as yet. The management is still working on acquiring cloud enough space to store all”.

A lack of storage server, funding/funds, training, and equipment were found to be the notable challenges faced by staff members involved in preparing for digital preservation programme at the Msunduzi Municipal Library in KZN.

4.4.3. Requirements for the digital preservation programme

The study sought to establish if the Msunduzi Municipal Library in KZN meet the digital preservation requirements, the respondents were questioned if their library meet the requirements for digital preservation programme in order to undertake it. The following are the responses given by the respondents.

LA2 responded:

“Yes, we meet the requirements because we have some back-log materials, so we deserve and qualify for digital preservation”.

LB1 said:

“Yes, it does, especially since we are a legal deposit and that comes with a lot of items being deposited into the library”.

LA5 responded:

“Yes, we have a huge collection of the materials that need to be digitally preserved and they are too old, damaged too”.

LB2 replied:

“Yes, there are scanners, computers, and materials ready to be digitized. Some staff was trained as well”.

LB3 said:

“Yes, it does meet the requirements; vast materials need to be digitally preserved”.

CAT1 replied:

“Yes, because Bessie Head Library is a legal deposit therefore it’s a must that all information is preserved and made available to the public in a form of digital platform”.

LA7 responded:

“Yes, because they preserve country’s heritage and they are an institutional repository library”.

LB4 elaborated more on the requirement, and his/ her opinion is presented below

“Yes, I believe we do meet the requirement because we are the legal deposit library which has the most valuable materials, but with the challenges such as resources needed as I mentioned so it is hard to undertake the programme entirely so that is the problem”.

In contrast, SLB1, LI1, LM1, LA3, LA1 and SLB2 said the staff members did not meet the requirement and their views are shown below in tandem.

SLB1 simply said:

“No, we do not have all the equipment needed, due to lack of funding”.

LI1 replied:

“No, same reason as previous question, we need more and large equipment to successfully implement or undertake the programme”.

LM1 stated that:

“No, because of the factors I said about challenges which prevent us to undertake the program, factors such as funding and equipment’s and with that I can confidently say we do not meet the requirements”.

LA3 said:

“No, resources the department has are not enough to fully kick into the programme”.

LA1 said:

“No, there are no facilities to execute such huge programme”.

SLB2 replied:

“No, we cannot undertake the program because some machines are not working, server and training is needed for staff, so we do not meet the requirements for all I know”.

The study discovered that the common of the respondents (8, i.e. 53%) indicated the Msunduzi Municipal Library did not meet the requirements to undertake the digital preservation programme due to the challenges such as a lack of storage server, staff training, funding, and a lack of facilities/resources.

4.4.4. Digital preservation procedure

The expectation of the current study was to discover the Msunduzi Municipal Library digital preservation programme procedure as a result; respondents were questioned about what is the digital preservation procedure that will be followed by the Msunduzi Municipal Library when digitally preserving the materials and the possibility to allow the researcher to examine these processes, if documented. This current study exposed that the Msunduzi Municipal Library had not prepared any documented procedure on digital preservation programme. Additional information was supplied by some of the respondents as shown below.

LM1 responded:

“Please refer to the management or HoD, she will be the best person to give clear answer on this”.

LB4 said:

“The procedure is yet to be drafted”.

LB3 elaborated:

“I have not been exposed to any process or document that has guidelines to be followed”.

It was revealed by the current study that the municipal library being studies on did not have any documented procedure for their digital preservation programme.

4.4.5. Digital preservation plan and strategy, and policies and guidelines

This study wanted to find out if there is a digital preservation plan and strategy, and digital preservation policies and guidelines preparedly available to undertake the programme. The themes that emerged from the data are highlighted below.

- Digital preservation plan and strategy
- Digital preservation policies and guidelines.

4.4.5.1. Digital preservation plan and strategy

The study aimed to find out how does the Msunduzi Municipal Library plan to undertake the digital preservation programme, therefore, respondents were asked if their library have any plan or strategy to undertake the programme. The results are as follows:

- Ten (67%) of the respondents were not aware of the plan or strategy the library is planning to use when undertaking the digital preservation programme, and
- Five (33%) of the 15 respondents were aware of the library's digital preservation programme plan or strategy that had been set usage.

Two respondents further expressed their opinions as pertained to this question, and these views are presented below.

LB1 said:

“Yes, but the management is still working on the finer details. It's not a done deal yet”.

LA3 added:

“Yes, but only five of us are involved in the planning, not all the staff members are involved, and so I cannot disclose such information because nothing is finalized as yet”.

This study established that 10 (67%) of the respondents were not aware of the plan or strategy the library had been planning to use when undertaking the digital preservation programme while 5 (33%) of the 15 respondents were aware.

4.4.5.2.Digital preservation policies and guidelines

This study wanted to reveal whether the Msunduzi Municipal Library prepared the policies and guidelines for their digital preservation programme, hence the respondents were queried if the library had prepared written policies and guidelines that would be followed by their library when digitally preserving their materials, and if it was possible to have a look at the policy. Unfortunately, all the 15 (100%) respondents were not aware of the policy and guidelines on digital preservation, and they had never seen it before. As a result, it was impossible for them to show it to the researcher as requested.

4.4.6. Benefits and risks of digital preservation

The study wanted to identify the benefits of digital preservation, to determine the risks behind digital preservation and to find out if the Msunduzi Municipal Library has the external storage for digitally preserved materials. This section therefore presents the themes that emerged, and they are shown below.

- Benefits of digital preservation
- Risks behind digital preservation
- External storage for digitally preserved materials

4.4.7. Benefits of digital preservation

During the interview process, respondents from the Msunduzi Municipal Library preparing for the digital preservation programme were asked to mention the benefits of digitally preserving the collection with an aim of determining whether they know or understand the benefits of what they are preparing for (digital preservation) or not. All the respondents' views are presented below.

SLB1 said:

“Information or materials is preserved for future generations to generations”.

LA1 stated that:

“Easy access to library materials, saves time coming to the library”.

LA2 agreed with LA1 by saying:

“Easily accessible of library materials”.

LA3 said something very important:

“It promotes the longevity of materials and increases the accessibility such as documents”.

LA4 added:

“I think it is collection preservation and online access to digitally preserved collection”.

LB1 explained as follows:

“Easy access for patrons, they don’t have to come to the library, information can be accessed online, and it’s also saves time and effective information retrieval”.

LA5 replied:

“Easy to access the information wherever we are, e.g. international, local, internet and home”.

LB2 said:

“For prolonged preservation”.

LB3 highlighted the important point:

“Lifetime access to information”.

LB4 shared this:

“Preservation and easily accessible”.

SLB2 counted the following:

“For preservation, for access, to prevent loss of information due to theft/destruction, deterioration/fragile and handling”.

LM1 explained:

“As a legal deposit library, the preservation of the country’s heritage is critical, so the benefit of digitally preserved those materials is that it can be protected for the lifetime”.

LI1 explained the following:

“Longer lifespan of documents, it helps with storage since documents could be stored using cloud computers”.

CAT1 said that:

“Patrons will be able to get easy access to preserved information and that promote the library itself”.

Lastly, LA7 said:

“Benefits are easy access to information and safe storage as well as the availability of space”.

Fundamentally, the study revealed that the main benefits of digitally preserving library materials is to preserve collection, prolong the lifespan of materials, easy/online access to digitized library materials, and it saves time and it creates space.

4.4.8. Risks behind digital preservation

The Msunduzi Municipal Library staff members involved in preparation for digital preservation were requested to share any risks behind digital preservation materials to determine whether they know the risks behind the programme they are preparing for. All the 15 respondents gave their responses to the question, and their views are presented below.

SLB1 replied:

“Access users, items must be made to be freely accessible yes but that can also call for hackers to destruct or even wipe our websites or materials”.

LA1 went on details supporting the SLB1 by saying:

“Lose of digital data, software being corrupted by viruses or any infringement”.

LA3 also mentioned something about hacking:

“When a material is/are too fragile, if it mistakenly handles without precautions places, as I indicated before the lack of training on digital preservation, it can be damaged. Other than that, the storage itself can break and can be hacked at some point”.

LA4 added:

“Hackers can hack the storage system where digital collection is stored, library can drop the usage, and storage system can crack and lose the information stored”.

LB1 counted the following:

“Losing the information somehow on the cloud, not having back-up system once that happens, and letting not trained staff to use that expensive equipment for digitization”.

LB2 said:

“Lost data and outdated technology”.

LB4 added:

“Equipment failure, outdated technology, insufficient IT hardware & improper management of content”.

LB3 said something different, which is:

“Crashing of the server”.

LA5 said:

“Legal considerations such as copyright”.

SLB2 said the same thing:

“Copyright is the main risk that can destroy the program”.

LM1 mentioned that:

“Fire, if not stored in a conducive environment”.

CAT1 indicated that:

“Lack of infrastructure like good internet bandwidth and lack of computers”.

LA7 said:

“If the system is down information cannot be accessed”.

LA2 and LA7 responded that:

“There is none”.

Hacking, copyright considerations, and losing information are the risks mentioned by 13 (87%) of the respondents, whereas 2 (13%) did not see any risks behind digital preservation.

4.4.9. Materials prepared for digital preservation

In this section, data was collected to verify the following phenomena.

- Materials prepared for digital preservation
- Selection criteria

4.4.10. Materials prepared for digital preservation

This study purposed to identify types of materials that the Msunduzi Municipal Library is preparing to digitally preserve. Consequently, the respondents were asked to state the materials that their library is preparing to digitally preserve. All the respondents gave their opinions to answer the above question, and they all expressed that their library was preparing to digitally preserve the “*newspapers*” first.

4.4.11. Selection criteria for materials to be digitally preserved

The study needed to reveal whether the Msunduzi Municipal Library have prepared the selection criteria for materials to be digitally preserve, hence the respondents were asked what will be their library's selection criteria for the materials to be digitally preserved. Table 4.3 below displays the selection criteria being employed by the library to select materials for digital preservation.

Table 4.3: Selection criteria for materials to be digitally preserved (N=15)

Selection criteria for materials to be digitally preserved	Frequency (%)
Rare materials	3 (20%)
Old materials	7 (47%)
In-demand materials	2 (13%)
Popular materials	3 (20%)
Total	15 100%)

4.5. Staff members for the digital preservation programme

As pertained to issue in 4.8 above, the following themes emerged from the data collected

- Staff allocated for the digital preservation programme
- Enough staff members for the digital preservation programme
- Staff members' skills and competences for digital preservation
- Methods used by staff members to acquire skills and competencies.

4.5.1. Staff members allocated for the digital preservation programme

It was aimed by this study to find out if the Msunduzi Municipal Library has staff members allocated for the digital preservation programme or have prepared enough staff members for their digital preservation programme, the respondents were then asked if their library has allocated a staff member to monitor the day-to-day running of the digital preservation programme or not. All the 15 (100%) respondents confirmed that the staff members had been allocated for the digital preservation programme.

4.5.2. Enough staff members allocated for the digital preservation programme

Respondents were asked if their library have enough staff members to undertake the digital preservation programme, and 13 (87%) of the 15 respondents confirmed that they possessed enough staff members to undertake the digital preservation programme. Two of the respondents further aired their views as shown below.

LA1 responded:

“Yes, they are more than enough but they need training”.

LB1 disagreed by saying:

“Yes, the periodical department has more than enough staff and they all have been trained on using the machines”.

Lastly, 2 (13%) of the 15 respondents responded with a “No” answer and one of them further made the following comment:

LA3 said:

“No, since I have indicated about work overload, I believe that we need trained and experienced staff on digital preservation”.

4.5.3. Staff members’ skills and competencies for digital preservation

To discover if the Msunduzi Municipal Library staff members have skills and competences on digital preservation, respondents were asked if they have the skills and competences on digital preservation. The results are as follows:

- Nine (60%) of the 15 respondents confirmed that they acquired skills and competencies, while 5 of them (9%) indicated that they had not received any training, and
- Six (40%) of the 15 respondents confirmed that they lacked skills, and they had not received any training on digital preservation.

Those 5 (56%) of the 9 respondents who confirmed that they had relevant skills and competencies but had not received any training on digital preservation were encouraged to mention how did they acquire these relevant skills and competencies. Section 4.8.4 below shares the findings.

4.5.4. Methods used by the staff members to acquire skills and competencies

The study desired to find out how these 5 (56%) of the 9 respondents who confirmed that they had skills and competencies but had not received any training on digital preservation did it. The researcher encouraged them to mention how they acquired these skills, and competencies; and they mentioned the following reasons.

LA4, LA5 and LI1 answered:

“Self-skills development by practicing with colleagues”.

LB3 and SLB2 said:

“Self-taught and practicing”.

Basically, the 5 respondents out of 9 acquired relevant skills and competencies on digital preservation through practicing.

4.6.Tools and facilities for digital preservation

Only two themes emerged from the issue relating to tools and facilities for digital preservation, and they are discussed below. Tools and facilities available for the digital preservation programme

- Tools and facilities adequacy for the digital preservation programme

4.6.1. Tools and facilities available for the digital preservation programme

The study was intended to establish whether the Msunduzi Municipal Library has prepared enough tools and facilities for their digital preservation programme, and the respondents were questioned about the tools and facilities available for the digital preservation programme in their library. They mentioned that the following tools and facilities were available in their library.

- “Computer and scanners” were mentioned by 8 (53%) of the 15 respondents,

- “Cameras” were mentioned by 4 (27%) of the 15 respondents, and
- “Digitizing machines” were mentioned by 3 (20%) of the 15 respondents.

Based on the respondents’ views, it was found that digitizing machines and cameras were the least digitization tools available at Msunduzi Municipal Library in the KZN in their preparation for digital preservation programme; whereas computers and scanners were mostly available digital preservation tools.

4.6.2. Tools and facilities adequacy for the digital preservation programme

The respondents were asked if they think the tools and facilities at the Msunduzi Municipal Library have enough tools and facilities to undertake the digital preservation programme. Below are the responses from the respondents.

- Eleven (73%) of the 15 respondents said the tools were enough, and
- Four (27%) of the 15 respondents said the tools were not enough.

Other views expressed by some respondents based on the question asked are shown below.

LA7 answered:

“Based on the number of materials that need to be digitally preserved, I think no”.

LA5 responded that:

“Yes, they enough for the department”.

LB4 said:

“They are sufficient”.

It was ascertained by the current study that 11 (73%) of the 15 respondents said tools and facilities were enough for digital preservation programme while 4 (27%) of them said they were insufficient

4.6.3. Available funds for the digital preservation programme

The study hoped to establish whether the Msunduzi Municipal Library is financially prepared for their digital preservation programme, thus the respondents were asked whether the library

has enough funds for the digital preservation programme and if yes, do they think the available funds are sufficient to complete the digital preservation programme. The majority of the respondents (11, i.e.73%) said “no”, whereas 4 (27%) of them said “yes”. Those respondents who said “yes” were asked if they think available funds are sufficient to complete the digital preservation programme, and below are their opinions.

SLB1 said:

“Initially, there was funding but not sure about that now”.

LA3 added:

“Yes, it does have funds but it is not sufficient for the entire program”.

LA7 additionally said:

“Yes, the department have the funds but I don’t think they are enough”.

LB1 elaborated:

“The funding depends usually on the budget allocated for the year. When things are sorted digitization will be allocated its portion depending on the budget for the year”.

4.6.4. External funders for the digital preservation programme

The respondents were asked if their library has external funders for their digital preservation programme. Ten (67%) of the 15 respondents responded that their library had an external funder, which is the KZN Department of Arts and Culture; while other 5 (33%) respondents said they were not sure whether the library have external funders.

4.7.Storage for digitally preserved materials

The following are the themes that were covered emerged from the data as pertained to storage for digitally preserved materials.

- Information management systems digitally preserved materials
- Storage capacity for digitally preserved materials
- Back-up storage for digitally preserved materials
- External storage for digitally preserved materials

- Ensuring security of digitally preserved materials
- Digital preservation procedures

4.7.1. Information management system for digitally preserved materials

The respondents were asked if their library have an information management system for the digitally preserved materials. According to 3 (20%) of the 15 respondents, their library had or would obtain information management systems (IMS), while 12 (80%) of the 15 respondents contradicted the above. Some respondents' views are shown below.

LA3 answered:

"Yes, it is Worldcat".

LA4 said:

"Yes, we currently using WorldShare/WorldCat which I believe we are still going to use it for the digital collection".

LA7 added:

"Yes, the information management system we use is Worldcat".

CAT1 said:

"I'm not sure, I can't lie".

In addition, the results obtained by this study revealed that 3 (20%) of the 15 respondents said that their library have or would have information management systems (IMS) while 12 (80%) of them said "no".

4.7.2. Enough storage capacity for digitally preserved materials

The current study wished to establish whether the Msunduzi Municipal Library preparing for the digital preservation have prepared enough storage capacity for their digital preservation program, as a consequence, the respondents were asked if they think their library have or will have enough storage for the digitally preserved materials. Their responses are as follows:

LA7 said:

“I think so”.

LB1 elaborated:

“Working on acquiring storage that will be enough to be used even in future”.

SLB1 added:

“Not yet, working on it”.

LB3 said:

“No, it does not have as far as I know”.

The respondents responded firmly with “yes” or “no” and 4 (27%) of the 15 respondents explained their answers when asked whether they think their institutions will have enough storage for the digitally preserved materials. The majority, 12 (80%) of respondents responded with “no” to the question while 3 (20%) responded with “yes”.

4.7.3. Back-up storage capacity for digitally preserved materials

This study longed to find out if the Msunduzi Municipal Library has back-up storage for their digitally preserved materials, therefore, the respondents were queried if their library have or will have the back-up storage for digitally preserved materials. The views of some of the respondents are presented in tandem.

LB2 answered:

“Not sure”.

LA2 responded with:

“No”.

CAT1 and RS15 simply said

“Yes”.

LA1 replied:

“Not sure refer to the management”.

SLB1 said:

“I don't know”.

LA4 responded:

“Not yet, but there were talks to use cloud storage as a back-up”.

LA3 answered:

“It will, there are still enquiries on cloud storage”.

LM1 said:

“Not at present but we plan to”.

SLB2 added:

“No back-up currently, I do not know about the future with regards to digitizing”.

LI1 said:

“No back-up to support files”.

LB4 answered:

“We don't have it as yet, but we might have it in future”.

LB3 mentioned that:

“It should have the back-up when it finally operates”.

LB1 added:

“Still looking at the storage issues, that is why digitizing and preservation is not running at the moment”.

LA5 said:

“I don’t know but it is a must”.

4.7.4. External storage for digitally preserved materials

The study wanted to determine whether the Msunduzi Municipal Library staff members preparing for the digital preservation programme have prepared enough storage capacity for their digital preservation program in case of any disaster, and the respondents were then asked if they have an external storage for digitally preserved materials. The respondent’s responses are described below.

LB3 answered that:

“I am hoping that it will have external storage”.

LB4 said:

“It will be arranged when the project starts”.

LA2 replied:

“No, I don’t think so”.

LA5 said:

“I don’t know”.

SLB1 added:

“No, not sure about the future”.

LB1 explained that:

“Those are some of the issues being discussed and trying to cater for, hence the hold-up of the process itself”.

LA5 said:

“No, it does not have external storage”.

LI1 answered:

“No, limited storage in the facility”.

LM1 confidently said:

“At present, no, we are looking into sourcing external storage”.

LA1 said:

“Yes, there is an external storage called cloud”.

CAT1 said something different:

“Yes, external servers by the municipality”.

LA3 said:

“Yes, it is the backup system”.

LA7 answered:

“Yes, they will have the storage”.

LB2 lastly said:

“Yes, information will be available on internet”.

A back-up system and cloud storage are the only external storage mentioned by the Msunduzi Municipal Library staff members preparing for digital preservation programme.

4.7.5. Security of digitally preserved materials

The study sought to determine whether the Msunduzi Municipal Library has prepared the security of the materials they are planning to digitally preserve; the respondents were asked how their library ensure or will ensure the security of digitally preserved materials. Their responses are as follows:

SLB1 said:

“Nothing in place yet”.

LB3 added:

“No collection has been digitized”.

LB4 additional said:

“No insurance since we have not started the project”

SLB2 and LI1 both agree with respondent SLB1, LB3, and LB4 by saying:

“I have no idea since digitizing has not happened”.

LA1 said:

“Install new antiviruses and use cloud storage”.

LM1 answered:

“By following all necessary guidelines and precautions in line with preserving digital resources”.

LA4 said:

“The library will provide a saver. Where only dedicate staff members will have log in details”.

LA7 answered:

“You need to have login details to have access to the collection, so only allowed people will have access”.

The outcomes of the current study discovered that the Msunduzi Municipal Library had not started digital preservation programme, and that issue in turn made the staff to lack understanding of means to secure the digitally preserved materials. Some respondents mentioned security procedures such as login details (administration passwords), saver, installing new antiviruses, and cloud storage.

4.8.Sustainability of the digital preservation programme

This study aimed to check if the digital preservation at the Msunduzi Municipal Library will be sustainable. Consequently, this section covered the theme below.

- Sustainability of the digital preservation programme

4.8.1. Sustainability of the digital preservation programme

This study aimed to check the sustainability of digital preservation programme at the Msunduzi Municipal Library, therefore; the respondents were questioned if they think their library will be able to sustain the digital preservation programme. Five (33%) of the 15 respondents replied that they were *“unsure”*, whereas 10 (67%) of the respondents replied with the following responses.

SLB1 said that:

“Yes, if it gets off the ground, we are committed to digital preservation as we a big deposit library”.

LA7 said that:

“Yes, because we have a proper plan”.

LM1 said that:

“We would certainly want to ensure continually of the program or project as we have legal deposit status”.

LB2 said that:

“I’m not sure since the program has not started”.

LA3 replied:

“No, because of the challenges I have mentioned which is the server and finances”.

LB3 said that:

“It’s hard to say as we are dependent to the municipality that has been facing financial problems”.

LB4 said that:

“At the moment the answer will be no, because of the lack of funds”.

LA1 answered:

“Yes, the equipment and staff are already there, they only need to be trained and funded”.

LB1 said that:

“Yes, the equipment is here already, staff is well trained, the refresher courses and assistance is being offered by the trainee when needed”.

The current study revealed that the Msunduzi Municipal Library could not sustain the digital preservation programme due to the challenges such as a lack funding or financial support, and absence of storage server(s) as mentioned by the respondents.

4.9.General comments on the digital preservation programme

This section presents the general comments on a digital preservation programme expressed by the respondents from the Msunduzi Municipal Library, thus the theme that emerged is covered below.

- General comments on the digital preservation programme

4.9.1. General comments on the digital preservation programme

The study hoped to determine if the respondents have comments on digital preservation, thus they were given a chance to give comments on digital preservation programme if they have any. Nine (60%) of the 15 respondents made the following remarks:

SLB1 commented that:

“The library initially had a plan to digitally preserve periodicals, scanners were bought”.

LA1 commented that:

“I have no comment because it has not yet been implemented but I hope the management is looking out and apply for more funding”.

LA3 commented that:

“Any library that wishes to undergo digital preservation they need formulate policies and have a planning which includes funds, people and duration and appropriate technologies and actions to ensure accessibility, accurate rendering and authenticity of digital objects”.

LA7 commented that:

“I think any institution planning to undertake digital preservation program should ensure that it meets all requirements for a digital preservation program. Thereafter, it is ready to undertake the program. Lastly, digital preservation is vital as it helps in collection preservation and online access”.

LB1 commented that:

“Digital preservation program is not yet operational. There still minor glitches to be taken care of, and an issue of storage is being looked into not only by the library management but the municipal ICT department is involved as well. This has to relieve the library of maybe 20 years onward of storage problems and ICT has to be involved as well to provide efficient and effective information retrieval to the community”.

LA5 commented that:

“It is a good project a present for a future”.

LB4 commented that:

“It seems daunting at first but once the project start it will flourish and many people around the globe will benefit from it”.

LM1 commented that:

“Limited funding, the impact of COVID-19 and not having adequate storage are some of the factors attaching digital preservation. We are hopeful that this can be resolved so that the project continues”.

CAT1 commented that:

“The Msunduzi library is not paying enough focus on digital preservation, reason being it is not promoted and nobody is doing anything in order to achieve or to promote other means that the library should have in order to deliver more information in different ways to the community”.

4.10. Summary

Chapter 4 presented the findings for the study. These findings were based on the data collected through semi-structured face-to-face interviews. The main findings of the study are discussed in the following chapter which is Chapter 5.

CHAPTER 5

DISCUSSION AND INTERPRETATION OF FINDINGS

5.1. Introduction

Chapter 4 presented the findings obtained by means of semi-structured face-to-face interviews from staff members involved in preparing for a digital preservation programme at the Msunduzi Municipal Library. According to Sarandakos (1993), data interpretation assists to make findings clearer, to articulate the problems mentioned in Chapter 1, and to explain the issues resulted in the problem statement. This chapter discusses the findings relevant to the objectives of the study and the critical questions that were generated to address these objectives which are as follows:

- Is the Msunduzi Municipal Library ready to undertake the digital preservation programme?
- Does the Msunduzi Municipal Library meet the requirements for digital preservation programme in order to undertake it?
- Do the staff members at the Msunduzi Municipal Library have skills and competencies for digital preservation?
- Does the Msunduzi Municipal Library have enough storage capacity for digital preservation programme?

This section further discusses the themes derived from the data collected, and in relation to objectives of this study. Lastly, this discussion is supported by relevant literature already reviewed, and it is presented below.

5.1.READINESS TO UNDERTAKE THE DIGITAL PRESERVATION PROGRAMME

The study sought to reveal if the staff members involved in preparing for a digital preservation programme at the Msunduzi Municipal Library is prepared for a digital preservation programme. The data collected under this section revealed the following themes.

- Readiness to undertake the digital preservation programme
- Challenges for the digital preservation programme
- Identified challenges for the digital preservation programme

- Risks behind digital preservation
- Materials prepared for digital preservation
- Selection criteria for materials to be digitally preserved
- Digital preservation plan and strategy
- Digital preservation policies and guidelines
- Digital preservation procedure
- Sustainability of the digital preservation programme.

5.1.1. Readiness to undertake the digital preservation programme

With regards to readiness to undertake the digital preservation programme, Conway (2010) says that the Digital Preservation Management Model (DPMM) guided this study provides the research studies with in-depth understanding, evaluation and strategies on readiness in legal deposit, institutions or any establishments for digital preservation of vital records, documents, and other materials. For an institution to measure its readiness to undertake the digital preservation programme, McGovern (2003) affirms that it should check if it meets the three key components of DPMM such as the organizational infrastructure, technological infrastructure, and the requisite resources. Otubelu and Ume (2015), state that it is clearly indicating that there is a need to assess digital preservation programme's readiness before it begins. Tharakan (2015) articulates that the foundation on readiness of deposits of any information on organizations from indigenous systems to digital systems is the readiness of the infrastructure itself. Furthermore, Ngulube, Mangena and Nkala (2012) explicate that readiness means having counter measures in place for when the inevitable happens.

In this study, it was revealed that the majority of respondents attested that the Msunduzi Municipal Library is ready to undertake the digital preservation programme. Based on these findings, the researcher thinks the Msunduzi Municipal Library has done its work in terms of what is required in order to be ready to undertake the digital preservation programme. Regarding readiness for digital preservation, McGovern (2014) advises that organizational readiness should be best reflected in the development and adoption of explicit policies that address digital preservation commitments and decisions. This study further found that some few respondents thought that the Msunduzi Municipal Library seemed unready to undertake this programme because the library lacked have enough storage. This indicates that even

though the Msunduzi Municipal Library is ready to undertake the digital preservation programme, but some staff members feel that it is not ready.

On the other hand, the National Planning Commission (NPC) (2020) mentions that some digital preservation programmes delay because they lack updated computers that are ready for the task, necessary software needed to store and backup data to be specific, and computers to be used in accessing data. Furthermore, the NPC makes everything digital preservation programme relating to public sectors to be very slow at both national and municipal level. Based on the above, it is pertinent to ask that: before everything is digitized, are means of digitizing available? How ready is the equipment used to store and to access stored information? Having the infrastructure ready is therefore the number one priority. Similarly, the respondents of this study further mentioned a storage server and funding as the main challenges that made them thought that the Msunduzi Municipal Library seemed unready to undertake this programme. These findings are in line with those by Fubunmi and Paris (2009) when they reported that some challenges facing digitization include the financial constraints. Shelembe (2021: 68) likewise found a lack of storage server, training, and IT dedicated personnel as the remarkable challenges being faced by staff preparing for the digitization projects in KZN information providing agencies.

5.1.2. Challenges for the digital preservation programme

According to DPMM adopted in this study, its three main components such as organizational infrastructure, technological infrastructure, and resources in order to guide those who are involved in digital preservation programme to avoid challenges. Scholars like Fubunmi and Paris (2009) have raised an alarm over the challenge of a lack of technical-know-how as the most common challenge of digitization projects that result into problems. Similarly, this study established that the majority of respondents were faced with challenges, while few of them were not faced with challenges regarding their preparation for digital preservation programme. In researcher's point of view, staff members involved in the preparedness for a digital preservation programme have diverse views when it comes to challenges being faced at the Msunduzi Municipal Library.

It is believed that these challenges can be caused by various factors, and Lavoie (2004: 45) agrees with these research findings by stating that since the beginning of recorded information, librarians have struggled with preservation issues, and these old challenges will continue to be

larger and more difficult than ever. In addition, the researcher encouraged these respondents to voice-out those challenges being faced by their library, and the results are presented in section 5.2.3.

5.1.3. Identified challenges for the digital preservation programme

Nsibirwa (2007) asserts that preservation of library collections is a challenge in South Africa, and worldwide because of the constant challenges posed by inadequate staffing, inadequate funding, and lack of expertise. These findings are on a par with what this study found (refer to section 4.5.2) regarding the challenges being faced by the staff members in their preparation for digital preservation programme at the Msunduzi Municipal Library; and these challenges include a lack of storage server, a lack of funds, a lack of staff training, nonfunctioning or malfunctioning of some digitization machines, a lack of equipment service/maintenance, and a dearth of enough equipment. There seems to be a trend of similar challenges based on digital preservation programmes. Similarly, some related studies like the one conducted by Shelembe (2021: 68) on preparedness for digitization projects in KwaZulu-Natal information providing agencies also revealed similar findings that include challenges such as a lack of storage server, training, funds and funding, and dedicated IT personnel. The author reported those issues as the most remarkable challenges faced by staff preparing for the digitization projects in the KZN information providing agencies. Consequently, the researcher concludes that the main challenges faced by institutions preparation for digital preservation programme include a lack of storage server, lack of funds, a lack of staff training, and a lack of digital preservation equipment.

5.1.4. Risks behind digital preservation

As pertained to DPMM adopted by this study, McGovern (2014) states that once the need to establish a digital preservation programme is recognized, the organization must be ready to build, sustain, and avoid possible risks on the digital preservation programme. The current study established that the majority of the Msunduzi Municipal Library staff members involved in preparation for the digital preservation programme thought hacking, copyright considerations and losing information are the risks behind digital preservation. Relatedly, Allen (2006) has advised that any organization developing repositories for both internal and external access need to balance time, resources, and remain critical to digital preservation developments. The study further revealed some staff members did not see any risk behind

digital preservation. The reason for this could be their lack of knowledge and information on the risks behind digital preservation.

5.1.5. Materials prepared for digital preservation

Based on the DPMM adopted by the current study, McGovern (2007) mentions that digital preservation of informational resources is needed to preserve and manage metadata or institutional repositories. The author further explains why legal materials deposit need to be preserved, what materials, why should it be preserved, by who and at where should it be preserved. According to Mason (2007), the preservation of cultural materials is an approach to save cultural materials for permanent access. This study however discovered that the Msunduzi Municipal Library seemed preparing to digitally preserve their legal deposit serial publications with the possibility of starting with the digital preservation of “*newspapers*”. Conway (2010:64) notes that traditional preservation has been in existence for long and its aims at preserving organic materials as useful information source. Based on the findings of this study, it is deducible that all staff members were aware of materials the Msunduzi Municipal Library has being preparing to digitally preserve as they all mentioned legal deposit serial publications, and the starting point being “*newspapers*”.

5.1.6. Selection criteria for materials to be digitally preserved

Libraries cannot just embark in digital preservation programme for the sake of digitizing, but should think carefully and decide on which materials to digitize (Philip, 2012). On the other hand, Asogwa (2011) recommends that materials to be digitally preserved should be chosen after a watchful selection process. This study found that the Msunduzi Municipal Library had prepared the selection criteria for materials to be digitally preserved. Gertz (2018) provides the following selection criteria (in form of questions) to be considered for the digital preservation,

- “How do the materials relate to the institution’s collecting policy and to its other digital resources?”
- Are they rare or unique?
- Do they provide accurate information in their subject area or contribute to broader or deeper coverage?
- Do they relate to areas poorly documented online?
- Is there a legal need to preserve the materials and make them widely accessible?
- Are they important for the functioning of the institution?

- Do they support current or new high-priority activities?
- Are they aesthetically appealing? and
- Will they display well on-screen?”

The study further found that the selection criteria for the Msunduzi Municipal Library considered rare materials, old materials, in-demand materials, and popular materials. Reason for this selection criterion could be that the Msunduzi Municipal Library is legal deposit library, and it is housing numerous legal deposit materials. Harvey (1993) and Ngulube (2002) mention that generally, preservation is a concept that posits valuable materials that are educative from the past facts to the present and are of considerable importance to the human race; and so need to be preserved or saved.

5.1.7. Digital preservation plan and strategy

DPMML adopted by the study provides in-depth understanding, evaluation, and strategies on readiness in legal deposit, institutions or any establishments for digital direction in preservation of important records, documents and other materials (Conway, 2010). The rationale for this study is to understand how and why the Msunduzi Municipal Library can digitally preserve and protect their legal deposit material. Adcock, Varlamoff and Kremp (1998:5) believe also that that the term "preservation" encompasses all strategies and techniques for preserving library and archival materials. Unfortunately, this study established that the majority (67%) of Msunduzi Municipal Library's staff members were not aware of the plan or strategy the library had been planning to use when undertaking the digital preservation programme. Based on these results, it can be deduced that there is not enough sharing of information among staff members involved in doing preparedness for the digital preservation programme at the Msunduzi Municipal Library. Thembe (2019) posits that organizations and institutions need to be well coordinated in order to develop digital preservation strategies that can be integrated into action. It was further established by the current study that only (33%) of the 15 respondents were aware of the plan or strategy the library had been planning to use when undertaking the digital preservation programme.

5.1.8. Digital preservation policies and guidelines

Organizational readiness section of DPMML includes mission, policies and procedures as well as authority and implementation (McGovern, 2014). Where mission statement can be interpreted as supporting a long-term commitment to the preservation of evaluable digital materials that the deposit libraries have acquired or created; policies and procedures may be written policies and procedures that address long-term access policies and guidelines covering

selection, de-selection, and acquisition also, explicitly defined preservation strategies that are appropriate to digital collections and objects that the deposit libraries have committed to preserve further. Additionally, authority which can be the digital preservation documents vetted by senior management; while implementation includes implemented policies and practices contained in a form of a document as explained by McGovern (2014). McGovern (2014) opines that organizational readiness is best reflected in the development and adoption of explicit policies that address digital preservation commitments and decisions. This implies that the Msunduzi Municipal Library needs to ensure that necessary and appropriate policies are in place before undertaking the digital preservation programme.

Liu (2004: 338) identifies a lack of policies as a digital preservation challenge for most libraries. Similarly, this study found that all staff members were not aware of the policies and guidelines on digital preservation and never seen it before. As a result, it was impossible for them to show it to the researcher for a look. Pickover and Mohale (2013: 2) have reported that libraries engaged in digital preservation programme are facing challenges of developing digital preservation policies and standards. Perhaps, that is why the Msunduzi Municipal Library at the time of data collection did not have the policies and guidelines on digital preservation for their programme. Allen (2006:4) has also emphasized that building a strong foundation for a strong digital preservation programme in any organization includes documentation for policies, procedures, and standards.

5.1.9. Digital preservation procedure

McGovern (2014) opines that organizational readiness is best reflected in the development and adoption of explicit procedures that address digital preservation commitments and decisions. This implies that an organization needs to ensure that necessary and appropriate policies and procedures are in place before undertaking a digital preservation programme to control the deposit. Unfortunately, the current study exposed that the Msunduzi Municipal Library had not prepared any documented procedure for their digital preservation programme. McGovern (2014) however confirms that organizational infrastructure consists of mission, policies and procedures as well as authority and implementation. From the above result, it is deducible that the Msunduzi Municipal Library is not aware that there should be a digital preservation procedure for the digital preservation programme.

5.1.10. Sustainability of the digital preservation programme

McGovern (2014) asserts that once the need to establish a digital preservation programme is recognized, the organization must be ready to build and sustain the programme with the appropriate resources. These resources must be adequate for effective digital preservation programmes of the libraries. This requirement therefore deals only with resources that should be prepared in order for digital preservation programme to run smoothly. The current study revealed that the Msunduzi Municipal Library cannot sustain the digital preservation programme at the moment due to a lack funding or financial support and storage server. The situation now is that the Msunduzi Municipal Library cannot sustain the digital preservation programme at the moment. Jantz and Giarlo (2005), and Kohli and Melville (2019) have also cautioned that it is crucial to digitalize legal deposit materials in various libraries to enhance full operational system for preservation and sustainability of preserved materials. The study further established that some respondents were “*unsure*” about the possibility of the Msunduzi Municipal Library to sustain its digital preservation programme. In researcher’s point of view based on the findings from the respondents’ responses, the Msunduzi Municipal Library cannot sustain their digital preservation programme until it is financially fit and has enough storage servers.

5.2.REQUIREMENTS FOR THE DIGITAL PRESERVATION PROGRAM

The study sought to establish if the Msunduzi Municipal Library meet the requirements for digital preservation programme in order to undertake it by looking at the literature review and data presentation stated in Chapter two, three, and four. This is discussed based on the following sub-themes.

- Requirements for the digital preservation programme
- Tools and facilities available and its adequacy for the digital preservation programme
- Available funds for the digital preservation programme
- External funders for the digital preservation programme

5.2.1. Requirements for the digital preservation programme

In this study, DPMM indicates that the repository is requires three main requirements namely organizational infrastructure, technological infrastructure, and resources (McGovern, 2014). Each of these three main requirements consists subtopics that cover different aspects of digital preservation in relation to the main component. Ngulube, Mangena and Nkala (2012) affirm

that the requirements of a perfect shift include everything from what infrastructure entails to what the technology requires without excluding the society.

This study discovered that the majority of the respondents thought that the Msunduzi Municipal Library met the requirements for digital preservation programme in order to undertake it. Seemingly, the Msunduzi Municipal Library is doing well in meeting the requirements for digital preservation programme in order to undertake it. The evidence is given by the findings in previous section section 4.5.3) where it was revealed that the majority of respondents witnessed the readiness of the Msunduzi Municipal Library to undertake the digital preservation programme. Shelembe (2021: 114) recommends that institutions and organizations preparing for digitization projects should prepare enough storage server/capacity to store digitized materials. Likewise, the study further revealed that few respondents declared that they did not think the Msunduzi Municipal Library met the requirements for the digital preservation programme because the library lacked a storage server. Oliver (2015: 9) also indicates that some institutions are daunted by the prospect of storing digitized materials, thus advises that before embarking on a digitization project, the issue of storage must be addressed.

5.2.2. Tools and facilities available and its adequacy for the digital preservation programme

Organizational infrastructure leg of DPMM covers digital preservation tools as one of its main components. Adzic (2013: 48) have earlier reported that there is a need for necessary hardware equipment in implementing library digital preservation programmes. The current study established that digitizing machines (20%) and cameras (27%) were found to be the least digitization tools available at Msunduzi Municipal Library preparing for digital preservation programme; whereas computers and scanners (53%) were found to be the most available digital preservation tools. The market offers plentiful categories of scanners such as flat bottom scanners and scanners with a cradle and the selection of these scanners determined by the kind of the material to be digitally preserved. Therefore, a possible reason for the Msunduzi Municipal Library to have digitizing machines, cameras, computers and scanners as the available digital preservation tools and facilities could be because of the nature of materials they are intending to digitally preserve. Remondino (2011), Bandiera et. al. (2011), Benedetti et. al, (2010), and Andreozzi (2003) allude that in recent times, numerous scanning technologies are trending and this includes the 3D scanning technology, which is useful in

cultural heritage modeling and digitization. ZSR library (2011: 11-15) shares the following kinds of digitization scanners.

- **“Flatbed scanner:** Anything small and flat, such as loose photographs, postcards, manuscripts, and currency, is suitable for this. Its drawbacks frequently necessitate specialized inserts and expertise. It is inexpensive and simple to use. It also doesn't work as well with binders
- **Book scanner:** This type of scanner is designed primarily for the widespread digitization of monographs. It works quickly and well. Leasing it also costs a lot.
- **Overhead document scanner:** It is ideal for large collections of manuscripts. The surface's ability to be adjusted enables effective image capture from bound materials. It works quickly and easily. However, the price is high.
- **Digital camera back and vacuum table:** This tool is an excellent choice for digitizing large, fragile flat objects (excellent for maps). To operate, it needs a lot of training and experience. It is also expensive.
- **Sheet-fed scanner:** This is great for things that are loose, flat, small, and sturdy (like loose papers or catalog cards). It scans hundreds of times per minute, so it moves quickly. It's not a good choice for images, manuscripts, or anything else of a different size.

Amollo (2011: 24) affirms that the correct tools ensure an organized digital preservation process workflow, in which digitization is able to progress from one point to the next with little or no difficulties. It was ascertained by the current study that the majority (73%) of the respondents confirmed that the digital preservation tools and facilities available were enough for digital preservation programme while the least (27%) of them confirmed that they were not enough.

5.2.3. Available funds for the digital preservation programme

The resources infrastructure leg of the Digital Preservation Management Model explains various necessary factors that are responsible for integration of diverse human, financial, technological resources in digital preservation. This implies that “how much” of technology, personnel and finance are needed to digitally preserve legal materials deposit in the municipality library. The resources encompass how much a digital preservation process cost? McGovern (2007: 5). Moreover, Mtshali (2016: 7) has realized that funding for digital preservation is a critical factor because many LIS institutions have valuable printed records

which need to be digitized so that they are protected from damage and easily accessible remotely.

The current study confirmed that the majority (73%) of staff members said that the Msunduzi Municipal Library lacked financial preparedness for their digital preservation programme, whereas the minority (27%) of them said the library had financial readiness. Correspondingly, the study conducted by Amollo (2011: 16-17) revealed a lack of funding as one of the complications for library digital preservation programme. Similarly, Kipaana (2012) identifies the managerial and financial constraints as one of the essential challenges for the digital preservation projects. Those staff members who said “yes”, that the Msunduzi Municipal Library was financially prepared for their digital preservation programme were asked about the availability of funds and its sufficiency to complete the digital preservation programme being proposed; and they said “no”. These findings show that even there are available funds allocated for this programme, the funds are not enough.

5.2.4. External funders for the digital preservation programme

For external funding, Husmillo (2014: 32) advises the managers of digital preservation programmes to send letters of inquiries (LoI) to funding agencies to determine availabilities of grants. All instructions and requirements of the funding agency should also be followed. This could help institutions embarking on the digital preservation programmes to be funded by external funders and not only depending on the internal funds. Husmillo (2014: 32) suggests training on proposal writing in order to do this successfully. The study ascertained that the majority of the respondents discussed that the KZN Department of Arts and Culture had been funding the Msunduzi Municipal Library externally; while the minority (33%) said they were not sure whether the library has external funders or not. Cole (2002) asks digitization project/programme funding agencies like the National Science Foundation (NSF), and the Institute of Museum and Library Services (IMLS) to give considerable weight to the same factors when assessing programmes and evaluating project proposals.

5.3. STAFF MEMBERS’ SKILLS AND COMPETENCIES FOR DIGITAL PRESERVATION

The study aimed to ascertain if the staff members at the MM Library have skills and competencies for digital preservation. Consequently, the data collected in this section yielded the following themes.

- Staff members allocated for the digital preservation programme,
- Staff members' skills and competences for digital preservation
- Methods used by the staff members to acquire skills and competencies

5.3.1. Staff members allocated to monitor the digital preservation programme

According to DPMM employed in this study, some paramount relevance tools for digital preservation are resource commitments (such as funding, staff, training, services, etc.), and all that that need to be identified and secured as an on-going commitment of the deposit libraries (McGovern:2014). The current study found that all the respondents confirmed that the Msunduzi Municipal Library had allocated staff members for their digital preservation programme. These findings are supported by Posgate's (2008: 9) attestation that since staff are likely to take up the biggest part of the budget, it is significant to plan in advance the staff requirement for the digital preservation programme. Seemingly, the Msunduzi Municipal Library takes this programme serious as the library was found to had allocated staff members for the execution of the programme. It was further established by the current study that the library had enough staff members to undertake the digital preservation programme as revealed by the majority of the respondents; whereas only few numbers of the participants confirmed that the staff members were not enough. Based on these findings, it can be concluded that the Msunduzi Municipal Library has enough staff members who can be allocated for their digital preservation programme.

5.3.2. Staff members' skills and competencies for the digital preservation

The organizational infrastructure component of DPMM has a sub-component c called staffing, and this involves staff skills and competences for digital preservation. As pertained to this subtopic, McGovern (2007) opines that as technology is evolving or advancing, staff must evolve digital preservation skills to be competent with modern technologies relevant to digital preservation. According to Moodley (2009: 4), information workers need to possess exclusive skills to work in the digital information world. Additionally, Shelembe (2021: 114) recommends that institutions and organizations preparing for digitization projects/programs should provide staff with professional or enough staff training on digitization.

The study revealed that most staff members had skills and competencies on digital preservation, although few did not. These findings are in line with the model adopted by the study and the relevant literature reviewed. This also could be a reason why the majority of the reiterated the readiness of Msunduzi Municipal Library to undertake the digital preservation programme. Authors like Jones (2001) however felt that digital preservation programmes for libraries, archives, and museums require new skills as most librarian's lack of ICT skills. Similarly, Kanyengo (2009: 39) notices that the changes brought about by the digitization of materials result in an urgent need for technical skills. The researcher further asked a follow-up question in order to identify how these skills and competencies were acquired and the results are presented in section 5.4.2.1.

5.3.2.1.Methods used by the staff members to acquire skills and competencies

McGovern (2007) opines that DPMM as technology is advancing, therefore, digital preservation skills must evolve to manage the stool as digital preservation requires different specialized skills, ranging from scanning of the documents right through to archiving the completed material for easy access.

Nyide's (2014: 51) view is that the library personnel need to be well-trained in order to acquire skills required for a successful implementation of digitization processes. The study discovered that those staff members who had relevant skills and competencies had received training on digital preservation and some of them had acquired these skills through self-taught and practicing. Based on these findings, one can assume that staff members involved in digital preservation programme at the municipal library being studied on had not received any training or workshop on digital preservation programme. Some had however gone extra miles in order to acquire relevant skills and competences as they self-taught and practiced on their own.

5.4.STORAGE FOR DIGITALLY PRESERVED MATERIALS

As this study wanted to establish if the Msunduzi Municipal Library have enough storage for digital preservation programme, the following themes generated from the data are presented in this section.

- Information management system for digitally preserved materials
- Enough storage capacity for digitally preserved materials
- Back-up storage for digitally preserved materials

- External storage for digitally preserved materials
- Security of digitally preserved materials

5.4.1. Information management system for digitally preserved materials

The technological leg of DPMM utilized in this study addresses current and planned digital objects and collections, storage management, and depositories (McGovern, 2014). Technological infrastructure ensures systematic integration of software, hardware, storage media, appropriate formats, security measures, networks, procedures, workflows, documentations, existing protocols, technical skills and archival skills. Apparently, the technological leg consists: digital collection, archival storage, storage practice, obsolescence, depository, depository development, security, OAIS compliances. McGovern (2007: 2) acknowledges the advent of the World Wide Web as a boost to digital preservation. McGovern (2007: 3) further maintains that organizations today are embracing modern approach of disseminate information through the use of websites to present information and to deliver services to their targets. In the same manner, the Msunduzi Municipal Library should maximize the benefits of the World Wide Web to make services available to their users through website and information management.

Hammond and Davies (2009: 21) articulate that information management system is one of the most difficult parts of any digitization project. Perhaps, that is why the study discovered that the common of the 15 respondents (i.e. 12 (80%) expressed that the library did not have information management system as the time of gathering data for this study. It is deducible that the staff members involved in the digital preservation programme are not sure whether they will use the current used system which is WorldShare, or they will use another one. Nyide (2014: 56) notifies that at the beginning of the digital preservation project, there is a need to decide on how information management is done and who will be responsible for it. Positive results were obtained by this study as 3 (20%) of the 15 respondents said that their library had the information management system (IMS). These respondents further mentioned WorldCat/WorldShare as the information management system that they used.

5.4.2. Enough storage capacity for digitally preserved materials

Under the component labelled as “Technology infrastructure” of DPMM that guided this study is storage. McGovern (2014) indicates that the technological infrastructure addresses the issue of storage management and depositories. According to Hammond and Davies (2009: 21),

managing information is one of the most difficult parts of any digitization project. Meanwhile, read (2012) recommends that data should be stored using appropriate standards to ensure that they are usable and easily retrieved. Shelembe (2021) also advises that before beginning a digitization programme, the matter of storage must be addressed.

According to the findings of this study, the MM Library lacked adequate storage capacity to support the digital preservation programme. The issue of storage is some of the main challenges at the Msunduzi Municipal Library because it was mentioned by the respondents as one of challenges they were facing, and which had led to inability to undertake their digital preservation programme. The issue of storage was observed by Shelembe (2021: 114), and this scholar has also recommended that institutions and organizations preparing for digitization programmes should prepare a big enough storage server/capacity before they commence the programmes.

5.4.3. Back-up storage for digitally preserved materials

Back-up storage is likewise covered by DPMM under its component called technology infrastructure, and McGovern (2014) encourages the use of back-ups as part of digital preservation programmes. According to Oliver (2015: 9), regarding back-up storage, it should be kept in mind that there are many inexpensive solutions like external hard drives with a built-in back-up, compact discs, and cloud storage. Having the above-mentioned back-ups ensures that one can recover and access digital data if anything like format obsolescence or corruption happens to one kind of storage. This study ascertained that respondents were of different opinions as the majority said they to having a back-up storage; one said “no”, and few responded that they were not sure. Based on these findings, it could be concluded that there will be a back-up storage for digital preservation programme at the Msunduzi Municipal Library. Similarly, Shelembe (2021: 91) found that institutions preparing for the digitization projects in KZN would like to have external storage as back-up storage in case of disasters. It is therefore advisable that any institution preparing for a digital preservation programme should consider external storage as a back-up storage in case of disasters.

5.4.4. External storage for digitally preserved materials

Storage of records, documents, and other valuable materials can be stored through digital preservation for many years, and these deposits can be accessed for many decades, thus serving as heritage, references, information and archival deposits (Mergel et al., 2019). This study found that a back-up system and cloud storage were the only external storage methods

mentioned by the Msunduzi Municipal Library staff members preparing for digital preservation programme. The study conducted by Shelembe (2021: 92) ascertained that information providing agencies preparing for the digitization projects in KZN need to use back-up servers, cloud storage and external buildings to house print copies of digitized materials as means of external storage of their digitized materials. By looking at the results of this study, the researcher concludes that the the Msunduzi Municipal Library must have an external storage for their digitally preserved materials.

5.4.5. Security of digitally preserved materials

The results of the current study discovered that the Msunduzi Municipal Library had not started their digital preservation programme, and that has made the library to be ensure regarding the manner to secure its digitally preserved materials. Some staff members however mentioned security procedures such as login details (administration passwords), saver, installing new antiviruses, and cloud storage. Likewise, Shelembe's (2021: 91) study revealed that different institutions used the similar security methods such as login details, closed access to the digitization area, hackers' detection software and back-up storages to ensure the security of their digitized materials. It is fortunate that even though the Msunduzi Municipal Library had not yet started their digital preservation programme, some staff members were aware of the security procedures needed to secure digitally preserved materials when the programme commences.

5.5.Summary

This chapter discussed and interpreted the findings of the study based on data collected, and the findings presented in the previous chapter. The discussions and interpretations were aligned with themes derived from the objectives of the study and critical questions that were generated to address the digital preservation programme at the Msunduzi Municipal Library in KZN. A model that underpinned the study, and many relevant studies from international, African, and South African contexts were used to support the research findings. The study confirmed that the Msunduzi Municipal Library was ready to undertake the digital preservation programme. The library was found to be facing challenges such as aa lack of storage server, a lack of funds, a lack of staff training, nonfunctioning of some digitization machines, a lack of equipment service/maintenance, and a lack of enough equipment regarding their preparation for digital preservation programme. It was discovered by this study that the Msunduzi Municipal Library met the requirements for digital preservation programme in order to undertake it. Furthermore,

it was revealed that few staff members did not think the Msunduzi Municipal Library met the requirements for digital preservation programme, due to a lack of storage server. The findings revealed that most staff members had relevant skills and competencies on digital preservation, although few did not have. The study confirmed that those staff members who have skills and competencies received training on digital preservation and some of them acquired these skills through self-taught and practicing. Lastly, this chapter discussed the storage capacity to store digitally preserved materials and the back-up storage. It was thus confirmed that the Msunduzi Municipal Library lacked enough storage capacity, but with an intention to have a back-up storage. The next chapter covers the summary, conclusions, and recommendations of this study.

CHAPTER 6

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY

6.1. Introduction

The previous chapter presented the discussion and interpretation of findings. This chapter intends to present the summary, conclusions and recommendations of the study. This is being done based on the objectives of the study which includes a readiness to undertake the digital preservation programme, the requirements for digital preservation programme in order to undertake it, the staff members' skills and competencies for digital preservation, and storage capacity for digital preservation programme.

6.1. Summary of the main findings

This section provides the summary of the main findings of the study which is in line with the objectives of the study discussed in Chapter one of this dissertation.

6.1.1. READINESS TO UNDERTAKE THE DIGITAL PRESERVATION PROGRAM

This study's objective aimed at finding out about the readiness for the Msunduzi Municipal Library to undertake a digital preservation programme. Therefore, data collected under this section yielded the following themes.

- Readiness to undertake the digital preservation programme
- Risks behind digital preservation
- Materials prepared for digital preservation
- Digital preservation plan and strategy
- Digital preservation policies and guidelines
- Digital preservation procedure
- Sustainability of the digital preservation programme

6.1.1.1. Readiness to undertake the digital preservation programme

With regards to the readiness to undertake a digital preservation programme, the study found that:

- a) It was found that the Msunduzi Municipal Library seemed ready to undertake the digital preservation programme.
- b) This study further found that some few respondents thought that the Msunduzi Municipal Library seemed not ready to undertake this programme because they do not have enough storage.
- c) The Msunduzi Municipal Library had challenges regarding their preparation for digital preservation programme.
- d) Lastly, the study revealed that the library had some challenges that include a lack of storage server, a lack of funds, a lack of staff training, a lack of equipment service/maintenance, a lack of enough equipment, and some digitization machines that were not working.

6.1.1.2. Risks behind digital preservation

With regards to risks behind digital preservation programme, the current study revealed that:

- a) The majority of the Msunduzi Municipal Library staff members involved in preparation for the digital preservation programme thought hacking, copyright considerations, and losing information are the risks behind digital preservation.
- b) Lastly, the study further revealed some staff members did not see any risk behind digital preservation.

6.1.1.3. Materials prepared for digital preservation

Based on the materials prepared for digital preservation programme, the study confirmed that:

- a) The Msunduzi Municipal Library seemed preparing to digitally preserve their legal deposit serial publications whereby it intended to start with the digital preservation of “*newspapers*”.
- b) The study further discovered that the Msunduzi Municipal Library had prepared the selection criteria for materials to be digitally preserved.
- c) Lastly, the study found that the selection criteria for the Msunduzi Municipal Library considered rare materials, old materials, in-demand materials, and popular materials.

6.1.1.4. Digital preservation plan and strategy

With regards to digital preservation plan and strategy, the current study discovered that:

- a) The majority of staff members from the Msunduzi Municipal Library were not aware of the plan or strategy the library had in plan to use when undertaking the digital preservation programme.
- b) It was further established by the current study that the least respondents were aware of the plan or strategy the library had in plan to use when undertaking the digital preservation programme.

6.1.1.5. Digital preservation policies and guidelines

Based on the digital preservation policies and guidelines, this study confirmed that:

- a) The all staff members were not aware of the policies and guidelines on digital preservation and never seen it before.

6.1.1.6. Digital preservation procedure

With regards to digital preservation plan and strategy, the current study found that:

- a) The Msunduzi Municipal Library had not prepared any documented procedure for their digital preservation programme.

6.1.1.7. Sustainability of the digital preservation programme

Based on the digital preservation policies and guidelines, this study established that:

- a) The Msunduzi Municipal Library seemed unable to sustain the digital preservation programme at the moment due to a lack funding or financial support and storage server.
- b) The study further confirmed that some respondents replied that they were “*unsure*” the Msunduzi Municipal Library could sustain their digital preservation programme or not.

6.1.2. REQUIREMENTS FOR THE DIGITAL PRESERVATION PROGRAMME

The study sought to establish if the Msunduzi Municipal Library meet the requirements for digital preservation programme in order to undertake it. This section is discussed based on the following sub-themes:

- Requirements for the digital preservation programme,
- Tools and facilities available and its adequacy for the digital preservation programme,

- Available funds for the digital preservation programme, and
- External funders for the digital preservation programme.

6.1.2.1. Requirements for the digital preservation programme

With regards to the requirements for digital preservation programme, this study revealed that the majority of the respondents thought that:

- a) The Msunduzi Municipal Library meets the requirements for digital preservation programme in order to undertake it.
- b) The study also found that some respondents did not think the Msunduzi Municipal Library met the requirements for digital preservation programme, simply because the library did not have storage server for digitally preserved materials.

6.1.2.2. Tools and facilities available and its adequacy for the digital preservation programme

Concerning the tools and facilities available, and its adequacy for the digital preservation programme; the study found that:

- a) The digitizing machines and cameras were the least digitization tools available at Msunduzi Municipal Library for digital preservation programme.
- b) Moreover, computers and scanners were the most available digital preservation tools.
- c) It was also ascertained by the current study that the majority of the respondents confirmed that the digital preservation tools and facilities available are enough for digital preservation programme.
- d) The least respondents confirmed that the digital preservation tools and facilities available were not enough.

6.1.2.3. Available funds for the digital preservation programme

Based on the available funds for the digital preservation programme, the current study established that:

- a) The majority of staff members said “no”, meaning that the Msunduzi Municipal Library is not financially prepared for their digital preservation programme.

- b) On the other hand, the current exposed that the minority of staff members said “yes”, and they meant that the Msunduzi Municipal Library is financially prepared for their digital preservation programme.
- c) Additionally, the study found that those staff members who affirmed that the Msunduzi Municipal Library seemed financially prepared for their digital preservation programme were asked if they think available funds are sufficient to complete the digital preservation programme and they said “no”.

6.1.2.4. External funders for the digital preservation programme

In relation to external funders for the digital preservation programme, this study confirmed that:

- a) Most staff members responded that the Msunduzi Municipal Library had an external funder.
- b) The further revealed that the KZN Department of Arts and Culture remained their external funder.
- c) On the other hand, the minority of staff members said that they were unsure whether the library had external funders or not.

6.1.3. STAFF MEMBERS’ SKILLS AND COMPETENCIES FOR DIGITAL PRESERVATION

The objective of this study was to ascertain if the staff members at the municipal library being studied on have skills and competencies for digital preservation. This section has the following themes.

- Staff members allocated for the digital preservation programme
- Staff members’ skills and competences for digital preservation.

6.1.3.1. Staff members allocated for the digital preservation programme

Pertaining staff members allocated for the digital preservation programme, the study found that:

- a) All respondents confirmed that the Msunduzi Municipal Library had allocated staff members for their digital preservation programme.

- b) It was further established by the current study that most of the respondents confirmed that they have enough staff members for their digital preservation programme.
- c) The study also revealed that a few respondents confirmed that the staff members for their digital preservation programme were not enough.

6.1.3.2. Staff members' skills and competencies for digital preservation

In connection to the staff members' skills and competencies for digital preservation, the study revealed that:

- a) Most staff members possessed skills and competencies on digital preservation, although few did not have.
- b) Those staff members who possessed skills and competencies received training on digital preservation, and some of them acquired these skills through self-taught and practicing.

6.1.4. STORAGE FOR DIGITALLY PRESERVED MATERIALS

As this study wanted to establish if the Msunduzi Municipal Library have enough storage for digital preservation programme, it then covered the following themes.

- Information management system digitally preserved materials
- Enough storage capacity for digitally preserved materials
- Back-up storage for digitally preserved materials
- External storage for digitally preserved materials
- Security of digitally preserved materials

6.1.4.1. Information management system digitally preserved materials

Pertaining information management system digitally preserved materials, the current study found that:

- a) The majority, 12 (80%) of the 15 respondents answered “no”, to indicate that their library lacked information management system dedicated for the digital preservation programme as at the time data was collected for this study.
- b) Positive results were also obtained by this study as it revealed that 3 (20%) of the 15 respondents said that their library possessed the information management system.

- c) The study further ascertained that the respondents mentioned WorldCat/WorldShare as the information management system that they had been using.

6.1.4.2. Enough storage capacity for digitally preserved materials

With regards to enough storage capacity for digital preserved materials, this study revealed that:

- a) The Msunduzi Municipal Library lacked enough storage capacity prepared for the digital preservation programme.
- b) The study further revealed that the Msunduzi Municipal Library has been working on having enough storage capacity for their digital preservation programme.

6.1.4.3. Back-up storage for digitally preserved materials

The study checked if there will be back-up storage for digitally preserved materials. The findings confirmed that:

- a) The Msunduzi Municipal Library had prepared to have a back-up storage for its digitally preserved materials.

6.1.4.4. External storage for digitally preserved materials

Pertaining external storage for digital preservation material, the current study established that:

- a) A back-up system and cloud storage were the only external storage mentioned by the Msunduzi Municipal Library staff members preparing for digital preservation programme.

6.1.4.5. Security of digitally preserved materials

In association to the security of digitally preserved materials, the current study confirmed that:

- a) The Msunduzi Municipal Library had not started their digital preservation programme, and had in turn led to lack of knowledge about how to safeguard the digitally preserved materials.
- b) The study further established that some staff members mentioned security procedures such as login details (administration passwords), external storage server, installing new antiviruses, and cloud storage.

6.2. Conclusions of the study

The main findings of this study, which are in line with the study's goals, serve as the foundation for the study's conclusions. This part covers topics, which are as per the following:

- Readiness to undertake the digital preservation programme,
- Requirements for the digital preservation programme,
- Staff members' skills and competencies for the digital preservation, and
- Enough storage capacity for digital preservation.

6.2.1. Readiness to undertake a digital preservation programme

Concerning the readiness to undertake the digital preservation programme, the study concludes that:

- a) The Msunduzi Municipal Library seemed ready to undertake the digital preservation programme. Some few respondents however thought that the Msunduzi Municipal Library seemed not ready to undertake this programme because they did not have enough storage.
- b) Staff members involved in a digital preservation at the Msunduzi Municipal Library were faced with challenges regarding their preparation for digital preservation programme.
- c) The study revealed that there are challenges faced by the Msunduzi Municipal regarding their preparation for the digital preservation programme.
- d) The study revealed that they were faced with challenges that include a lack of storage server, a lack of funds, a lack of staff training, a lack of equipment service/maintenance, a lack of enough equipment, and nonfunctioning of some digitization machines.
- e) The majority of the Msunduzi Municipal Library staff members involved in preparation for the digital preservation programme thought hacking, copyright considerations and losing information are the risks behind digital preservation.
- f) The study further revealed some staff members did not see any risk behind digital preservation.
- g) The Msunduzi Municipal Library seemed preparing to digitally preserve their legal deposit serial publications whereby it has been planned to start with the digital preservation of "newspapers".

- h) The study further discovered that the Msunduzi Municipal Library had prepared the selection criteria for materials to be digitally preserved.
- i) The study found that the selection criteria for the Msunduzi Municipal Library considered rare materials, old materials, in-demand materials and popular materials.
- j) The majority of staff members from the Msunduzi Municipal Library were not aware of the library's plan or strategy to be used when undertaking the digital preservation programme.
- k) It was further established by the current study that only few respondents were aware of the plan or strategy the library had planned to use when undertaking the digital preservation programme.
- l) The all staff members were neither aware of the policies and guidelines on digital preservation nor ever seen it.
- m) The Msunduzi Municipal Library had not prepared any documented procedure for their digital preservation programme.
- n) The Msunduzi Municipal Library seemed incapacitated to sustain the digital preservation programme at the time of writing this report due to a lack funding or financial support, and storage server.
- o) The study further confirmed that some respondents were "*unsure*" that the Msunduzi Municipal Library's digital preservation programme can be sustained or not.

6.2.2. Requirements for the digital preservation programme

Based on the requirements for digital preservation programme, it is concluded by this study that:

- a) The Msunduzi Municipal Library met the requirements for digital preservation programme in order to undertake it.
- b) The study also concludes that some respondents did not think the Msunduzi Municipal Library met the requirements for digital preservation programme, simply because the library lacked storage server for digitally preserved materials. The library was however found to be working on it.
- c) The digitizing machines and cameras were the least digitization tools available at Msunduzi Municipal Library for digital preservation programme.
- d) Moreover, computers and scanners were the most available digital preservation tools.

- e) It was also ascertained by the current study that the majority of the respondents confirmed that the digital preservation tools and facilities available were enough for digital preservation programme.
- f) Only few respondents however confirmed that the digital preservation tools and facilities available were not enough.
- g) The majority of the staff members said “no” pertaining to financial preparedness of the Msunduzi Municipal Library for digital preservation programme.
- h) On the other hand, the current study exposed that the minority of the staff members said “yes”, thus affirming that the Msunduzi Municipal Library had financially prepared for their digital preservation programme.
- i) Additionally, the study found that those staff members who affirmed that the Msunduzi Municipal Library was financially prepared for their digital preservation programme were asked if they think available funds are sufficient to complete the digital preservation programme and they said “no”.
- j) Most staff members responded that the Msunduzi Municipal Library had an external funder.
- k) The further revealed that their external funder is the KZN Department of Arts and Culture.
- l) On the other hand, the minority of staff members said that they were not sure whether the library had external funders or not.

6.2.3. Staff members’ skills and competencies for digital preservation

With regards to staff members’ skills and competencies on digital preservation, the study concludes that:

- a) All respondents confirmed that the Msunduzi Municipal Library had allocated staff members for their digital preservation programme.
- b) It was further established by the current study that most of the respondents confirmed that they have enough staff members to for their digital preservation programme.
- c) The study also revealed that only few respondents confirmed that the staff members to for their digital preservation program were not enough.
- d) Most staff members possessed skills and competencies on digital preservation, while a few did not.

- e) Those staff members with skills and competencies received training on digital preservation, and some of them acquired these skills through self-taught and practicing.

6.2.4. Enough storage capacity for digital preservation

Regarding the storage capacity for a digital preservation programme, this study concludes that:

- a) The Msunduzi Municipal Library had the information management system for their digital preservation programme, which is WorldCat/WorldShare.
- b) The Msunduzi Municipal Library did not have enough storage capacity prepared for the digital preservation programme.
- c) A plan to have a back-up storage for digitally preserved materials at the Msunduzi Municipal Library had been made.
- d) The Msunduzi Municipal Library staff members preparing for digital preservation programme likewise mentioned only a back-up system, and cloud storage.
- e) The Msunduzi Municipal Library had not started their digital preservation programme, thus making the library not to understand yet how it will ensure security of the digitally preserved materials.
- f) However, the study further established some staff members mentioned security procedures such as login details (administration passwords), saver, installing new antiviruses, and cloud storage.

6.3. Recommendations of the study

The study makes some recommendations based on the main findings, and in line with the objectives of the study. The following themes are covered.

- Readiness to undertake the digital preservation programme,
- Requirements for the digital preservation programme,
- Staff members' skills and competencies for the digital preservation, and
- Enough storage capacity for digital preservation.

6.3.1. Readiness to undertake the digital preservation programme

Concerning the readiness to undertake the digital preservation programme, this study recommends that:

The Msunduzi Municipal Library and other institutions preparing for the digital preservation programmes should prepare enough storage servers, back-up storage, train staff, and raise enough funds in order to be ready to undertake their digital preservation programme. Staff members involved in preparing for the digital preservation programme at the Msunduzi Municipal Library and other institutions should prevent challenges such as a lack of storage server, a lack of funds, a lack of staff training, and a situation whereby some digitization machines are nonfunctioning or malfunctioning, a lack of equipment service/maintenance, and a lack of enough equipment before undertaking a digital preservation programme. The Msunduzi Municipal Library and other institutions preparation for the digital preservation programme need to consider risks behind digital preservation such as hacking, copyright issues, and losing information. Any institution preparation for the digital preservation programme should know which materials they want to digitally preserve and prepared the selection criteria for those materials. All staff members involved in preparation for the digital preservation programme should be aware of the plan or strategy, procedures, policies and guidelines the library is prepared to use when undertaking the digital preservation programme. The Msunduzi Municipal Library and any institution preparation for the digital preservation programme should prepare enough funds and storage server in order to be able sustain their digital preservation programme.

6.3.2. Requirements for the digital preservation programme

In terms of the requirements for the digital preservation programme, this study recommends that:

The Msunduzi Municipal Library and other institutions preparing for the digital preservation programme require meeting all the requirements of a digital preservation programme before undertaking a digital preservation programme, simply because in this study, some respondents indicated that the library did not meet all the requirements digital preservation programme as it did not have a storage server. Digital preservation program has therefore not started yet in this library. Any institution preparation for the digital preservation programme should adequately prepare digital preservation tools and facilities for effective digital preservation programme. These digital preservation tools and facilities include computers, scanners, digital

preservation/digitization machines, software, etc. The Msunduzi Municipal Library and other institutions preparing for the digital preservation programme should prepared enough funds for their digital preservation programme. They should also apply for funding from the relevant external funders, sponsors and potential donors.

6.3.3. Staff members' skills and competencies for digital preservation

In relation to staff members' skills and competencies for digital preservation, the study recommends that:

Any institution preparation for the digital preservation programme should allocate enough staff members for the digital preservation programme. The libraries and other institutions preparing for the digital preservation programmes should ensure that staff members have relevant skills and competencies for digital preservation. Relevant trainings and workshops should be provided to staff members who do not have (relevant) skills and competencies for digital preservation. In a case where there are limited resources such as funds to support staff with trainings and workshops to acquire skills and competences, a self-taught training, and practicing are recommended.

6.3.4. Enough storage capacity for digital preservation

Regarding the storage capacity for digital preservation, this study recommends that:

The Msunduzi Municipal Library libraries and other institutions preparing for the digital preservation programmes should prepare enough storage capacity to store digitally preserved materials. The libraries and other institutions preparing for the digital preservation programme should have or prepare back-up storage for materials that will be digitally preserved before they undertake this programme. The libraries and other institutions preparing for the digital preservation programme should ensure that staff members are aware of the security procedures that are in place such as login details (administration passwords), external storage server, installing antiviruses, cloud storage, etc.

6.4. Recommendation for future study

The study has looked at the digital preservation programme readiness of legal deposit materials at the Msunduzi Municipal Library in KwaZulu-Natal. Based on the findings of this study, the study managed to achieve its four main objectives. For future studies, it is needful to conduct

a broader study on digital preservation in the province of KwaZulu-Natal, and in South Africa at large. Lastly, a framework for digital preservation programme needs to guide institutions and organizations preparing for the digital preservation programmes.

6.5. Final conclusion

This final chapter discussed the main findings of the study based on the objectives of the study. Based on these discussions, the researcher drawn conclusions and made recommendations of the study. The researcher believes that the study has achieved its objective of investigating the digital preservation readiness of legal deposit materials at the MM Library. The study found that the Msunduzi Municipal Library seemed ready to undertake the digital preservation programme. The library staff members involved in digital program the Msunduzi Municipal Library were faced with challenges regarding their preparation for digital preservation programme. These challenges found include a lack of storage server, a lack of funds, a lack of staff training, a lack of equipment service/maintenance, a lack of enough equipment, and nonfunctioning of some digitization machines. The study further investigated if the Msunduzi Municipal Library meets the requirements into requirements for digital preservation programme in order to undertake it. It was revealed that by the Msunduzi Municipal Library met the requirements for digital preservation programme in order to undertake it, but some did not think so due to the lack of storage server. The study checked whether the staff members involved in digital preservation at the municipal library being studied on possess skills and competencies on digital preservation. The study revealed that most staff members possessed skills and competencies on digital preservation, although few did not. Furthermore, the study discovered that those staff members who possessed skills and competencies received training on digital preservation, and some of them acquired these skills through self-taught and practicing. Lastly, the study investigated whether the Msunduzi Municipal Library has enough storage capacity prepared for the digital preservation programme. It was found that the MM Library lacked sufficient storage space capacity prepared for the digital preservation programme. The findings confirmed that there will be back-up storage for digitally preserved materials once the programme commences in the library.

In conclusion, the researcher hopes that, in addressing the study's objectives, significant advancements and challenges in digital preservation have been highlighted. Additionally, it is anticipated that this study's findings will aid in the digital preservation of Msunduzi Municipal

Library materials as well as the LIS as a whole; and particularly to those who are preparing for the digital preservation programs' planning or preparation.

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Appendix A: Ethical Clearance

**UNIVERSITY OF ZULULAND
RESEARCH ETHICS COMMITTEE**
(Reg No: UZREC 171110-030)



RESEARCH & INNOVATION

Website: <http://www.unizulu.ac.za>
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ETHICAL CLEARANCE CERTIFICATE

Certificate Number	UZREC 171110-030 PGM 2021/97									
Project Title	Digital preservation readiness of legal deposit material at uMsunduzi municipality library in Kwazulu-Natal									
Principal Researcher/ Investigator	Z.N Mpanza									
Supervisor and Co-supervisor	L.P Luthuli					T Kalusopa				
Department	Information Studies									
Faculty	Arts									
Type of Risk	Medium Risk – Data collection from people									
Nature of Project	Honours/4 th Year			Master's	x	Doctoral		Departmental		

The University of Zululand's Research Ethics Committee (UZREC) hereby gives ethical approval in respect of the undertakings contained in the above-mentioned project. The Researcher may therefore commence with data collection as from the date of this Certificate, using the certificate number indicated above.

Special conditions:

- (1) This certificate is valid for 2 Months from the date of issue.
- (2) Principal researcher must provide acceptance letters of where they will do their research and submit to UZREC to acquire a 1-year certificate [due date-22 September 2021]
- (3) Principal researcher must submit a report at the end of project in respect of ethical compliance.
- (4) The UZREC must be informed immediately of any material change in the conditions or undertakings mentioned in the documents that were presented to the meeting.

The UZREC wishes the researcher well in conducting research.


Professor Nokuthula Kunene
Chairperson: University Research Ethics Committee
Deputy Vice-Chancellor: Research & Innovation

21 July 2021

CHAIRPERSON
UNIVERSITY OF ZULULAND RESEARCH
ETHICS COMMITTEE (UZREC)
REG NO: UZREC 171110-30

RESEARCH & INNOVATION OFFICE

Appendix B: Introductory letter



UNIVERSITY OF ZULULAND

Dear Respondent

I am a master's student in the Department of Information Studies at the University of Zululand, undertaking a study entitled **“Digital preservation readiness of legal deposit material at the Msunduzi Municipal Library in KwaZulu-Natal”**. You are therefore, kindly asked to make some time for the interview which will enable me to assess digital preservation readiness of your legal deposit material. The intentions of this study are not to cause any harm now or in future. You will not be required to provide your personal or contact details; your response will be treated with high confidentiality and anonymity.

Your participation in this study will be very important. If you have any questions about the study, please contact me or my supervisors at:

Miss Z.N. Mpanza (Researcher)
Email: nozic951@gmail.com
074 8700 859

Mrs. L.P. Ngidi (Supervisor)
Email: NgidiL@unizulu.ac.za
035 902 6810/061 435 3591

Prof. T. Kalusopa (co-supervisor)
Email: tkalusopa@unam.na

Yours Sincerely,
Miss Z.N. Mpanza

Appendix C: Interview schedule

The semi-structured interview schedule for the library staff members involved on the digital preservation of legal deposit materials at the Msunduzi Municipal Library.

A: BIOGRAPHICAL INFORMATION

1. What is the name of your institution?
2. What is the name of your department?
3. What is your current position?
4. What is your highest academic qualification/s?
5. How many years of experience do you have in digital preservation?

B: READINESS FOR DIGITAL PRESERVATION PROGRAM

6. Do you think the Msunduzi municipal library is ready for the digital preservation program and why?
7. Are you facing any challenges regarding the digital preservation program? If yes, what are those challenges?
8. Does the Msunduzi municipal library meet the requirements for digital preservation program in order to undertake it and why?

C: BENEFITS AND RISK OF DIGITAL PRESERVATION

9. What do you think are the benefits of digital preservation of library materials?
10. What do you think are the risks behind digital preservation of library materials?
11. In case of any disaster, does the Msunduzi municipal library have or will have an external storage for digitally preserved materials?

D: MATERIALS PREPARED FOR DIGITAL PRESERVATION

12. Which materials does the Msunduzi municipal library prepare for digital preservation, for example, newspapers, journals, etc.?
13. What is or will be the selection criteria for materials to digitally preserve, for example, you will start with rare materials, old materials, in demand materials, etc.?

E: STAFF MEMBERS FOR DIGITAL PRESERVATION

14. Does the Msunduzi municipal library have staff member/s allocated for the digital preservation program?
15. Do you think the Msunduzi municipal library have enough staff members to undertake the digital preservation program?
16. Do you have skills and competencies for digital preservation? If yes, have you received training on digital preservation?
- 16.1. If no, how did you acquire these skills and competencies for digital preservation, for example, through practicing, etc.?

F: TOOLS FOR DIGITAL PRESERVATION

17. What are the digital preservation tools and facilities available for the digital preservation program at the Msunduzi municipal library, for example, computers, scanners, cameras, etc.?
18. Do you think these digital preservation tools are enough for the program and staff members?

G: DIGITAL PRESERVATION POLICY, STRATEGY AND PROCEDURES

19. Does the Msunduzi municipal library have digital preservation plan or strategy to undertake the digital preservation program?
20. Does the Msunduzi municipal library have written policies and or guidelines to follow when digitally preserving materials? If yes and it is documented, is it possible to have a look at this document please?

H: STORAGE AND BACK-UP FOR DIGITAL PRESERVATION

21. Does the Msunduzi municipal library have an information management system for the digitally preserved materials? If yes, what system do you have?
22. Does the Msunduzi municipal library have enough storage capacity for digital preservation?
23. Does the Msunduzi municipal library have or will have back-up storage for digitally preserved materials?
24. How does the Msunduzi municipal library ensure or will ensure the security of digitally preserved materials?

25. What is the digital preservation process or procedure that will be followed by Msunduzi municipal library when digitally preserving materials? If this process is documented, is it possible to have a look at this document please?

I: FUNDING FOR A DIGITAL PRESERVATION PROGRAM

26. Does the Msunduzi municipal library have funds for the digital preservation program? If yes, do you think these funds are sufficient to complete the digital preservation program?
27. Does the Msunduzi municipal library have external sources of funds, such as sponsors, donors, etc.? If yes, who are those sources of funds, donors, etc.?

J: SUSTAINABILITY OF A DIGITAL PRESERVATION PROGRAM

28. Do you think the Msunduzi municipal library will be able to sustain the digital preservation program and why?

K: GENERAL COMMENTS ON DIGITAL PRESERVATION

29. Kindly provide comment/s on digital preservation and on digital preservation program if you have any

The end

I appreciate you taking your time to answer the questions for this study. Thank you so much for your participation.

Appendix C: Observation checklist

The below observation checklist was used at the Msunduzi Municipal Library.

No.	Items to Observed	Indicators	Comments
1.	Digital preservation readiness requirements	Operational guidelines in place	No guidelines in place yet due to the fact that the library is not doing the digital preservation program yet officially.
2.	Resources	The equipment in place Staffing	Scanners are there but not enough to take off the entire program off the ground.
3.	The digital preservation storage	Back up or disaster recovery plan and snapshot of data, cloud based, data restoration	No back-up storage as yet, but in a process to acquire one once the program kick-start.
4.	Access & use	Retrieval tools Classification schemes File tracking devices	
6.	Security of digital preservation program as whole	Security measures in place	

Researcher: Miss Z.N. Mpanza (201610018)

Signature.....

Date.....

Supervisor: Mrs. L.P. Ngidi

Signature.....

Date.....