THE UTILISATION OF DIGITAL RECORDS KEEPING SYSTEMS: A CASE OF THE NATIONAL INSTITUTE FOR OCCUPATIONAL HEALTH IN SOUTH AFRICA

By

Lwando Silas Matomane

(63372509)

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SUPERVISOR: Dr Daniel Rankadi Mosako

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Abstract

This study investigates the utilisation of digital records keeping systems in a form of a case study at the National Institute for Occupational Health (NIOH) in South Africa benchmarked against the National records keeping guidelines. The flaunting of records-keeping principles in health service institutions often results in a deficiency of transparency among the organisation's various records management departments. It is recommended that people in charge of records should undergo training and be qualified to do diligent records keeping roles. The study focuses on the NIOH employees responsible for the management of digital records. These employees form the target population of the study. The study is based on an interpretivist approach, which is used to investigate the digital records keeping phenomena. Furthermore, the study followed a qualitative research method: using interviews, observations, case studies, and content analysis to collect and analyse data to assess the utilisation of the digital records keeping strategies at the NIOH. Judgmental sampling was used because it allowed for the selection of participants based on specific knowledge and contribution to the study. Ethical clearance was applied for in respect of the participants' consent regarding the utilisation of the digital records keeping strategies. The preliminary findings of the study outline the digital record-keeping strategies suitable for the NIOH in South Africa.

Key concepts

Digital records, Archives, Archivist, Digitisation, Modern technology, Records, Records access, Record-keeping systems, Records management, Records Security, and Institutional repository.

Declaration

Name: **Lwando Silas Matomane**

Student number: 63372509

Degree: **Master of Information Science**

Dissertation title: **THE UTILISATION OF DIGITAL RECORDS KEEPING: A CASE OF THE NATIONAL INSTITUTE FOR OCCUPATIONAL HEALTH IN SOUTH AFRICA**

I declare that this dissertation is the result of my own work and has not been submitted, either in full or in part for any other degree or any qualification at any other University. I have duly acknowledged all the works and contributions of others through proper and appropriate citations. I understand that my dissertation may be made publicly available in electronic format.

Signature

31 October 2025

Date

Dedication

I would like to express my deepest gratitude to my God, Jehovah, for granting me the strength, wisdom, and perseverance to complete this study.

This work is dedicated to my wife and best friend Dr Siphokazi Ncuthu Matomane, and for her unwavering support, understanding and encouragement. Her sacrifices enduring sleepless nights and time apart throughout this journey made this achievement possible.

I am also profoundly thankful to my parents, my father Khayalethu Maduna Matomane and my mother Lungiswa MaFaku Matomane for instilling in me the discipline and determination that have guided my efforts.

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LIST OF ACCRONYMS

Abbreviation	Full Form
DRMS	Digital records management system
DOI	Diffusion of Technology
GAAP	Generally Accepted Recordkeeping Principles
ICT	Information Communication Technologies
IR	Institutional Repository
IS	Information service
MFA	Multi-factor authentication
NARSAA	National Archives and Records Services of South Africa Act
NHLS	National Health Laboratory Service
NIOH	National Institute for Occupational Health
OHSS	Occupational Health Surveillance System
PAIA	Promotion of Access to Information Act No. 2 of 2000
PATHAUT	Pathology Automation database
POPIA	Protection of Personal Information Act No 4 of 2013
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology
UNESCO	United Nations Educational, Scientific and Cultural Organisation

UNISA University of South Africa

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Chapter 1: Introduction: Context and Background

1.1 Introduction

The National Institute for Occupational Health (NIOH) records-keeping stands a better chance if it adopts digital records keeping strategies to enhance its records management practices. Marutha and Ngulube (2012:40) emphasise that there is a need for the implementation of digital records management as best practice in government institutions. This includes the National Institute for Occupational Health. The study investigates the problem of NIOH employees that prefer to keep their records to themselves instead of depositing to the institutional repository for archival and future use purposes. NIOH staff are reluctant to allow the institutional repository to manage their digital records. As a result, the digital records-keeping system is not fully utilised as a central, monitored institutional function. This may indicate that staff are not sufficiently aware of the benefits and challenges associated with using the digital records-keeping system at the institution Digital records-keeping systems provide the end-users with access to information that is needed for decision-making and enhances policy directives resulting in authentic and accountable outcomes (Marutha & Ngulube, 2012: 40; Mosweu & Rakemane, 2020: 106-108). NIOH's reluctance in utilising digital records-keeping systems deprives the institution in realising the benefits that comes with it. Marutha and Ngulube (2012: 40) further reveal that the importance of digital records keeping by stating that the "heart of good public management". This means having a sound digital record keeping practice will help to conform with the following Generally Accepted Recordkeeping Principles (GAAP) of records management i.e transparency, accountability, reliability, and efficiency. In other words, the outcomes of this study will solve the records keeping practice problem at the NIOH and will further improve the service offered by the information service (IS)at NIOH, thus benefiting the public by improving access to the digital records that are produced by the institution. Furthermore, Ngulube (2021) expresses that digital records are created and maintained as reliable documents to enhance the information needed by the end-users, such records include digital records inter alia emails, correspondences, reports, copies, directives, agendas, and formal forms. These are the records that the NIOH produce on a daily basis which in turn allow the organisation to perform business continuity and this practice can be trusted as it is done in

accordance with the South African law (Shibambu & Marutha, 2022: 165-175). Asogwa (2012: 198-205) and Lin, Ramaiah and Wal (2003: 119-120) stress the importance of record keeping in an organisation and argue that records may play a decisive role in critical times such as when facing litigation. Not only that, also the organisation may avoid legal costs and save time in such cases.

1.1.1 South Africa's administrative overview and the NIOH

South African government comprises of three spheres i.e national, provincial, local with separation of powers i.e executive, legislative, judiciary under a constitutional democracy, emphasizing cooperative governance; national sets laws, provinces implement, and municipalities deliver services such as water/electricity, all these spheres of government are interrelated and interdependent. The national level includes Parliament and the Presidency, while provinces manage education/health, and local governments handle services, with nine provinces divided into municipalities (Holeni, 2024).

Literature reveals that there are two categories of legislative instruments within the health sector with the first category overseeing the management of health records. At the core of the country's health framework is the National Health Act (NHA) No. 61 of 2003 which stipulates that records should be created and maintained (Marutha, 2019). Additional legislative frameworks within the health sector in South Africa include the following: Academic Health Centres Act 86 of 1993; Allied Health Professions Act 63 of 1982; Choice on Termination of Pregnancy Act 92 of 1996; Council of Medical Schemes Levy Act 58 of 2000; Dental Technicians Act 19 of 1979; Foodstuffs, Cosmetic and Disinfectants Act 54 of 1972;Hazardous Substances Act 15 of 1973; Medical Schemes Act 131 of 1998; Medicines and Related Substances Act 101 of 1965• Mental Health Care Act 17 of 2002; Nursing Act 33 of 2005; Occupational Diseases in Mines and Works Act 78 of 1973; Pharmacy Act 53 of 1974 as amended (South Africa, 1974); Sterilisation Act 44 of 1998; Tobacco Products Control Amendment Act 63 of 2008 (Katuu, & Van der Walt, 2016.

The National Institute for Occupational Health (NIOH) is a division of the National Health Laboratory Service (NHLS) and a leading institute in occupational health and safety in South Africa (Wilson & Vetten, 2019). The NIOH research services cover the following areas occupational diseases, epidemiology, exposure assessment,

toxicology, occupational hygiene, sickness absence management, workplace and worker wellbeing/health promotion, evaluation of occupational health interventions, and health economics (Hampson & Raaff, 2022). The NIOH is a government entity which is regulated by the NIOH is part of the NHLS, which was established by the National Health Laboratory Service Act, No. 37 of 2000 to serve the public by providing surveillance, research, and expert advice on occupational health and safety across all sectors (Hampson & Raaff, 2022). The NIOH was initially instituted as Pneumoconiosis Research Unit in 1956 and over the years its records management practices evolved who include 4th industrial revolution technologies advancements. In addition, it adapted its records-keeping systems to embrace the new normal that resulted from COVID-19 pandemic, strict lockdowns, and remote operations (Ndlovu, 2019). The context of this study is limited to digital records and excludes paper-based records, therefore addresses the challenges and limitations of digital records management systems at the NIOH.

1.2 Background: Records-keeping in South Africa and the rest of the world

Several studies in South Africa indicate that digital records keeping practice is not used to key principles of good governance which are to promote accountability, transparency, responsiveness and efficiency and question the lack of understanding in practising digital records-keeping effectively (Matlala, Ncube, & Parbanath, 2022; Chigariro & Khumalo, 2018). Matlala and Maphoto (2023: 75) state that South African organisations lack skills in effectively dealing with digital records. This has resulted in loss of valuable records and as such business continuity is disrupted (Shibambu, & Marutha, 2022)

In Africa, studies suggest that poor records management has opened a door for corruption as records-keeping practice is not effectively utilised to hold officials accountable (Mojapelo, 2022; Mosweu & Rakemane, 2020; Nyampong, 2015). Studies conducted in some parts of the world indicate more challenges related to not utilising digital records-keeping systems. Hawash, Mokhtar, Yusuf and Mukred (2020) further reveal that other parts of the world such as China have had challenges with effectively practising digital records-keeping and some people still believe in using

paper-based records and another issue is having different records management models and not following the regulations and the digital records system. Furthermore, Ab Aziz, Yusof, Mokhtar and Jambari (2018: 1191) stress that ignorance and lack of knowing how to operate electronic systems make people lose interest in using digital records. It has been suggested that having a clear digital records-keeping framework brings stability and good service. It is for this reason that Shibambu and Marutha (2021: 165-175) propose a framework for management of digital records on the cloud in the public sector of South Africa, which may assist in resolving challenges such as missing files, damaged records, and long turnaround time for retrieval of records. The National Institute for Occupational Health has a clear framework for managing digital records which include a procedure to follow for depositing records to its institutional repository and the archives, but the organisation still faces the mentioned challenges which suggest that the staff may not be aware of the positives and negatives of digital records-keeping in the organisation. Thus, it is important to research the negatives and positives of digital records-keeping. The findings of the study will assist in bridging the gap between NIOH's records management framework and the digital records keeping improving the use of digital records.

1.3 Definition of terms

1.3.1 Digital records

According to Proenca and Rodrigues (2022:6) the term 'digital' simply involves mobile devices and videos but as a concept of getting information from source to another source that is not analogue. At the NIOH this refers to desktops and personal computers. Scholars refer to digital as an exercise of using applications and digital platforms (McLeod & Lomas, 2023) This means what was done on paper now can be done digitally using applications on a mobile device.

1.3.2 Archives

Cook (2017). states that archives are records that were created or received by a person, family, or organisation, public or private, during the preservation of actual materials or records of historical value in an organisation for potential use in the future. Furthermore, Scholars archives are defined as records that are reserved for reference and research use but are no longer needed for business activities and these records are deemed to have an ongoing administrative, or historical value (Tennent, & Gillett,

2023). Furthermore, Proenca and Rodrigues (2022:6) also refer to archives as the institution but in this study, archives are referred to as documents.

1.3.3 Archivist

According to Mukwevho & Ngoepe (2019) an Archivist is an individual who creates and preserves documents to be used as evidence in future. Other scholars a archivist as a professional whose role includes appraising, acquiring, arranging, describing, and preserving archival records to ensure long-term survival (Şentürk, 2021). An archivist is a person who works in archives and manages documents or information that have been saved or stored according to their archival value (International Records Management Trust, 1999). Considering the description of an archivist provided by literature from scholars mentioned above, an archivist should be equipped with necessary skills and knowledge to handle archival records. The NIOH has personnel which fits the description within the Information Service Unit. However, staff need to realise the benefits of utilising digital records keeping.

1.3.4 Digitisation

Digitisation is referred to as the process of converting text, pictures, sound to a computerised form which makes it faster to process compared to analogue method (Ugochukwu & John, 2024). Other scholars refer to digitisation as an electronic process of taking analogue and physical process to digital format (Uranta, Ogbuaja & Ajibola, 2023).

1.3.5 Modern technology

Modern technology refers to the latest, most advanced tools, systems, and methods applying scientific knowledge, especially with regards to computing, electronics, and communication, to solve challenges, enhance efficiency, and productivity which changes our daily lives (Nakov, Lazarova & Hinov, 2025).

1.3.6 Records

According to the National Archives and Records Service of South Africa (2004), a record is recorded information, in whatever form, created or received and maintained by an organisation or person in fulfilment of legal responsibilities or in the operation of the business and kept as evidence of such activity. A record is defined as information that has been documented, in whatever form, and kept as proof of an activity that took place when it was being kept as a record. The International Standards Organization

[ISO 15489] (2001:3) defines a record as information that has been made, acquired, and kept by a person or organisation as proof and information to fulfil legal duties or conduct business.

1.3.7 Records access

Records access refers to the controlled and authorised availability of historical records, ensuring a balance between public access, privacy, and security, supported by finding aids such as digital records and archivist expertise (Netshakhuma, 2023). Records access links sources of information to the public (Marsh, Fenlon, Sorensen, and Wise, 2024).

1.3.8 Record-keeping systems

Record-keeping systems are concerned with organised groups of people, rules, processes, tools, and technology created to maintain records (Lappin, 2023). The NIOH record-keeping system is involves employees, process, rules, tools and technology such as computers used to create and maintain records for future use. Record keeping provides information to help the institution decision making (Atah, 2018). Poor record-keeping systems has disadvantages that can lead to misunderstandings in the institutions operations (Ripah, Bunawan & Shoid, 2022).

1.3.9 Records management

Records management refers to the concept that covers the entire lifecycle of a record which include creation, use and final disposition (destruction or archiving stage) (Matlala & Maphoto, 2020).

1.3.10 Records Security

Records security refers to the implementation of measures to protect records (physical and digital) from being exposed to unauthorised access, loss, damage, or alteration to ensure and maintain confidentiality, integrity, and availability throughout their lifecycle, using tools like encryption, access controls, and physical safeguards to meet legal and business needs (Kaporo, 2024).

1.3.11 Institutional repository

Nneka and Kaosisochukwu (2021) defines an institutional repository as an online archives platform utilised for collecting, preserving, and disseminating the intellectual output of an institution, theses, dissertations, institutional digital assets, published and

unpublished research output. Institutional repositories also serve as dissemination tools for digital copies of intellectual property and hubs for preserving histories of scholarly material (Picón, 2024). Furthermore, institutional repositories defined as a set of services offered by institutions to manage and distribute digital materials created by the institution, researchers, students, and the rest of community members associated with the organisation (Oberhiri-Orumah & Baro, 2023). Oleksyuk and Oleksyuk (2012) highlight that the role of institutional repositories in institutions is to serve as information systems for preserving and disseminating scientific knowledge. In addition, institutional repositories serve as digital archives for universities to collect, store, and disseminate scholarly materials, including research outputs and educational resources (Oleksyuk, 2012).

1.4 Statement of the problem

Digital record keeping is crucial for security and accessibility of records for the support of services provided, a practice that fits with 4IR demands as well as remote digital operations initiated during COVID-19 strict lockdowns. According to Kanzi (2010) organisations should deposit their digital records in the designated department responsible for managing digital records. In an ideal situation, the NIOH business units should be depositing their digital records in a records keeping system to handle digital records. The NIOH uses records management system to provide research services, and training to support occupational health in the Southern Africa region. The organisation has recently implemented a records management system to assist staff to easily access records and a functional file plan to manage records as espoused by Matlala, Ncube & Parbanath (2022). The current problem is that the NIOH employees prefer to keep their records to themselves instead of depositing to the institutional repository for archival and future use purposes, and staff do not want to let the institutional repository manage their digital records. Therefore, utilising the digital records keeping system will institute a central repository as a monitored role and function of the institution. This may suggest that employees or staff might not be aware of the benefits and challenges of utilising a digital records-keeping system at the NIOH. As mentioned by Kanzi (2010) these records include reports, presentations, research articles, etc. Exploring the benefits and challenges of utilising a digital records-keeping system at the NIOH will enable the organisation and its employees to see the need for

depositing information into the institutional records keeping system, thus improving accessibility to information for business continuity and other reasons.

The outcome of the study is to encourage the staff to see the need to have a properly run digital records keeping system that benefits the entire organisation. On the other hand, some staff members still prefer paper-based records over electronic records, including records such as registers. The use and storage of paper-based records have been practised for many years and has its advantages such as ease of access and saving costs among others (Stausberg, Kosch, Ingenerf & Betzler, 2003). The disadvantage for paper-based records is that records can be exposed to physical damage, loss fire, water, pests, security risks theft, and unauthorised access subsequent to that NIOH information security can be compromised (Smallwood, 2013). It is also true that electronic records have their own drawbacks such as software and hardware failure and hackers among others (Menachemi & Collum, 2011; Smallwood, 2013). On the other hand, studies have proved that modern technology is advancing at a high speed, and digital records are produced daily (Masenya, 2020 & Matlala, Ncube & Parbanath, 2022). This is also endorsed by Matlala and Maphoto (2023: 75-76) who argue that as much as there is a growth in using ICTs by government organisations unfortunately digital records are managed by personnel who do not have necessary skills and qualifications, and this has resulted in losing digital records which is a very critical challenge in South African government organisations. Ngoepe, Jacobs, and Mojapelo (2022) recommend that those responsible for managing digital records need to be skilled in and train in computational archival science in the archives and records management curriculum to enable them to acquire skills in the application of technological tools, methods, and resources pertaining to digital records processing, analysis, storage, long-term preservation, and access. For this reason, digital records cannot be ignored as they play a crucial role in decision making, research business continuity (Gupta, Tuunanen, Kar & Modgil, 2023). In light of the information above, the National Institute for Occupational Health continues to produce digital records. The information contained in those digital records includes not only correspondence between employees but also includes important details that could assist in decision making and in promoting transparency and accountability. It also continues to contribute to research especially in the occupational health field as the organisation supports such services. For that

reason, digital records keeping cannot be ignored, but whether the staff is aware of the positives and negatives of utilising a digital records-keeping system at the National Institute for Occupational Health remains a big question.

1.5 Purpose of the study

The purpose of the study is to explore the negatives and positives of a centralised digital record-keeping system, to create awareness on the values of centralised digital records keeping system and identify areas for improvement at the National Institute for Occupational Health policies and processes regarding the use of digital records need enhancement. The NIOH staff and the organisation itself has an obligation to ensure that certain tasks are done by qualified individuals, and digital records management requires the same attention as digital records keeping should be done by those who are well equipped in records management skills which involves the creation, classification, appraisal, disposal and preservation of digital records (Matlala & Maphoto, 2023: 75). Researching and clarifying utilisation of this system will put everyone at ease and build trust between those who manage and those who create records, and this will enable everyone to easily access the collection of digital records (Sithole & Dewah, 2022: 77-78). Kirsch & Rohan (2008: 6) state that seeking ways to improve the management and use of digital records is important as digital records form part of the organisation's history.

1.6 Research study objectives

The objectives are the indication of what the researcher is aiming to achieve (Thomas & Hodges, 2010). The objectives of the study reveal the motives of the researcher (Morse & Field, 1996). The study seeks to achieve the following objectives:

- To examine why NIOH staff choose to manage digital records on their own.

This objective aims to explore the management of digital records at the NIOH with the intent to reveal the reasons for not depositing their records to the NIOH central repository. The study will use the NIOH annual reports, policies and the NIOH organisational regulations related to the management of information to assess the management of digital records.

- To enhance the institutional repository system and archival service quality to gain trust from other organisational units.

This objective aims at improving the management of digital records as a service provided by the Information Service (IS) business unit at the NIOH. To get accurate information and results, the study compares answers provided by staff and the information contained by official organisation publications such as NIOH annual reports, newsletters, and policies.

- To identity how National Institute for Occupational Health employees access digital records and the resulting benefits for the organisation and staff.

This objective aims to achieve the accessibility of digital records. This is to explore ways in which the information service unit needs to improve in making digital records accessible to the organisation.

- To assess the accuracy of records keeping in the institutional repository and identify ways to enhance information quality for organisational digital record needs.

This objective helps the study to reveal and assess the staff perception towards the institutional repository. Could it be that the NIOH staff do not trust other business units with their digital records? Or they do not trust that the information service unit's institutional repository personnel or the NIOH staff do not see the benefit of the institutional digital records-keeping system? Such information would help the study explore ways in which the utilisation of a digital records-keeping system at the NIOH may be improved and help the organisation see the positives of using the system.

- To enhance access to digital records at NIOH while ensuring staff digital records' safety is not compromised. This is to help the NIOH staff to trust in the information service unit's institutional repository. This will in turn enhance information accessibility.

1.7 Research questions

- What factors contribute to NIOH staff to manage digital records independently rather than using the Institutional Repository?
- How can the quality of institutional repository and archive services be improved to establish trust among other organisational units?

- How do employees at the National Institute for Occupational Health access digital records, and what benefits do these access methods provide for the organisation and staff?
- What are the perceptions of the institutional repository, and what strategies can be identified to improve information quality for organisational digital record needs?
- How can digital record safety be ensured for organisational benefit?

1.8 Research dashboard

Below is the dashboard for data collection.

Objective	Research questions	Theoretical framework component	Data collection tool
• To examine why NIOH staff choose to manage digital records on their own. • To enhance institutional archival repository service quality and gain trust from other organisational units • To explore resulting benefits for digital records-keeping at NIOH for both the organisation and staff • To assess perceptions of NIOH	• What factors contribute to NIOH staff to manage digital records independently rather than using the Institutional Repository? • How can the quality of institutional repository and archive services be improved to establish trust among other organisational units? • How do employees at the National Institute for Occupational Health access digital records, and what benefits do these access methods	The study uses the DeLone–McLean Information System Success Model (ISSM) to explore the utilisation of digital records-keeping system at the NIOH	Interviews: Open-ended questions.

employees towards the institutional repository and identify ways to enhance service quality. • To enhance digital record access at NIOH without compromising security	provide for the organisation and staff? • What are the perceptions of the institutional repository, and what strategies can be identified to improve information quality for organisational digital record needs? • How can digital record access at NIOH be improved while ensuring security is not compromised? • How can digital record safety be ensured for organisational benefit?		

Table 1: Data collection dashboard

1.9 Rationale

Digital record keeping is essential in today's records management environment, since it provides newer and functional levels of efficiency, accessibility, and security (Farotimi, Adegoke & Akeroro, 2023). As a result, the National Institute for Occupational Health (NIOH) in South Africa is bound to be compliant and implement optimal utilisation of digital record keeping; this study aims to explore and assess this process. The importance of efficient records administration for organisational success, transparency, and regulatory compliance is the basis for the research topic.

The NIOH has experienced a rise in data generation in recent years, making a strong records management system a necessity to handle the growing amount, variety, and complexity of data. Literature shows that there are advantages and disadvantages to

moving from traditional paper-based records to digital platforms (Tate & Smallwood, 2021). Research shows that health institutions in countries such as Ghana and South Africa have found utilising digital records-keeping systems has forestalled security gaps such as system misuse and privacy violation (Yeng, Yang, & Pederson, 2022; Matlala, Ncube & Parbanath, 2022).) Gaining an understanding of the subtleties of this shift in the unique setting of the NIOH will help to understand how it will affect data integrity, workflow efficiency, and overall organisational success. Finally, the study of the use of digital record-keeping at the NIOH is important for research, practitioners, and legislators. This study will not only influence internal procedures at the NIOH but will also add to research and literature on digital records management best practices in the context of South African and other public health institutions.

1.10 Theoretical framework selection and model

Studies reveal that there are theories such as Diffusion of Technology (DOI), Unified Theory of Acceptance and Use of Technology (UTAUT), and the Technology Acceptance Model (TAM), but the Theory of Reasoned Action (TRA), and the Theory of Planned Behaviour (TB) are the most popular models (AB Aziz et al., 2018). On the other hand, Borglund (2006: 28) has tested both DeLone and McLean IS Model of 1992 and DeLone and McLean IS Model of 2003 and affirm that these models have been proven to be the best for measuring use, user satisfaction and benefits of the system. Additionally, DeLone and McLean's IS Model is regarded as a valid and successful model and studies recommend its use (Ojo, 2017; Mardiana, Tjakraatmadja, Aprianingsih, 2015; Tahu & Yuesti, 2021). Ab Aziz et al. (2018: 1191) have also adopted the DeLone and McLean IS Model and further confirm that the model does not only measure use, user satisfaction and benefit of the system but also provides a prediction for usage behaviour.

The DeLone and McLean's IS Model includes the following aspects: *Information quality*: this refers to the characteristics of the information system such as accuracy, reliability and trustworthiness. The information service unit is obligated to provide high quality information as that can be required in decision making by stakeholders, scientists in South Africa and around the world, researchers, and the public. Research objectives such as 'To enhance institutional repository and archive service quality to gain trust from other organisational units' and 'To enhance digital record access at

NIOH without compromising security' will assist in exploring and assessing how the negatives and positives of utilising of a digital records-keeping system affect information at the NIOH. Another aspect is *service quality*: this refers to the quality of service offered by the information services staff to users to measure the effective use of digital records which would in turn provide the negatives and positives of digital records-keeping at the NIOH. The information services Unit offers information services that are requested by the researchers, medical practitioners, occupational health practitioners, policy makers, trade union leaders and members and the general public. This information could have a negative or positive impact on the state of people at large and thus it is important to identify ways to enhance service quality to HIOH staff in utilising digital records-keeping system at the NIOH. The research objective 'To explore how National Institute for Occupational Health employees access digital records and the resulting benefits for the organisation and staff' will assist in exploring the intention to use or not use the digital records-keeping system and the information contained in digital records: this aspect of the model also refers to the assessment of the manner in which the records are used and the intention for using digital records by users. This will assist in addressing the objective 'To examine why NIOH staff choose to manage digital records on their own'. The same aspect of the mode is employed to address the research objective 'to explore resulting benefits for digital records-keeping at NIOH for both the organisation and staff. Interviews and case studies were employed as data collection tools to determine the negatives and positives of digital records-keeping system utilisation. *Net benefit*: this refers to the measurement of the individual and/or organisational impact in using digital records. (Ojo, 2017; Mardiana, Tjakraatmadja & Aprianingsih, 2015; Tahu & Yuesti, 2021). The last two aspects of the model will assist with addressing the objective 'To assess perceptions of the institutional repository and identify ways to enhance information quality for organisational digital record needs. This helped the study assess the satisfaction and benefit of utilising the digital record-keeping system at the NIOH.

DeLone–McLean Information System Success Model (ISSM)

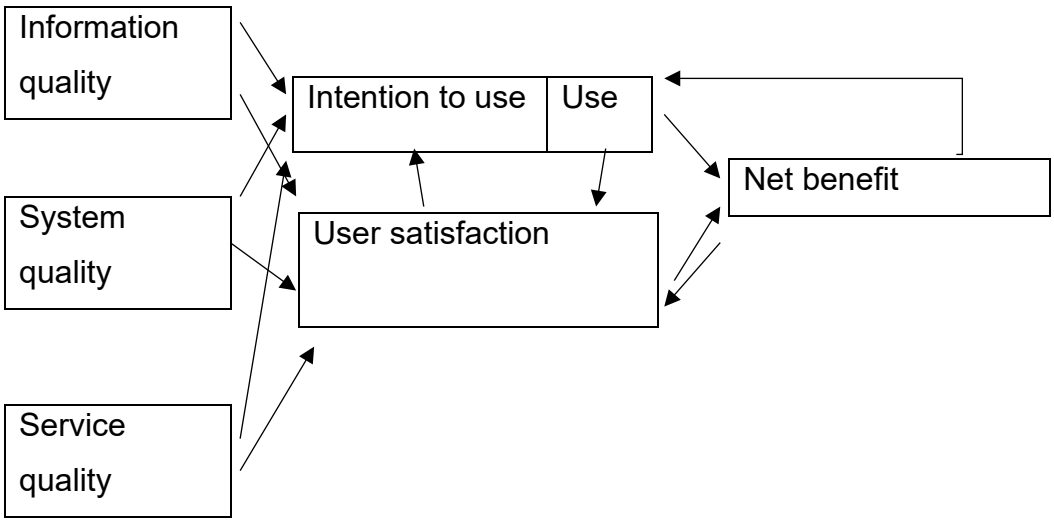

Figure 1: An illustration of a DeLone–McLean Information System Success Model (ISSM)

Chapter 2: Literature Review

2.1 Introduction

This section of the study looks into literature related to the utilisation of digital records keeping. The section will achieve this by exploring scientific studies conducted on the reasons for the lack of digital documentation submission, the enhancement of digital records keeping, the methods of accessing digital records and how providing access to records benefits users. The section will further look at perceptions, attitudes and how digital records security can be ensured.

Otu (2023: 5) defines digital records keeping systems as institutional repositories that are created to store and provide unrestricted access to research output aiming to increase visibility. On the other hand, Digby (2021: 13) agrees that digital records keeping systems are institutional repositories that are used to store organisations' intellectual property and defines it as a digital library which does not only store research output but also teaching material.

The growing shift toward digitalisation has transformed how organisations manage and store their records, making efficient data handling a critical component of institutional operations. In the context of public health institutions, digital record keeping is increasingly recognised as a tool for improving accessibility, accuracy, and long-term preservation of information. The National Institute for Occupational Health (NIOH) in South Africa relies on comprehensive records to support research, policy development, and occupational health services. However, challenges such as system integration, staff adaptability, and data security continue to influence the effective utilisation of digital records. This literature review explores existing studies on digital record keeping, evaluating its implementation, benefits, and limitations within the NIOH.

Ridley (2012: 3) defines a literature review as a place where one fits oneself and one's study amongst other research work after one has done extensive reference work. The literature can be used to support research study through referencing and find a gap that the research study can fill. A literature review is also a chance to interact and engage with other researchers using their work to identify the common problems you encounter in the research field and how to solve those problems. According to Hart

(2001: 3) doing a literature review helps to avoid making errors such as repeating the work that has been done or is in progress. On the other hand, the purpose of a literature review is to synthesize and consolidate research findings within a specific area into a cohesive document that provides a clear indication of current progress, limitations, and future directions of the research stream (Byrne, 2012: 241). García-Peñalvo (2022: 2) notes that the purpose of a literature review in records management is to identify gaps in knowledge and research needs in the field. Literature reviews are important for advancing knowledge and understanding in a discipline, particularly in fields with a large volume of literature such as social sciences (Kraus, Mahto, & Walsh, 2023: 1097). A literature review guides the researcher by highlighting prior challenges, key issues, and effective data collection and methodological approaches, helping to avoid past errors. In this way the researcher can find gaps, and this gives a chance to formulate a unique research question. Regarding this study, conducting a literature review assists with exploring, studying facts, finding gaps and learning from the previous studies conducted in the field of digital records-keeping.

2.2 The adoption of information technology in the organisations

Proenca (2022: 6) argues that the term ‘digital’ simply involves mobile devices and videos seen as a way of getting information from one source to another source that is not analogue. Rodrigues and Proenca (2022: 6) further state that digital migration is the transfer of what was done on paper which can be filled digitally using applications on ICT devices. On the other hand, Brunskill and Demb (2012: 37) describe digital records management as a procedure that is systematically set to help the institution manage its information and data at a reliable speed, affordable cost and at the most convenient time.

The rapid progression of technology, as highlighted by Matlala, Ncube, and Parbanath (2022), has led organisations to transition towards the use of Information and Communication Technologies (ICTs). In the past, reliance on hard copy materials was the norm for both individuals and organisations (Matlala, Ncube, and Parbanath, 2022). Preston, Arnold and Kinnerbrock (2020) underscore this shift by noting that, before the widespread adoption of the internet and the World Wide Web in the 1990s, handwritten letters were the primary means of communication.

Despite the significant time that has passed since the advent of the internet, some individuals still struggle to embrace and trust digital media. Scholars have found that respondents expressed concerns about installing email systems, citing worries about potential misuse and the risk of viruses compromising the accuracy of email records (Ngulube & Nengomasha, 2010). This reluctance to fully adopt digital communication tools may be rooted in a lingering discomfort or mistrust, highlighting a persistent resistance to technological change.

Duranti and Rogers (2014) added another layer to this narrative, emphasising that the trustworthiness of digital records is frequently questioned due to the ever-evolving nature of technology. The constant evolution of technology introduces uncertainties about the reliability and permanence of digital records.

The objectives of this study are ‘to enhance institutional repository and archive service quality to gain trust from other organisational units’ and ‘to enhance access to digital record without compromising security’. These objectives are aimed at identifying reasons for NIOH staff to not utilise the digital record-keeping systems that are available while ensuring digital records safety.

Mokhtar, Yusof and Mukred (2022: 2) further describe the importance of record keeping and state that records serve as evidence for business continuity, but these records need to be managed in a manner that benefits the organisation. Hawash et al. (2020: 6529) lament that digital records can be vulnerable and at a risk of being manipulated or get lost. This means digital records-keeping systems need regular maintenance. In order to achieve this, an organisation needs to put in place a reliable digital records-keeping systems. Both the organisation and the records managers can trust the system, as it is reliable, accurate, trusted, user friendly and authentic. Mokhtar, Yusof and Mukred (2022: 2) refer to digital records as e-records and the effective process used to manage digital records is the digital records management system (ERMS).

The National Institute for Occupational Health creates and holds such as email records, memoranda, meeting minutes, quality manuals, standard operating procedure manuals (SOPs), reports, registers, etc. These records help business activities such as occupational health support services offered to South Africa, research activities and organisational financial activities run properly. According to

Hawash et al. (2020: 6531) the main reason for properly managing digital records is for the organisation's business activities to continue, including assisting in decision making. Smith (2007: 16) states that the importance of preserving records is accessibility for current and future generations.

2.3 Digital records-keeping

Keakopa and Mosweu (2020: 10) argue that one of the factors that has contributed to the transformation records management is the information communication technology (ICT). ICTs have transformed how research institutions operate such as the archives and records management institutions. According to Keakopa and Mosweu (2020: 10), ICTs have been used for many different reasons in the information science field and these include capturing, navigating, storing and retrieving information. Furthermore, studies have shown that digital records have a higher rate of completeness compared to paper-based records (Ndiaye, Gueye, Ndour, Niang, Fall, Fall, Diakhate, Wade, Diouf, Diallo, & Mbaye, 2020). lack of awareness of the benefits of digital records-keeping in the organisation has posed challenges which have resulted in staff who do not have required records management skills and expertise to prefer to keep digital records to themselves rather than depositing to the institutional repository (Tsvuura, 2022). Yeng, Yang, and Pederson (2022) further argue that research has found that paperless hospitals in some parts of the world such as Ghana have faced security gaps. These gaps include system misuse and privacy violations, due to factors such as bad moral conduct created by allowing digital records to be managed by unskilled and unprofessional personnel. Matlala, Ncube, & Parbanath (2022). Suggest that personnel or individuals who manage digital records should have the necessary records management skills and expertise.

The NIOH digital records face similar challenges as they all follow the same life cycle of a record which is creation, use and or maintaining and preserving or disposition. To respond to the challenges to digital records mentioned above, ISO 15489 provides full records management life cycle which entails creation, maintenance and use, storage and archival. This process also includes the keeping and maintaining of evidence on business activities. ISO 15489 (cited in ISACA, 2010) further provides characteristics of records and mentions that records need to be *authentic*. This means records must be what they purport to be. Records should be *reliable*, meaning that the contents

contained can be trusted. This includes activities such as transactions or incidents which should be accurate. Records should be honest and hold the organisations *integrity* and records should be *usable,* meaning records can be located, retrievable, presented and interpreted.

2.4 Data and information legislation in South Africa

The South African legislature has played a significant role in shaping the use of not only paper-based records but also digital records. It establishes mandatory frameworks for creating, maintaining, and disposing of records (Jacobs & Lemekoana, 2021; Mosweu & Rakemane, 2020). This study further consulted NARS Act 43 of 1996, in terms of digital records use. According to Netshakhuma (2020: 228), after South Africa moved to the democratic system, legislation was developed to regulate the management of information and data and the regulations that are concerned with the management of information and data in South Africa. Regulations include the following Acts: Promotion of Access Information Act No. 2 of 2000, Protection of Personal Information Act (POPIA) no. 4 of 2013, National Archives and Records Service of South Africa Act (NARSSA)no. 43 of 1996 and Electronic Communication and Transaction Act (ECTA) No. 25 of 2002. For reasons mentioned above, the study has carefully researched the importance of considering these regulations when dealing with digital records.

2.5 Transformation from physical to digital records (Platforms)

The transformation from physical to digital records management within occupational health institutions is faced with an avant-garde shift in how workplace health information should be organised, stored, and accessed. The shift links with the new normal practices of the modern digital society and is promising immense benefits while on the other hand it presents complex challenges. The migration to Digital Records Management Systems (DRMS) has greater significance as it levels functionality and it improves operational efficiency by automating workflows, enabling instantaneous access to institutional information, and facilitating collaborative efforts across institutional departments, all while enhancing data security and ensuring regulatory compliance (Adepoju, Austin-Gabriel, Eweje & Collins, 2022). The National Institute

for Occupational Health (NIOH) in South Africa, as a knowledge-intensive institution, is not an exception and forms the core of this study as an exemplary institution that faces complex demands for managing vast quantities of paper-based records, including worker health records, exposure documentation, surveillance files, and compliance data, which digital systems can better handle compared to conventional paper-based archives (Lwiindi, 2024). Recent research demonstrates that occupational health has been benchmarked by global health emergencies, forcing institutions to rapidly adopt technological solutions. Such a transformation digital infrastructure and preparedness for comprehensive surveillance systems. It is therefore commendable that the South African case be reflective and contextualised as Occupational Health Surveillance System (OHSS) developed by NIOH in Europe demonstrates how digital platforms can effectively collect, analyse, and visualise occupational health data across multiple sectors (Demikhov, Opanasiuk, Demikhova, & Merisalu, 2023).

Globally, the transition to digital platforms is hindered by a myriad of barriers that impede universal adoption and optimal utilisation within occupational health contexts. Technical challenges include integrating DRMS with existing institutional IT infrastructures and ensuring system interoperability, particularly crucial for mega institutions that must coordinate with multiple stakeholders including government departments, private sector entities, and international collaborators (Manu & Gala, 2023). In many instances organisational issues often stem from resistance to change by occupational health professionals reluctant to shift from familiar physical records to unfamiliar digital processes, compounded by lack of training and insufficient awareness about the benefits and best practices of digital management (Larsson & Thesing, 2024). This often stems from defiance of change management strategies that are aimed at introducing seamless adoption of digital healthcare solutions in the healthcare industry. More than enough research on digital transformation challenges in occupational health institutions reveals that support staff members face difficulties in adopting new technologies, experiencing anxiety about job security and requiring extensive training to develop necessary digital competencies. Other constraining factors include economic vitalities that further complicate adoption, as occupational health institutions must invest in sophisticated hardware, software licences, ongoing

maintenance, and cybersecurity measures while maintaining essential records for management services (Nwulu, Adikwu, Odujobi, Onyeke, Ozobu & Daraojimba, 2024).

Meanwhile, cultural factors in any situation shape user acceptance. Such situations reflect as well within occupational health settings, where institutional culture influences attitudes towards technological change and adoption rates, particularly in contexts where traditional pathology and analytical methods have been deeply embedded in organisational practices (Jianxun, Arkorful & Shuliang, 2021). The specialised nature of occupational health data conversion from physical to digital, including exposure measurements, health surveillance results, and disease pattern analysis, creates unique challenges for system interfaces that must accommodate both technical precision and user accessibility (Wang, Su, Zhang & Li, 2021). Digital transformation in occupational health and safety systems requires comprehensive approaches that integrate database formation and big data systems that act as control tools for monitoring and assessing work environments, creating digital guidelines, legislation, and e-platforms as main digital instruments in management systems. Digital records users emphasise that these challenges require holistic solutions that encompass technological upgrades and strategic organisational change management, comprehensive staff training programs, institutional cultural shifts favouring innovation, and sustainable financial planning that accounts for the specialised nature of occupational health services (Larsson & Thesing, 2024).

In South Africa, the effectiveness of digital transformation in occupational health depends significantly on performance expectancy, effort expectancy, social influence, and facilitating conditions, with professional readiness being mediated by both behavioural intention and digital citizenship behaviour, particularly relevant for specialised institutions like NIOH that serve both national and international occupational health communities. Despite demonstrated efficiency gains, improved collaboration, and enhanced compliance achievable through digital records management, occupational health institutions must address these multifarious barriers systematically to fully realise the potential of DRMS in improving surveillance, diagnostic, and research functions. Therefore, digital transformation in occupational health emphasises the need for comprehensive approaches that integrate surveillance activities, laboratory services, research outputs, and training programs within

structured implementation strategies that recognise the unique requirements of occupational health data management (Brommeyer & Liang, 2022).

This literature review therefore sets the stage to explore the interplay of benefits and challenges inherent in the digital transformation of records management in occupational health institutions, calling attention to gaps in universal implementation and the need for integrated strategies for sustainable success (Taylor & Green, 2020). Such inquiry advances understanding of how institutions like NIOH can navigate digital transitions to harness the advantages of DRMS while maintaining their essential functions in protecting worker health and safety. The emergence of artificial intelligence and machine learning technologies represents a new frontier in occupational health transformation, offering possibilities for predictive health risk modelling, automated exposure assessment, and enhanced surveillance capabilities that can revolutionise how occupational diseases are prevented and managed. The emergence of digital technology and industrial revolution advances digital records management systems to advance the experience of interactions with NIOH in developing and maintaining specialised databases such as pathology automation (PATHAUT) and the asbestos surveillance database demonstrates both the potential and challenges of sustaining digital records systems over extended periods while ensuring data quality and accessibility for research and surveillance purposes (Wilson & Vetten, 2019).

2.6 Lack of digital records submission

The struggle to encourage occupational health professionals and researchers to deposit work into institutional repositories (IRs) rather than to keep it on their personal computers (PC) is a widespread challenge faced by specialised health institutions, more so in South Africa (Kodua-Ntim & Fombad, 2024). Despite the increasing importance of digital repositories for preserving occupational health research output, enhancing visibility of workplace health findings, and complying with open access mandates, institutions across the world encounter persistent difficulties in encouraging staff to learn the habit of submitting work-related records, onto a common digital repository (Baro & Nwabueze-Echedom, 2023). The phenomenon of low voluntary compliance has been well documented in occupational health contexts, highlighting the critical role of institutional policies and mandates to increase participation in digital

deposition. The Repository for Publications on Basic Occupational Health Services demonstrates how specialised repositories can focus on aspects of occupational health care, contributing to universal occupational health coverage while addressing the challenge of scattered and difficult-to-find quality information (van Dijk & Moti, 2023).

Institutional repositories in occupational health contexts serve as digital archives for the intellectual output of specialised health institutions as active documents and as archived documents as well as documents that are due for disposal (Thomer, Starks, Rayburn & Lenard, 2022). Such repositories host research articles, surveillance reports, technical documents, exposure assessment studies, and other occupational health materials, making them accessible to broader professional communities. IRs contribute significantly to increasing dissemination of occupational health knowledge, promoting evidence-based workplace safety practices, supporting professional recognition, and preserving institutional expertise in specialised domains such as occupational lung disease research. The World Health Organisation (2024) outlines that the effective operation of occupational health IRs depends heavily on the volume and quality of submitted content, yet many institutions find that voluntary submission rates are low, which undermines the repositories' effectiveness and sustainability in supporting occupational health advancement.

Tillman (2017) provides critical insight into repository submission patterns that apply equally to occupational health institutions, where digital records submission remains inconsistent unless backed by strong institutional policies. Through analysis of repository usage patterns, evidence suggests that occupational health institutions only witness substantial growth in deposits, particularly specialised reports and research findings, after implementing mandatory submission policies. In this instance there is a limited compliance, in which occupational health professionals either neglect or delay depositing their work. Some of the justifications for non-compliance include lack of awareness, time constraints, or perceived complexity of submission processes within specialised health domains (Khudiyev, 2024). It is because of such convictions that modern research demonstrates that the practice of resource-sharing through inter-institutional repositories is motivated by professionals' desires for collaborative capabilities and easier access to specialised occupational health literature, suggesting

that networking features significantly influence adoption rates among occupational health specialists.

Fazen, Martin IV, Isakari, Kowalski-McGraw, McLellan, Ahsan, and Berenji (2023) express that, in South Africa, the NIOH is a case of how occupational health institutions must balance enforcement with engagement strategies. Mandatory to this case is the submission on policies for surveillance reports and establish research outputs that create accountability that lack voluntary systems, particularly important for institutions with public health mandates. Subsequent to that, the NIOH's production of annual surveillance reports from databases like PATHAUT demonstrates how institutions submission practices can facilitate systematic knowledge dissemination while supporting regulatory and policy requirements and conducting training sessions on online repositories (Hampson & Raaff, 2022). Ndlovu (2019) states that PATHAUT database is used for surveillance, during the compensation process and research. Success of such exercise commonly leads to encouraging submission correlates with institutions combining mandates with comprehensive support and training, indicating that enforcement alone is insufficient without accompanying engagement strategies tailored to occupational health professionals' workflows and priorities.

Similar patterns of low voluntary compliance and the effectiveness of mandates have been documented internationally within occupational health networks. Research institutions focusing on workplace safety and health report that the use of digital repositories remains underutilised unless deposit is mandated through institutional policies requirements, setting up ideal solutions and systems such as digital records management systems (Chen, Howe, Kariotis & Jackson, 2024). This opens opportunities for practical solutions, such as establishing a centrally managed data framework to ensure workplace compliance, promoting greater acceptance of data science tools among organisers and worker representatives, and enhancing their data literacy while fostering collaboration with data specialists. International initiatives that bring in systematically evaluate and promote practices of data storage solutions within occupational health, emphasising the need for evidence-based recommendations and professional networks to advance collaborative service efforts through centralised repositories. In developing countries, challenges are compounded by infrastructural constraints and lower levels of awareness regarding the benefits of IRs within occupational health records management contexts. Studies reveal that there is a dual

need for technological infrastructure enhancements and policy frameworks to encourage digitisation and submission of occupational health materials (Malomane, Musonda & Okoro, 2022).

Understanding why voluntary submission rates are low requires addressing several interrelated factors from the perspective of occupational health professionals. Often employees view depositing work records into institutional repositories as an additional administrative burden, often prioritising storing direct service records onto PCs (Thobela, Maseme & Duma, 2022). Other reasons for such non-compliance emanate from issues of intellectual property rights, and concerns about uncertainty about compliance with health information confidentiality requirements which also often discourage timely submission of occupational health materials into centralised repositories. Moreover, there is frequently lack of clear incentives for professionals who perceive no direct benefit from self-archiving, especially where formal recognition or impact assessments do not account for repository deposits within occupational health spaces and resorting to self-archiving practices (Mbughuni, Mtega & Malekani, 2024).

Kruesi, Burstein, and Tanner (2020) affirm that the technical complexity of submission workflows and low usability of repository platforms create challenges within occupational health contexts where professionals must manage both operational work and storage responsibilities. This statement is confirmed by Fazen et al. (2023) who state that many IR systems require manual metadata input, file format adjustments, and registration processes that can be time-consuming and frustrating for occupational health specialists managing patient care, surveillance programs, and laboratory services simultaneously. This leads to professionals expressing apprehension about navigating these systems and they are thus less likely to submit their work unless compelled by institutional policy, particularly relevant for institutions like NIOH where staff balance multiple professional responsibilities.

Er-Rays, M’dioud, and Lemqeddem, (2024) present a global perspective affirming that challenges and mandates have become key strategies in increasing digital records submission across occupational health institutional repositories. As a result, a mandate can be defined as an institutional policy requiring occupational health professionals to deposit their research outputs, surveillance reports, or technical

documents in an IR as a condition for employment, performance evaluation, or funding. Mandates effectively shift submission dynamics from voluntary to obligatory, reducing variability in compliance and producing consistently higher deposit rates, particularly important for institutions with public health surveillance responsibilities like NIOH (Er-Rays, 2024).

Beyond simply enforcing deposits, mandates have potential to normalise the practice of knowledge sharing as part of occupational health workflows. When accompanied by awareness-raising, training, and technical support, mandates facilitate cultures of transparency and responsibility for research dissemination within occupational health communities. This functional buy-in involves leadership endorsement, integration of submission practices within the institution, and alignment and management of records through repository policies with institutional goals for occupational health advancement (Saffady, 2021). This statement is also endorsed by Țurcan, Cuciureanu, Cujba, Cojocanu, and Cojocaru (2023) who state it is credible for the international cooperation initiatives to demonstrate how government-level support can create enabling environments for occupational health repository development, as seen in collaborative efforts to promote open science within health sectors.

Furthermore, mandates tied to external funding agencies have proven particularly influential within occupational health research contexts. Compliance with funder open access policies often obliges researchers to deposit manuscripts or data to publicly accessible repositories, indirectly supporting institutionally managed IRs focused on occupational health (Pan, Froese, Liu, Hu & Ye, 2023). The specialised nature of occupational health research, often funded by governmental agencies or industry partnerships, creates additional incentives for systematic repository use when aligned with funding requirements.

While mandates are powerful tools, many occupational health institutions also strive to improve voluntary compliance through alternative strategies tailored to professional needs (Moradi & Yazdi, 2025). These include incentive schemes such as providing professional recognition, awards, or integration with occupational health impact metrics to encourage submission; simplifying submission processes by streamlining workflows, implementing authentication systems, or using repository tools linked to professional publications; education and outreach aimed at increasing awareness of

IR benefits within occupational health communities, compliance requirements, and professional development opportunities through workshops and communication campaigns; and personalised support by offering technical assistance or repository liaison services to assist occupational health professionals during submission processes. Such enabling factors are therefore critical in promoting positive attitudes and reducing resistance to repository use within specialised occupational health contexts (Smith & Johnson, 2023). The establishment of professional networks and collaborative frameworks, as demonstrated by international occupational health organisations, provides links for repository development efforts while building capacity within occupational health communities. Ultimately, a combination of top-down mandates and bottom-up encouragement employees records management offers the best prospects for maximising digital records deposition within occupational health institutions, supporting both institutional goals and broader occupational health advancement objectives.

2.7 Digital records keeping enhancement

Digital records keeping enhancement in occupational health institutions presents a multifaceted challenge that revolves around improving accessibility, utility, efficiency, and trust in managing specialised health information within institutional frameworks (Isakari, Sanchez, Conic, Peretti, Saito, Sitapati, Millen & Longhurst, 2023; Obasi, & Benson, 2025). The transition from paper-based archives to digital records-keeping systems has positive transformation initiatives, particularly on how occupational health institutions like NIOH capture, store, retrieve, and preserve critical data related to workplace exposures, health surveillance, and disease patterns. Yet, the effectiveness of these systems depends heavily on user-centred approaches that account for the specialised nature of occupational health work as well as on how the work documents are filled. Benmakhlouf and Chouaou (2024) emphasise that a centralised user-centred system is foundational to enhancing digital records keeping systems, particularly relevant for institutions managing complex occupational health data that must serve multiple stakeholder communities including researchers, clinicians, regulatory authorities, and industry partners.

Adopting a user-centred approach requires iterative user experience testing and continual technological support that accounts for the diverse professional roles within

occupational health institutions (Wang, Alhathal & Subramanian, 2025). As digital systems evolve, they must move beyond traditional laboratory-centric paradigms that focus primarily on technical compliance, data rigour, and analytical standards while also accommodating the needs of occupational health professionals who must integrate clinical, surveillance, and research activities. Furthermore, the limitations of purely technical approaches have been documented in occupational health contexts, where user adoption significantly correlates with non-fatigue of system perceived usefulness, cost-effectiveness, and reliability within complex professional workflows (Von Eiff, Von Eiff, Roth & Ghanem, 2019). This suggests that occupational health professionals demand clear incentives before committing to new digital systems, requiring that benefits be tangible and outcomes well-communicated to encourage uptake within demanding professional environments and digital records management promotion.

Digital records keeping enhancements must be contextualised to reflect the specialised organisational, cultural, and technological environments of occupational health institutions. The NIOH context presents unique challenges and opportunities in implementing digital repositories and management systems, given its role as a national reference laboratory and research institution serving both governmental and industry stakeholders. That NIOH is experienced in developing specialised databases demonstrates how institutions can create a buy-in on digital records management practices across different professional communities within occupational health (Mashele, 2023). Uneven engagement highlights the importance of contextualised shared services involvement in promoting digital transformation initiatives that must accommodate workflow diversity and regulatory requirements.

The issue of trust is good as it represents a critical yet often overlooked dimension within digital records management in occupational health contexts, especially given the sensitive nature of workplace exposure data and health surveillance information that should constantly be adhered to, as data exposure and ethics regulations cannot be compromised (Sivakumar, Mone & Abdumukhtor, 2024). Therefore, the specialised nature of occupational health data, including exposure measurements, biological monitoring results, and disease surveillance records, requires particular attention to data security and access controls while maintaining transparency for research and surveillance purposes. Hence, Beleg (2025) proposes that, to build trust, occupational

health institutions must develop transparent policies, robust metadata standards, and collaborative governance models that empower users while protecting sensitive information and maintaining compliance with health information regulations.

More literature affirms that iterative technological improvements underpin sustained enhancement of digital records keeping systems within occupational health institutions (Sheikh, Anderson, Albala, Casadei, Franklin, Richards, Taylor, Tibble & Mossialos, 2021). In this added reiteration, Gujar (2025) adds that digital infrastructure must be efficient and effective to accommodate evolving professional demands through modular, scalable architectures that integrate diverse data sources, formats, and metadata schemas relevant to occupational health applications. In this concerted effort, it can be added that technological support should be extended beyond hardware and software support to include comprehensive training programs, help desk services, and professional communities that promote shared learning and continuous feedback that loops within occupational health networks. Such mechanisms enhance professional competence and generate critical insights for system refinements, thus aligning it with actual occupational health practice rather than being limited to theoretical designs.

The concept of digital records keeping within occupational health contexts spans across various organisational functions that includes surveillance activities, laboratory services, research documentation, and regulatory reporting. Under the NIOH each function imposes specific requirements that challenge system designers to balance competing needs such as data security, professional accessibility, regulatory compliance, and long-term preservation of specialised occupational health knowledge (Kioskli, Fotis & Mouratidis, 2021), Furthermore, it can be added that digital rights management, data provenance tracking, and audit trail capabilities are technical features that safeguard the authenticity of records and compliance with occupational health regulatory frameworks, but their design must also consider usability to avoid creating access bottlenecks for professionals managing complex workflows.

Most importantly, organisational culture perspectives and enhancement of digital records keeping within occupational health institutions involve change management processes that account for the specialised nature of professional work. On the contrary, resistance to adopting new technologies, concerns about data loss, or

uncertainties about digital literacy levels can hinder successful implementation, particularly within institutions where professional expertise has traditionally been based on specialised laboratory and clinical skills (Borges do Nascimento, Abdulazeem, Vasanthan, Martinez, Zucoloto, Østengaard, Azzopardi-Muscat, Zapata & Novillo-Ortiz, 2023). It is on this basis that management must invest in communication strategies that clearly articulate value propositions for digital systems, provide hands-on training sessions tailored to occupational health professionals, and celebrate early adopters to build momentum within professional communities.

The effectiveness of digital records keeping within occupational health institutions depends on the richness and interoperability of metadata frameworks that can accommodate specialised occupational health terminology and classification systems (Kowalski-Mcgraw, McLellan, Berenji, Saito, Green-McKenzie, Thompson & Hudson III, 2023). This is the ideal situation because metadata serves as the backbone of discoverability and contextualisation for occupational health records, requiring standards that can accommodate exposure classification systems, health outcome coding, and regulatory reporting requirements. However, metadata quality can degrade over time without ongoing curation and validation, even in automated environments, making it crucial to embed metadata stewardship roles within organisational workflows to maintain system performance and professional trust.

Fair enough legal and ethical considerations shape digital records keeping practices within occupational health institutions, particularly given the sensitive nature of workplace health information and the potential implications for workers and employers. Issues such as data protection regulations mandate that digital records systems incorporate privacy management, consent mechanisms, and secure access controls while maintaining transparency for legitimate occupational health surveillance and research purposes (Isibor, 2024). That also involves ethical stewardship that requires transparent policies on data retention, disposal, and secondary usage that ensure respect for individual rights and organisational accountability while supporting occupational health advancement.

Interoperability across institutional and sectoral boundaries represents another critical aspect of enhancing digital records keeping within occupational health contexts. It should be kept in mind that occupational health activities increasingly involve

collaborations spanning different institutions, government agencies, and industry sectors, requiring seamless data sharing while respecting governance agreements and confidentiality requirements (Murthy & Kar, 2024). Implementing APIs, standardised data exchange formats, and linked data technologies enables federated searches and integrated views without centralising sensitive data physically, supporting complex decision-making and knowledge synthesis across occupational health networks.

Sustainability represents a further challenge in digital records keeping enhancement within occupational health institutions that must maintain long-term surveillance and research capabilities (Hameed, Naha & Hameed, 2024). As a result, systems must be designed with long-term viability in mind, anticipating technological obsolescence, evolving professional profiles, and funding uncertainties while ensuring continuity of essential occupational health services. In this regard, although cloud computing platforms offer scalability and cost advantages, they raise concerns about data sovereignty and vendor dependence, particularly relevant for institutions managing sensitive occupational health information. On the other hand, hybrid approaches that combine institutional repositories with cloud services can mitigate risks while enabling flexible access to occupational health data and resources.

2.8 Methods of accessing institutional repositories and their benefits

Throughout the years, institutional repositories within occupational health contexts have emerged as pivotal infrastructures in the specialised health ecosystem, hosting a wide spectrum of occupational health outputs including research articles, surveillance reports, exposure assessment studies, technical guidelines, and regulatory documents. Such an evolution eased the primary method of accessing occupational health IRs through web-based portals that deploy open access policies to enhance discoverability and reach of workplace health research outputs (Mutsvunguma, 2019). These digital repositories are usually institutionally governed by specialised health institutions

like NIOH, centrally maintained, and structured to support long-term preservation and universal accessibility of occupational health materials. Such governance is also supported using standardised metadata schemes and interoperability protocols that facilitate seamless extraction, aggregation, and dissemination of content across

multiple occupational health information systems, enabling researchers, clinicians, policymakers, and industry professionals to access specialised knowledge efficiently.

This interconnectedness has catalysed transformation of occupational health knowledge dissemination through the democratisation of access to workplace health research, mitigating barriers traditionally imposed by commercial publishers, and fostering open knowledge paradigms that align with public health principles (Oksisto, 2024). The specialised nature of occupational health repositories, therefore, addresses unique needs for preserving and sharing workplace health knowledge that may not be adequately served by general-purpose repositories, providing focused access to materials relevant to occupational disease prevention, exposure assessment, and workplace safety interventions.

One of the substantive benefits of institutional repositories within occupational health lies in their capacity to consolidate specialised institutional output into curated digital collections that embody authentic records of occupational health expertise. Unlike commercial databases that aggregate content based on publisher submissions, occupational health IRs allow for systematic deposition of diverse research products, including surveillance reports, technical assessments, and specialised studies that may not be conventionally published (van Dijk & Moti, 2023). A similar approach can be applied to the NIOH's experience as the process demonstrates how institutional repositories can build authoritative, specialised archives that provide comprehensive snapshots of occupational health endeavours, enhancing institutional memory and preserving specialised expertise for future generations.

The utilisation of IRs, at institutions can increase visibility and create more accessibility thus enhancing open access benefits, whereby institutional content can be commonly read and referenced within specialised professional communities (Chukwueke, 2020). IRs create greater advantages as they significantly contribute to professional reputation and impact within occupational health fields, which in turn positively influences institutional recognition and funding prospects for specialised IR maintenance and content curation. It is for the same reason that Van Dijk and Moti (2023) claim that the NIOH's maintenance of databases like occupational health data should be kept at repositories, exemplifying how systematic repository use can

enhance common reach dissemination and institutional impact within occupational health communities.

Positively, global visibility conferred by occupational health IRs is transformative in enabling specialised research dissemination beyond traditional professional boundaries (Küçükarslan, 2024). Through indexing in global scholarly search engines and inclusion in specialised databases, occupational health IR content enjoys enhanced retrievability by diverse professional audiences, including researchers, clinicians, regulators, and industry practitioners. This heightened exposure has potentials to promote cross-disciplinary interactions and enhance professional networking within occupational health communities, leading to new research collaborations, funding opportunities, and knowledge translation into policy and practice.

Despite these advantages, several challenges persist in optimising IR use within occupational health contexts, particularly regarding digital security and sensitive information management. To deal with some of these eventualities Ozobu, Adikwu, Cynthia, Onyeke and Nwulu (2025) acknowledge that occupational health repositories face unique vulnerabilities given the sensitive nature of workplace health information, exposure data, and surveillance records that may have implications for workers, employers, and regulatory compliance. As custodians of specialised health information, institutions like NIOH must implement multi-layered security frameworks encompassing authentication protocols, role-based access controls, and encryption technologies with multi layered security, while maintaining accessibility for legitimate occupational health purposes (Boye, 2025).

Access control policies within occupational health IRs must be attuned to legal and ethical sensitivities surrounding workplace health information, including data subject to privacy regulations and confidentiality requirements related to surveillance activities. In this case, Devitz (2023) reiterates that the IR infrastructure must incorporate flexible access models that accommodate diverse needs while maintaining broad accessibility goals for occupational health advancement. In this concerted effort, administrators face ongoing challenges of ensuring that repository platforms are secure yet user-friendly, facilitating trust and confidence among depositors and users within occupational health communities.

On the other hand, the user awareness and training represent critical axes in realising full potential of occupational health IRs. Based on this, research expresses pervasive lack of awareness among occupational health professionals regarding the strategic benefits of IR deposits. This can have dire consequences, especially concerning professional visibility and knowledge dissemination within specialised communities (Rwegayula, 2023). This gap is compounded by misconceptions relating to data sharing, confidentiality, and professional recognition within occupational health contexts. Comprehensive strategies combining professional training, outreach campaigns, and system usability improvements are essential for encouraging engagement within occupational health services networks.

In many instances professional information specialists play pivotal roles as IR managers of any institutions, also as supporters who facilitate engagement by elucidating submission workflows, metadata standards, and benefits of open access within occupational health contexts. The specialised nature of occupational health information requires particular attention to professional development and capacity building to institutionalise knowledge transfer and build sustainable competencies within occupational health networks (Küçükarslan, 2024). NIOHs' experience in providing specialised training programs, including the World Health Organisation model in occupational health, demonstrates how institutions can build capacity while promoting repository engagement.

Regional and international occupational health networks deal with disruptive technology issues in digital records and IR adaptations, particularly in developing countries where technological innovation factors include inter alia the acceptance of Diffusion of Technology (DOI), Unified Theory of Acceptance and Use of Technology (UTAUT). In this regard the benefit of partnerships with international organisations and specialised networks as well as engaging in communities of practice can provide additional resources and knowledge sharing to accelerate development of robust IR ecosystems within occupational health contexts (WHO, 2025).

In addition to enhancing visibility and impact, occupational health institutional repositories play essential roles in preservation and stewardship of specialised health materials. Unlike conventional archives, occupational health IRs must ensure that specialised files remain active, accessible and functional despite technological

obsolescence while maintaining compliance with health information regulations (Isibor, 2024). Following this approach employing best practices in digital preservation and data security, such as persistent identifiers, standardised file formats, and regular integrity checks, safeguards specialised occupational health records for future generations while supporting ongoing surveillance and research activities.

Best practice and modern methods of accessing occupational health IRs include direct web portal access, metadata harvesting for integration with specialised databases, and utilisation of APIs for system interoperability within occupational health networks (Kowalski-Mcgraw et al., 2023). These methods empower not only researchers and clinicians but also policymakers, regulators, and industry practitioners to leverage institutional knowledge in ways aligned with occupational health advancement principles. Design and functionality of IR platforms increasingly prioritise user-centric features such as specialised search capabilities, professional interfaces, and integration with occupational health classification systems to accommodate diverse professional needs within occupational health communities.

2.9 Perceptions and barriers to digital records keeping

Perceptions and barriers to digital records keeping continue to present significant challenges to broad adoption, adaptation, and effective use of digital records-keeping systems in occupational health contexts. Despite increasing importance of digital records for professional accessibility, and knowledge dissemination, several entrenched perceptions limit workplace health research preservation and participation among employees, primarily occupational health professionals, researchers, and technical specialists (Küçükarslan, 2024). These perceptions often revolve around complexity of digital systems, their perceived irrelevance to immediate professional needs, and scepticism about tangible benefits of engaging with institutional repositories within specialised health portfolios. Such cognitive and attitudinal barriers exist in developed occupational health environments institutions across developing countries, as reflected in research examining digital transformation challenges within specialised health institutions (Borges do Nascimento et al., 2023).

One of the most persistent barriers of perception of complexity among occupational health professionals is the view that DRMS interfaces are overly technical and intimidating. This perception is largely shaped by the design of digital repositories

which often require technical maintenance software proficiency. An additional barrier is the user experience who are overwhelmed by while convoluted metadata schemas and poorly mapped information architectures that make locating, depositing, and retrieving specialised health records cumbersome (Adewole, Alozie, Olagunju, Faruk, Aliyu, Imoize, Abdulkarim, Imam-Fulani, Garba, Baba & Hussaini, 2024). This difficulty discourages engagement, perpetuating low participation rates and cycles of underutilisation within occupational health communities.

Additionally, the perception that digital records keeping is not superior to known methods of hard copy records keeping and to immediate professional advancement exacerbates resistance to adoption among occupational health specialists. Professionals often miss out on direct service delivery, surveillance responsibilities, and technical expertise development, which may emphasise immediate workplace health outcomes over traditional scholarly dissemination (Heath & Porter, 2019). Research documents this disconnect, noting that many occupational health professionals question the direct benefits of contributing their work to IRs if it is not visibly recognised within their professional evaluation systems or regulatory requirements. Consequently, users tend to prioritise immediate professional responsibilities, overlooking digital repositories or regarding them as peripheral activities with limited impact on their professional effectiveness.

Moreover, professionals within certain occupational health contexts have expressed preferences for traditional documentation and reporting methods over digital repositories, highlighting workstyle-based contextual dimensions of these perceptions. Preference for familiar documentation formats or established reporting procedures reflects broader challenges where digital literacy may be uneven and supporting environments for digital engagement are still evolving within specialised health institutions (Fitzpatrick, 2023). This preference also stems from limited awareness of potential advantages of digital repositories, such as enhanced visibility of occupational health research, ease of access to specialised materials, and opportunities for interdisciplinary collaboration within broader health networks.

Misalignment alignment and the friction between information management expectations and professionals who deal with institutional data priorities also fuels resistance to digital records keeping within occupational health institutions.

Information specialists and repository managers often envision IRs as comprehensive organisational tools for knowledge management, focusing on maximising findability and accessibility of research outputs at institutional levels (Dube, 2025). However, occupational health professionals are more concerned with immediate professional effectiveness and regulatory compliance, and unless repository interfaces and policies explicitly address their professional needs (such as integration with surveillance requirements or generating demonstrable professional impact metrics), they remain sceptical of participating. This divergence underscores the need for user-centric approaches that balance organisational imperatives with personalised professional incentives to promote meaningful engagement within occupational health services.

2.10 Global best practices and implementation strategies

Digital records-keeping systems have become indispensable components of contemporary occupational health institutions, facilitating preservation, dissemination, and accessibility of specialised workplace health outputs. Increasing mandates by funding agencies and policy makers for open access dissemination underscore the critical need for effective implementation of these systems within occupational health contexts (Lwiindi, 2024). International research consistently emphasises that the key to successful DRMS adoption lies in technological robustness and inclusion of diverse stakeholder perspectives throughout implementation processes, particularly relevant for specialised institutions like NIOH that serve multiple professional communities (Dorhetso, 2025). Through the introduction of ongoing engagement with occupational health professionals, laboratory specialists, information specialists, and administrative staff, institutions enable development of repositories that meet multi-dimensional needs and foster greater sense of ownership and commitment among users within specialised health contexts.

Contemporary guidelines for digital transformation in occupational health emphasise collaborative and stakeholder-driven approaches that prioritise professional engagement and phased implementation strategies to minimise resistance and promote sustainable adoption within specialised health communities. The NIOH's experience in developing multiple specialised databases, including PATHAUT and surveillance systems, demonstrates how phased implementation can support long-term sustainability while accommodating evolving professional needs (Myhre &

Jomaas, 2024). This confirms what Bernard, Toppo, Raggi, De Mul, De Miquel, Pugliese, Van der Feltz-Cornelis, Ortiz-Tallo, Salvador-Carulla, Lukersmith and Hakkaart-van Roijen (2022) have outlined affirming that phased implementation strategies combined with focus on professional experience research have been identified as vital in minimising resistance and promoting gradual adoption within occupational health institutions. Such approaches allow institutions to pilot system functionalities and gather iterative feedback, which is instrumental in refining usability and aligning with specialised professional workflows.

Theoretical foundations provided by Technology Acceptance Models suggest that perceived ease of use and usefulness are central predictors of technology adoption within professional contexts, and continuous feedback mechanisms play critical roles in enhancing these perceptions within specialised health environments (Lee, Ramasamy & Subbarao, 2025). This iterative, user-centred process ensures that DRMS remain adaptable and serve evolving needs of occupational health professional communities. Research on digital transformation reveals significant growth in implementation activities, with institutions increasingly adopting collaborative approaches and partnerships to address implementation challenges within specialised health contexts.

Another significant contribution to DRMS implementation is found in collaborative action research models where occupational health professionals and information specialists collaboratively engage in co-designing system structures (Duffy, Boroumandzad, Sherman, Christie, Riadi & Moreno, 2025). This participatory model results in repository architectures that are discipline-specific, intuitive, and aligned with professional workflows, thereby improving compliance and participation rates within occupational health communities. Such approaches resonate with the Technology Acceptance Model (TAM) theory, which emphasises interdependence of social and technical factors in successful technology deployment within specialised professional contexts (Hartono, Roostika & Muslichah, 2025). Through the integration of professional expertise with information management knowledge, models propel systems that are both practically useful and professionally relevant.

Integration of institutional repositories with specialised databases and professional networks as well as incentivisation of users may advance the engagement and

enhancement of visibility and impact of deposited works into IRs within occupational health communities. Research indicates that linking repository content with established professional networks and providing clear impact metrics can significantly motivate professionals to contribute their outputs within specialised health contexts and establish a network of communities of practice (Kleinschmit, Rosenwald, Ryder, Donovan, Murdoch, Grandgenett, Pauley, Triplett, Tapprich & Morgan, 2023). These impact metrics, including deposited electronic records usage counts, professional recognition, and policy influence, serve as tangible evidence of professional influence and support institutional goals related to occupational health visibility and reputation. Consequently, embedding DRMS into natural digital ecosystems of occupational health professionals reduces administrative friction and increases compliance within specialised health workflows. Training and capacity building are equally critical for successful DRMS adoption within occupational health contexts.

2.11 Conclusion

The literature review section explored the utilisation of digital records-keeping systems guided by the objectives of the study. The literature explored revealed that there are challenges associated with the utilisation of digital records-keeping systems. These challenges are not only experienced in Africa alone but all over the world. These challenges include the lack of submissions to institutional repositories due to lack of awareness, lack of ICT skills, lack of knowledge and seeing no value in having institutional repositories. Literature also revealed that even though organisations face such challenges it is possible to have solutions. Activities such as marketing, training, and getting users and decision makers on board can have a positive impact in changing the attitudes toward digital records-keeping systems. Scholars also touch on the issue of safety of digital records as they may be exposed to threats (Masenya and Ngulube, 2020: 7). Dollar and Ashly (2014:4-5) provided a solution and suggested that such threats can be reduced and prevented by limiting access to digital records to only authorised personnel.

Chapter 3: Research Methodology

3.1 Introduction

According to Patel and Patel (2019: 48-49) research methodology involves understanding the logic behind the steps taken by a researcher to study a problem, and knowing which methods and techniques are relevant to a particular problem. Sahithi (2021: 285) adds that research methodology refers to the specific methods used to conduct research, and that researchers need to develop a research design as a blueprint for their study. Riak and Bill (2019: 162-164) emphasise the importance of reading widely and critically to understand the concepts and assertions related to research methodology. Sahu (2013: 25-33) provides a comprehensive guide to the scientific process, research design, data collection and analysis, hypothesis testing, and report writing. Overall, literature suggests that research methodology is a crucial aspect of conducting research, and that researchers need to have a good understanding of the methods and techniques relevant to their specific problem.

3.2 Research paradigm

Khatri (2020: 1435) refers to research paradigms as the philosophical foundation for research. On the other hand, Davies and Fisher (2018) emphasise the importance of understanding paradigms as it has an impact on the research process, including the nature of research questions, methodologies used, and data analysis and interpretation.

Scholars identify three main paradigms that relate to social sciences, namely: positivist, interpretive, and critical (Fazlıoğulları, 2013: 42-43; Shah & Al-Bargi, 2013: 254). These paradigms differ in their ontological, epistemological, and methodological characteristics (Fazlıoğulları, 2013: 43). Gunbayi and Sorm (2018: 61-63) further add two more paradigms to the discussion: functionalist and radical humanist and structuralist. The functionalist paradigm is compatible with most quantitative research methods, while the interpretive paradigm is fit for most qualitative research designs (Gunbayi & Sorm, 2018: 61-63). This study adopts the interpretivist approach.

3.3 Interpretivism approach

According to Pham (2018: 3) interpretivists view the world in different ways and as a result the interpretivist ontology encourages researchers to seek a number of interpretations for a single phenomenon rather than a single reality. On the other hand it is argued that interpretivist epistemology asks questions such as ‘why’ and ‘how’ to gain knowledge on different views of the phenomenon (Kroeze, 2011). This study used the interpretivist approach to understand the whys and hows of the study phenomenon. The study explored the current channels that NIOH uses for digital record-keeping, including the reasons for managing records independently instead of relying on information services, archives, or the institutional repository, as well as their record management methods. In this way the study does not only look at one interpretation of the phenomenon but also looks at other factors which led to such a digital records-keeping practice at the NIOH.

3.4 Research approach

The study uses qualitative research to examine the NIOH's utilisation of the digital records-keeping system and suggest improvements. Guest, Namey and Mitchel (2013: 3) argue that there are a huge number of publications explaining the definition of qualitative research. The common explanation is that qualitative research is employed to answer the questions of how and why of human behaviour. Such questions usually spark a debate amongst researchers. Guest, Namey and Mitchel (2013: 3) define qualitative research as research employing participant observations or case studies with the aim of narrating the accounts as they are described in a particular setting or practices. Social studies researchers usually adopt this approach as it tends to yield interpretative research results (Mohajan, 2018).

The qualitative research approach enables research participants to express themselves in this way so that the researcher gets to understand different “beliefs, experiences, attitudes, behaviours and interactions” rather than seeking a yes or no answers which are used in quantitative approach (Karla, 2013). Hammarberg, Kirkman, and de Lacey (2016: 498) share that the right time for a researcher to use the qualitative research approach is when the needed information is based on opinions, beliefs, attitudes, views and preferences. This study’s approach is qualitative, based on the information gathered from both Karla (2013: 192) and

Hammarberg, Kirkman and De Lacey (2016: 498). The qualitative research approach does not look at one single view but rather uses different views to explain the phenomenon. For this reason, the study will look at the attitudes and explore the views, opinions and preferences of the NIOH staff towards utilising a digital records-keeping system.

The qualitative research approach uses two types of methods which are interviews and observations but to achieve this qualitative approach may include using case studies and surveys, and analysing current and historical documents (Mohajan, 2018). Mohajan (2018: 7) further provides that the qualitative approach tends to use methods and designs such as “narrative, phenomenology, grounded theory, action research, case study, ethnography, historical research, and content analysis”.

3.5 Research design

This section looks at the research design of the study. This study adopts a case study research design. Mohajan (2018: 11) defines case study research design as the explorations of an individual or a group of people and further relates it to the qualitative approach because of its ability to provide an in-depth examination of a phenomenon, particularly people or a group of people.

Guest et al. (2013: 8) state that the case study approach explores the qualities with regards to the research topic. This means the use of a case study research design assists the research to get results that make a certain individual or group of people stand out.

Case study design is also related to the qualitative research approach, as it seeks to yield an interpretative result through expressions and interactive experiences rather than numeric (Muzari, Shava, & Shonhiwa, 2022). Guest et al. (2013: 9) mention that data collection methods in a case study approach include observing unique qualities. This means the observation process and questions must be designed to yield unique features and views of the phenomenon. Pathinarage Jayatilake and Abeysekera (2020: 364) highlight that case study design is appropriate for studying different and complex cultures. In the same way, those who use and manage digital records at the NIOH are diverse and complex in culture, coming from different business units, and therefore people may have different reasons for behaving in a certain way, especially

towards digital records-keeping. Canhoto (2014) also notes that a case study design is more effective in investigating one or more specific instances. This makes a case study a fitting design as it specifically studies the utilisation of digital records keeping at the NIOH.

3.6 Population and size

Du Plooy-Cilliers, Davis, and Bezuidenhout (2014: 132) refer to population as the group of people who are required to provide information about something, and this could be a product or service. The accuracy in choosing the population will determine the success in getting the best possible information for responding to a research problem. Martin-Mesa, Gonzalez-Chica, Bastos, Bonamigo, and Duquia (2014: 609-610) break down the definition of the term 'population' into three parts: the population which is the group of people from a certain area such country, province, town, etc. or an institution such schools, hospitals. The target population refers to a part of the large population that one intends to draw a conclusion from. The last one is the study population; this is the group of people that the study is intending to focus on, from which the results are evaluated, and conclusions are drawn, and it is the representative of the target population. For this study, study population refers to the employee of the National Institute for Occupational Health who use digital records. Below is an illustration of a study population.

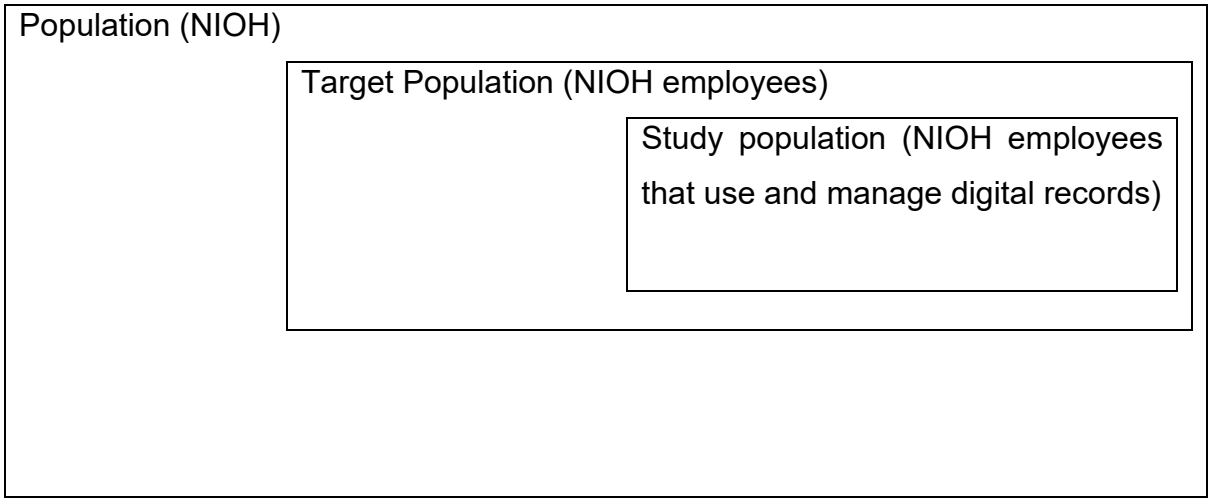

Figure 2: An illustration of a study population

3.7 Sampling method: Purposive sampling

This study used judgemental techniques also known as the purposive sampling technique. Emmel (2013: 33) refers to purposive sampling as a way of selecting "information rich cases" that assist in formulating research questions that give the participant more insight, hence participants contribute significantly to the study. The method suits the study as examines the utilisation of digital records-keeping systems in the institution (Mukred, Yusof, Al-Moallemi, Mokhtar, & Hawash, 2022).). This shows that insights are captured from individuals who have specific knowledge or experiences relevant to the research objectives. Furthermore, judgement sampling is a technique where a researcher firstly gains thorough knowledge about the research area and this affords the researcher the ability to create a framework of variables that will allow participants to contribute in the study (Du Plooy-Cilliers, Davis and Bezuidenhout, 2014). Purposive sampling is considered more intellectual as it does not only use demographical information but also age, gender, and social class as important variables of the study and this allows the study to be more accurate in its results (Marshall, 1996). The reason for using the sample in this study was to better match the sample with the study objectives that would improve the trustworthiness of the results (Campbell, Greenwood, Prior, Shearer, Walkem, Young, Bywaters & Walker, 2020).

3.8 Sample size

The sampling aspect of the study helps the researcher determine the parameters of the study population which then helps the researcher to be able to distinguish between the target population and study population (Naing, 2003: 84). The following aspects are required in order for the researcher to determine the right sampling method: a subset of the accessible population, a sampling frame that is the list of elements in the population, and the final sample, which are the elements that consist of the same characteristics of the population. These aspects help the researcher to accurately choose the right sampling method (Du Plooy-Cilliers, Davis & Bezuidenhout, 2014). Additionally, Du Plooy-Cilliers, Davis, and Bezuidenhout (2014: 136) further mention two sampling methods, namely, probability and non-probability method, and state probability is usually used in quantitative research approaches and define the non-probability method as a non-bias method as it provides equal opportunity to

participating elements, that is people or artefacts, during the study. This means that if the population consists of 220 people, everyone should be able to participate and be given the same opportunity. On the other hand, non-probability is mostly used in the quantitative research approach (Zack, Kennedy & Long, 2019: 217). Non-probability sampling provides the researcher with in-depth information on artefacts or people. According to Du Plooy-Cilliers, Davis, and Bezuidenhout (2014: 137) the following should be taken into consideration when applying the non-probability sampling: elements participating in the study should have shared characteristics; a study is conducted where it is not easy to find artefacts or individuals suitable for the study; and a study is conducted where generalisation of results to a population is not the main goal. The National Institute for Occupational Health has over 150 employees from 11 different business units. The study employed the purposive sampling method, and this enabled the study to select the NIOH employees who were working with digital records as participants in the study and this not only saved costs and time but also allowed the results to be more accurate (Du Plooy-Cilliers, Davis & Bezuidenhout, 2014). To obtain accurate results, the study used the following process:

- Identify Relevant Positions: Determine the specific job positions or departments within the organisation that are responsible for handling digital records.
- Review Job Descriptions: Examine job descriptions and responsibilities to pinpoint employees whose roles involve managing or interacting with digital records.
- Consult Department Heads: Speak with department heads or managers to gain insights into the employees working with digital records and their responsibilities.
- Informed Consent: Seek informed consent from selected employees to participate in any research or data collection activities.
- Collect Data: Proceed to collect data by means of interviews as necessary to achieve the research objectives.

3.9 Data collection

The study used tools such as interviews with open-ended questions. Albudaiwi (2017) identifies open-ended questions as the qualitative research approach tool, as it enables a researcher to ask questions that spark a debate in a way that the

participants gets to express themselves in their own words, and open-ended questions enable participants to take a holistic look and an opportunity to be comprehensive, which provides more options in their responses.

3.10 Trustworthiness

This section discusses how the study aimed to maintain trustworthiness of data collected, including the results of the study. Connelly (2016: 435) defines trustworthiness of a study as the extent of confidence in the data, interpretation and methods used in ensuring the quality of the study. Duranti and Jansen (2011: 5) mention that trustworthy of records refers to reliability, accuracy and authenticity. Heale and Twycross (2015: 66) further explain that reliability refers to the consistency of the measure which means participants need to have consistency in their responses to the questions. Furthermore, Connelly (2016: 435) mentions important aspects to consider in maintaining trustworthiness in a qualitative study and these are credibility, dependability, confirmability and transferability. Below is the explanation of how the study aimed to maintain trustworthiness.

3.10.1 Credibility

Cutfliffe and McKenna (1999: 374-378) and Cyoress (2017: 253-263) explain that credibility in qualitative research refers not only to the reliability of the study but also to the key features of the published issue; this includes whether or not the study was peer reviewed. On the other hand, Pooja and Upadhyaya (2022: 3-4) mention aspects that need attention in ensuring credibility of data presented in a qualitative study such as the technique used to gather information, participation validation, investigating, member check etc. In this study credibility and reliability are measured and ensured using the following:

- Clearly describe the methods you used to establish validity and reliability in your research methodology section.
- Report the results of validity and reliability assessments. If validity or reliability measures were lower than expected, discuss potential sources of error and their implications. This will be achieved by member checking as mentioned below, peer debriefing such as the supervisor validating data collection tool by correcting it when submitting, etc.

- To improve trustworthiness, the study will confirm results by using different sources.
- Always considering the context of the study and the type of data that is collected when selecting and applying validity and reliability measures
- Employ member checking, where participants review the research findings to confirm their accuracy

3.10.2 Transferability

According to Korstjens and Moser (2018: 121) transferability refers to the extent to which the results of a qualitative study can be transferred and used by another institution. It is also noted that many critics may be reluctant to accept a qualitative study but ensuring transferability enhances the trustworthiness of the study (Shenton, 2004: 63-75). Rodon (2008: 4) further adds that one of the factors that affects transferability of a qualitative study is the fact that it comprises a number of research methods such as case studies, field studies, ethnography, action research, etc., which are found in positivism, interpretivism and critical research paradigms, and this has resulted in generalisation of findings which at times may cause controversy leading to positivists and interpretivists not seeing in the same way. Even though that may be the case, Verdinelli and Scagnoli (2013: 174) argue that it is possible to provide clear and specific findings on a qualitative study and that ensures that data and findings may be trusted. Sahu (2013: 25-33) further claims that the research methodology of the study ensures the transferability of the study. This study has an outlined methodology which includes the study population, data collection technique, study design etc. and these aspects ensure that the study may be transferred to another institution to study a similar phenomenon (Welte, Feenstra, Jager & Leidi, 2004).

3.10.3 Dependability

Sinkovics, Penz and Ghauri (2008: 689-714) mention dependability as one of the elements that ensures trustworthiness of a qualitative study. Korstjens and Moser (2018: 121) argue that dependability of the study refers to the stability of the findings over time and this is achieved through participants' evaluation of the findings, interpretation and recommendations of the study which are supported by data collected from participants. Dependability in this study refers to evaluation of the findings, interpretation and recommendations based on the data collected using

interviews. To achieve study dependability, the study used the UNISA ethical code of conduct, the NIOH official publications such as year books, annual reports, registers and organograms to confirm the results and the findings obtained.

3.10.4 Conformability

Korstjens and Moser (2018: 121) explain that confirmability refers to the extent to which the study can be confirmed by other researchers. Haven and Van Grootel (2019: 231) refer to this as a form of audit to ensure trustworthiness of the study. On the other hand, Pooja and Upadhyaya (2022: 4) emphasise that checking and rechecking of data during data collection is necessary to ensure confirmability of qualitative data and this further ensures dependability of the study.

3.11 Data analysis: Discursive data analysis method

This study used the discursive data analysis method to analyse the data collected from the NIOH during the interviews. According to Ngulube (2015: 14) the discursive data analysis method is related to qualitative research methods and is used to analyse text or talk. This is fitting as the study was conducted using interviews which require listening, texting and/or talking. Ngulube (2015: 15) further mentions that discursive data analysis is "based on the social constructivism assumptions". This means that a researcher who uses discursive analysis usually investigates how certain issues and social reality processes are understood and provides an explanation. This is in line with the study as it investigated the organisation's behaviour towards digital records keeping. This included how the staff understand digital records keeping and its pros and cons. Some scholars also note that the main objective of discursive data analysis is to deal with talk and text; this further enables a researcher to have a conversation analysis which tends to be another way of studying verbal and non-verbal interaction (Liamputtong, 2013: 881-896). For this reason, the study used interviews which required one to have a conversation with the participants either by text or talk which constitute verbal and non-verbal analysis.

3.12 Ethical considerations

This section discusses the ethical consideration in this study. Ngoepe, Mokoena, and Ngulube (2011: 40) refer to ethical consideration as the set of principles that help

individuals differentiate right from wrong, helping them to know how to behave not only as professionals at work or during a study but also as decent humans. This means that ethical consideration is a collective set of standards and morals that should guide researchers in how they conduct themselves. The UNISA Ethics Policy (2016: 11) mentions basics principles that need to be considered when conducting a study and these include moral principles such as autonomy which is respecting the rights and dignity of the participant; beneficence which is contributing positively towards people's well-being; non-maleficence which means the study should not cause any harm towards research participants; and justice which refers to fairness of treatment in distributing risks and benefits of the study. The ICA (1996: 1) also provides the same basic principles for information scientists and outlines how these can be put into practice. To add to the basic ethical principles above, the study sought to consider the ethical principles discussed below. The study also conforms to the NIOH research ethics conduct which takes into consideration the study participants' privacy, and the organisation's policies regarding access to information and data sharing. The study respected and gained permission clearance from both UNISA and NIOH to conduct the study and collect data.

3.12.1 Right to privacy anonymity

This study was conducted with respect to human dignity and respected the participants' privacy. Wiles and Boddy (2013: 25) state that the researcher should be transparent in how anonymity and confidentiality are going to be managed during interviews. The participants' personal details such as contact details, names etc. will not be published or revealed in respect of their right to privacy and anonymity. Wiles and Boddy (2013: 25) further add that while the researchers aim to respect the participants' privacy and anonymity, they should be transparent as much as possible about the intentions of the study, including the potential risks. This study further ensured the safety of personal information in terms of section 14 of the South African Constitution and the Protection of Personal Information Act no. 4 of 2013 which outlines the requirements for data protection and privacy which include handling personal information (Netshakhuma, 2020).

3.12.2 Integrity and transparency

The National Research Council (2002: 33) refers to integrity for individuals as an aspect of moral behaviour when dealing with research participants. Characteristics of integrity in research include honesty in proposing the study, performing it, and in reporting on it. This means that contributions and reports to the study are presented accurately and there is no conflict of interest. The UNISA Ethics Policy (2016: 13) mentions integrity and transparency as one of the general ethics that researchers need to consider in their research studies and encourage honesty, fairness, and transparency. This study aimed to achieve transparency and integrity by acknowledging those who were going to participate and collaborate and aimed to be honest about the limitations and needs encountered during the study.

Chapter 4: Presentation and interpretation of findings

4.1 Introduction

This section consists of the presentation of findings of the study. Presentation of findinds is set based on themes taken from the study objectives e.i guidelines, repositories, filing (digital-records keeping system), functionality, access, efficiency, and security. Interviews condect during data collection were recorded and transcribed. Participants are named using alphabets. The role of participants in the organisation is stated in the guidelines sub topic of the chapter. The section further illustrates verbatim responses obtained during interviews in a form of a table.

4.1.1 Guidelines

Based on the objective which was to examine the reasons for NIOH employees to choose to manage digital records on their own, the following question was used: which guidelines do you use to manage your digital records independently, rather than depositing to the NIOH repository? Participant A who work as a secretary to the head of department said, “we are not following guidelines in practising digital records-keeping in our unit” while participant B who works as a Safety, health and environmental officer said, “ there are no digital records-keeping guidelines regulating the utilisation of digital records keeping system at the NIOH” the same said that they would like to recommends that the NIOH should implement guidelines and comply with POPIA act no 4 2013 to protect personal information. Participant C who works as the quality assurance officer said, “the Information Service Unit should implement digital records-keeping guidelines and policy with the consideration of POPIA Act no 4 of 2013”. The follow up question was raised for participant C to clarify which guidelines they were referring to and the participants suggested that the NIOH should develop guidelines that stipulate the type of digital records that should be deposited to the repository, and the format in which digital records should be in. Participant D indicated awareness of digital records keeping guidelines and policy and stated that “I am aware of digital-records keeping systems guidelines” The researcher asked a follow-up question as to whether the guidelines and policy were from the NIOH. The participant indicated that the guidelines were not from the NIOH but rather from another institution. Participant E who works as a medical scientist and head of section

responded as follows “I do not use any form of guidelines to manage digital records but I have set folders and labels on a personal computer to identify where and how to keep digital records”. Participant F who works as a researcher responded by saying, “In the absence of guidelines for digital records keeping at the NIOH, our business unit utilises personal computers, external hard drives and shared drives to manage digital records”. Based on the theme guideline the researcher was able to draw the following:

- There are no digital record keeping guidelines to follow which has resulted in them opting to manage their digital records on their own.
- The participants further recommended that the NIOH should implement guidelines and comply with POPI act for the protection of personal information.
- The participants recommended that in the absence of digital records keeping guidelines at the institution, the Information Service Unit should implement digital records keeping guidelines and policy with the consideration of POPI act to protect personal information.

4.1.2 Repository

- The study further addressed the second objective which was to enhance the institutional repository and archive service quality to gain trust from other organisational units. To address this objective the study brought forward the following questions: Can you describe your understanding of the NIOH repository? Have you ever used it? If so, what was your impression? Participant A responded by saying, “I have not used an institutional repository”. The researcher clarified the question by defining what a digital repository is to get more details from the participant. Participant A further provided an informed response and said “in our section we are using our own methods to manage and keep our digital records using personal computers and hard drives”. Participant B repsonded by saying “our section has never utilised an institutional repository”. The researcher raised a follow up question to get reasons for the section not utilsing an institutional repository. The participant stated the following, “we are not aware if there is any institutional repository at the NIOH”. The participant further suggested and said, “the institution needs to market the service and the unit responsible for it”. Participant C responded by

saying “we have never used the repository, but we use external hard drives and laptops to store digital records”. The researcher clarified what repositories are to make the particpant aware that they have used a form of repositories before but the NIOH digital records-system (institutional repository). After the researcher clarified the meaning of repositories, the participant responded and said “I can confirm that we have used the NIOH institutional repository to manage digital records”. On the other hand, Participant D displayed an understanding of a repository in their response “I have used the repository for retrieving institutional documents, research output, hisotrical files and important documents but struggled with the interface. I feel the repository needs some development, trainingf staff to make it more user friendly and effective.” Participant F shared that they have never used repsository before but they use personal computers to store digital records and further indicated the following “I have not used the system as I do not understand how the institutional repository works”. Response regarding the repository can be concluded as followsthe researcher was able to draw the following feedback regarding use of institutional repository at the NIOH:The participants indicated that they have used a form of repository to practise digital records keeping such as the use of personal computer storage, external hard drives, etc.

- Participants expressed lack of awareness about the institutional repository at the institution and suggested that marketing the repository would help raise awareness and increase its utilisation.
- The feedback revealed that lack of awareness led employees to not use the institutional repository and opt to use their own methods to practisce digital records keeping.
- Two participants indicated lack of knowledge in utilising the institutional digital records keeping system.

4.1.3 Digital records filing

The study used the following questions during data collection: How do you currently file and access digital records at the NIOH? Do you use the repository” If yes, how does it benefit you in your work area? If no, what other methods do you use? These questions were designed to address one of the objectives of the study which was to

explore how the National Institute for Occupational Health employees access digital records and the resulting benefits for the organisation and staff. The participants provided feedback which gave the study an insight into the state of digital records-keeping systems at the NIOH with regards to filing. Participant A responded by saying "I file digital records using my own methods such as external drives, USBs, laptops, creating folders". While Participant D stated that "I use two methods to file digital records for both my work and collaborated work. We use shared drive for research data. We also use cloud-based storage, the Microsoft one drive for backup. Participant B, C, E and F indicated that they use personal computers to file digital records. Participants' feedback indicated the following:

- The NIOH employees do not follow a systematic approach in filing digital records.
- Digital records are managed using personal methods such as using external hard drives, USBs, laptops, and creating folders on personal computers for ease of access.
- Five participants indicated that they had never used or deposited anything to the institutional digital records keeping system
- Feedback also shows that employees prefer using shared drives to perform digital records keeping as business units in the institution instead of depositing to one central digital records management system.

The researcher further used the following questions to address the above objective: What do you think are the most significant benefits of using the NIOH repository? Are there any specific features or functionalities that you find particularly useful in its current state? The participants provided feedback that indicated employees are not familiar or aware of any institutional digital records keeping systems at NIOH. This prompted participants to further indicate that they had never utilised or accessed the institutional digital records keeping system for filing.

4.1.4 Functionality

The study further used the questionnaire to determine the employees' perception towards utilising digital records keeping system's functionality, efficiency and accessibility at the NIOH. This was to help identify ways to enhance information quality for organisational digital records needs. To address this objective the study used the

following questions: How do you perceive the institutional repository at the NIOH? Would it be efficient with your digital records? Feedback received indicated the following:

One participant A responded by stating that “Digital records-keeping can be used for historic data”. The researcher asked the participant a follow-up question: what could be your ideal functional digital records-keeping system? Participant A said, “ideal functional digital records keeping system for NIOH would be a centralised and controlled access system to provide researchers and staff access to data and research for research purposes”. Participant B said, “I cannot comment on the functionality as the I has never used the repository. I would suggest that the system be promoted more especially amongst staff as I never heard anyone mention it or talk about it”. Participant C, D and E could not comment on the functionality of the repository as they have never used it before. Participant F provided details on the benefits of an ideal functional digital records-keeping system and said, “the benefit of an NIOH repository would be having a centralised accessed, long-term preservation and institutional memory. I feel that the functionality would be improved by having document tracking feature with the ability to add metadata”. The participant further suggested that marketing the tool would encourage wider adoption of the digital records keeping system.

Participants generally could not comment on the functionality of the system, but the following follow up questions such as; How do you think these concerns could be addressed? How do you think the NIOH repository could be improved to better meet the needs of staff? These questions prompted participants to provide suggestions on the improvement of the digital records keeping system at the NIOH. The following could be drawn from the feedback received from participants:

- An ideal functional digital records keeping system for NIOH would be a centralised and controlled access system to provide researchers and staff access to data and research for research purposes.
- The instututional digital records-keeping systems should be promoted more especially amongst staff to encourage a wider adoption of the digital records keeping system at the NIOH.
- It would be beneficial to have a centralised NIOH repository as it would provide access to digital information resources to everyone in the institution.

4.1.5 Access

The study looked at the challenges in accessing the digital records keeping system at the NIOH using questions such as: Have you ever experienced any issues or challenges while accessing digital records at any repository including at the NIOH? If so, how did you resolve them? The questions were used to address the objective which is to enhance digital record access at NIOH without compromising security. The feedback indicated all employees who were interviewed have never accessed the digital records-keeping system at the NIOH. Participant A indicated lack of trust in the system and voiced the following response “accessing digital records from NIOH digital records-keeping system would not meet employee’s turnaround time”. A follow up question was raised as why the participant feel this way. The participant responded and said, “the institution’s infrastrucure is outdated and lagging behind”. Partcipant B responded and said “I have never accessed the repository”. Participant C and D could not comment or respond to the question. While on the other hand, participant F responded as follows “the institutional repository is a promising idea, but it falls short in practice”. The participant further raised issues regarding the system and said, “there no clear deposit and insufficient access control guidelines”. The same participant raised suggestions and said, “improvements are needed for digital records-keeping system to be user-friendly and be efficient”. Participant E added to the suggestions and said, “staff should be informed about the access to the repository to raise awareness on its importance in the organisation”.

4.1.6 Efficiency

The study further looked at the efficiency in utilising the digital records keeping system at the NIOH. To assess this, the study used questions such as: Are there any specific policies or guidelines that you think could be developed or improved to enhance the management of digital records at the NIOH? The question was used to address one of the objectives of the study which was to examine why NIOH employees choose to manage digital records on their own. The feedback from participants suggests that NIOH staff are concerned about the safety of their records. Participant A provided a detailed response and raised IT infrastructure concerns “IT infrastructure at the NIOH is outdated and this may effect on the NIOH Institutional repository and won’t be as

efficient with their digital records". The participant further stated that "IT infrastructure is poor but having a functional and efficient digital records-keeping system would benefit organisational work processes. I would suggest the use of new technology, the 21st century technology". Participant B responded and said, "the digital records keeping system is a good tool and would like to use it in future". Participant C and D could not comment on the efficiency of the system. participant E provided the following response". The question on the efficiency of the system assisted the study to draw the from the participants:

- Guidelines that provide protection of personal information would improve the utilisation of the digital records system at the NIOH.
- Information Services unit collaboration with other units such as information technology unit staff,to improve the system.
- The rest of the participants suggested the implementation of regulations and policies regulating the utilisation of the digital-records keeping system at the institution.

Participants raised security concerns as it was the case with accessibility of the system. Participant A stated that "I am concerned about the safety of our digital records, but I would use the system if I would be reassured about the safety of our digital records". On the other hand, participant B showed no concern over their digital records security. Participant C did not comment on the security of digital records. Participant E's response was as follows, " I do consider security of records in managing my digital records". Participant F indicated as follows, "my concerns over the security of digital records include unclear guidelines for confidential data, access control and, inefficient tools". Table below illustrate verbatim responses from participants obtained during interview sessions.

Themes	Feeback 1	Feedback 2	Feedback 3	Feedback 4	Feedback 5
Guidelines	No guidelines (the participant indicated that they are not following guidelines in practising records keeping in their unit)	Participant indicated that there are not digital records keeping guidelines regulating the utilisation of digital records keeping system at the NIOH; the participant further recommends that the NIOH should implement guidelines and comply with POPI act for the protection of information	The participant recommended that the Information service unit should implement digital records keeping guidelines and policy with the consideration of POPI act to protect information. What type of guidelines are they referring to? The participant indicated that the NIOH should develop guidelines that stipulate the type of digital records that should be deposited to the repository, and the format in which digital records should be in.	The participant indicated that their department does not follow guidelines in managing digital records. The participant further indicated that the team has a shared drive when they store their documents for departmental documents. The participant stores personal digital records on personal computer and Microsoft one drive. The participant showed awareness of an external guideline or policy regulating the management digital records keeping repository system. The participant was asked if the policy was from NIOH The participant indicated that the policy and guideline is from another institution	The participant does not use any form of guidelines to manage digital records but uses labelled folders on personal computer.
Repository	The participant has indicated that that they have not used the institutions repository. The researcher clarified what a repository is to get more After the clarification the participant	Indicated that they have never utilised the digital records keeping system The researcher asked the participant to provide reasons why for not utilising NIOH digital records keeping system	The participant indicated that they have never used the repository, but they use external hard drives and laptops to store digital records. The researcher clarified what repositories are and to make the participant aware that they have used a form of repositories before	The participant displayed an understanding of a repository and noted the use of it before. The participant has used the repository for retrieving institutional documents, research output, historical files and other important documents but	The participant indicated that she has never used a repository before. After the researcher clarified what repositories are the participant indicated that the only method she uses it's the

	indicated that they have used their own methods of managing digital records such as personal computers and hard drives.	The participant stated that they are not aware if there is any institutional repository for digital records keeping at the NIOH and suggested that the institution needs to market the service and unit responsible for it.	but not the NIOH digital records keeping system (institutional repositories) After the researcher clarified the meaning of repository, the participant confirmed that they have not used the NIOH repository to manage their digital records.	struggled with the interface. The participant feels that the repository needs some development, training of staff to make it more user friendly and effective. Indicating that the repository has a potential.	computer store digital records but have never used an NIOH repository to manage digital records. The participant also shared that they do not understand how the NIOH institutional repository works.
Filing (digital filing system not manually)	Digital records filed using own methods such as external drives, USBs, laptops, creating folders.	Has never used or deposited anything to the institutional digital record keeping system but used personal methods of digital records keeping such as folders and external drives.	The participant indicated that they have used external hard drives and USBs to file digital records.	The participant uses two methods for work and collaborative work they use shared drive and for personal digital records, research data and analysis the participant uses personal computer and hard drive and Microsoft one drive for back up. The participant	The participant indicated they have never used an NIOH repository instead they store digital records on personal computer.
				indicated that they use institutional repository to retrieve official documents and historical files but not as primary method. The participant shared that using personal computers and share drives benefits their department as everyone knows and have access to document but have recognised that this create silos of information that are not accessible to other departments or preserved for long term. For cross-departmental sharing they use email attachments or Microsoft one drives which is ideal	

Access	Participant indicated that accessing digital records from NIOH digital records keeping system would not meet employee's turnaround time. The researcher asked a follow up question: why would you feel that way. The participant raised concerns around IT security and IT infrastructure.	The participant indicated that they have never accessed the repository before.	
Efficiency	The participant raised IT infrastructure and share that the NIOH Institutional repository is old and won't be as efficient with their digital records; Indicating that IT infrastructure is poor but having a functional and efficient digital records keeping system organisational work processes. The participant suggested the use of new technology, the 21st century technology	The participant shared that the digital records keeping system is a good tool and would like to use it in future.	
Security	The participant indicated IT security concerns over their digital records but ensured to use the system if concerns are addressed and reassured about the safety of their digital records.	Does not have any concerns but the respondent is sure that the system is safe to use; the respondent mentioned that se uses back up storage such a USBs and external hard drives to ensure safety of digital records.	The respondent indicated that they do consider security of records when managing their digital records.

Table 2: Response from data collection

Chapter 5: Discussion of Findings

5.1 Introduction

This chapter involves a critical evaluation of results to ascertain the contribution it may have in the field of information science. This chapter looks at the research method applied which includes sampling procedure, sample size, shortcomings, and sources that may negatively affect the trustworthiness of the results. The chapter also looks at the comparison of previous research and this study. Themes as subheadings are used to explore comparisons with other studies which will help the study find its position in the body of knowledge in the field of information science.

Based on the literature from scholars such as Proenca (2022: 6) and Brucnkslill and Demb (2012: 37), although the researcher had to design follow up questions to clarify the meaning repositories, the employees at the NIOH understood the meaning of digital records management as they were able to explain in detail how they manage their digital records. Mokhtar, Yusof and Mukred (2022: 2) emphasise the need for digital records to be managed and describe this practice as the electronic records management system (ERMS). Matlala and Maphoto (2023: 75) state that this should be done by those qualified and equipped with the skills and that is not the case with the NIOH institution. The study has done research that put everyone at ease by building trust between those who create digital records and those who manage digital records, and this enabled everyone to easily access the digital records collection for the benefit of the organisation (Sithole & Dewah, 2022: 77-78).

5.1.1 Digital records management practices at the NIOH

The findings highlight significant gaps in the digital records management practices among the participants at the NIOH. While it is encouraging that participants are practising digital record-keeping, their reliance on personal methods such as using personal computers and external hard drives indicates a lack of standardised institutional guidance. Studies have argued that this decentralised approach raises several concerns over the integrity and vulnerability of digital records, particularly regarding data security, consistency, and long-term preservation (Ahanger, Masoodi, Khanam and Ashraf, 2024: 130; Albshaier, Budokhil & Aljughaiman, 2024: 109560). Scholars from the information science field have stressed the need for qualified and

skilled personnel to manage digital records keeping at institutions (Tsvuura, 2022: 118; Matlala & Maphoto, 2023: 75-76)

5.1.2 Security and institutional awareness

Participants have voiced concerns about the safety and security of their digital records. Their lack of awareness of any official digital records management system at the NIOH contributes to this insecurity. Cory (2019: 2) states that security of intellectual property is a serious matter and should be given attention. Without a centralised and well-communicated system, individuals are left to manage sensitive institutional data independently, increasing the risk of data breaches or loss. Literature from scholars such as Masenya and Ngulube (2020: 7) mentions that digital records may be exposed to security threats when not managed by qualified personnel. On the other hand, Huda (2022: 63-64) states that allowing staff from the institution to manage their own digital records is an employee empowerment and does not necessarily contribute to vulnerability of security with regards digital records.

5.1.3 Need for modern technological adoption

The findings indicate a clear call from participants for the adoption of 21st-century digital technologies such as the use of Cloud Computing which is being advanced by 4IR. 4IR serves as the fundamental base for the modern AI which serves as a facilitation of data connectivity as well as the necessary infrastructure. Other technologies include Internet of Things (IoT) which is integrated with AI to form the phrase artificial 7intelligence of things. These technologies are used in advancing utilisation digital records-keeping systems (Monteiro, França, Arthur & 2021)This reflects a recognition that modern tools could enhance efficiency, accessibility, and security in digital record-keeping. It also aligns with global best practices where institutions leverage cloud storage, automated backups, and secure access controls. Masenya (2020), Matlala, Ncube and Parbanath (2022) and Odutola and Ogbonyomi (2023: 98) encourage institutions to embrace the digital records keeping system as it brings advantages such as “greater efficiency, lower records storage cost, reduced potential for litigation and penalties, improved customer service, greater transparency”. Tsvuura (2022: 118) points out that lack of digital records management skills is a common challenge among government intsitutions and that leads to

employees not accepting new technologies. Therefore, it is important to have skilled personnel to have a successfully run digital records keeping system.

5.1.4 Absence of guidelines and policy

UNESCO (2003) provides that the main aim of preserving digital records is to provide users with access to information; therefore, there should be no unnecessary restrictions. On the other hand, Masenya and Ngulube (2020: 58) emphasise the importance of having guidelines regulating digital records keeping practice. Crucially, none of the participants reported following formal guidelines for digital records management. This lack of structure not only leads to inconsistent practices but also undermines accountability and compliance with legislative or regulatory requirements. Tsvuura (2022: 118) observes that the absence of clear policies on digital records contributes to employees not utilising the digital records keeping system. Participants unanimously recommend that the NIOH Information Services Unit should develop and implement a comprehensive digital records management policy. Such a policy would establish clear protocols, roles, and responsibilities.

5.2 Further research

The findings of this study have revealed several areas where further research could enhance understanding and practice in the field of digital records management, particularly within institutions such as the NIOH. The absence of formalised policies, reliance on decentralised and informal storage methods, limited adoption of modern technologies, and shortage of qualified personnel all point to critical opportunities for deeper investigation.

5.2.1 Development and implementation of a comprehensive digital records management policy

As emphasised by Masenya and Ngulube (2020: 58) and Tsvuura (2022: 118), such policies play a crucial role in ensuring consistency, accountability, and regulatory compliance. Future studies could track the policy introduction process within the NIOH or comparable institutions and measure its impact on security, adherence to best practices, and the standardisation of procedures.

5.2.2 Skills audits and evaluations of targeted training interventions

Matlala and Maphoto (2023: 75–76) and Tsvuura (2022:118) note that the absence of qualified personnel significantly undermines the integrity of digital records. Research could focus on identifying specific skill gaps among staff and assessing the effectiveness of structured training and certification programs in improving both competence and technology adoption.

5.2.3 The adoption of modern digital records management technologies

Participants in this study expressed interest in 21st-century tools such as cloud storage, automated backups, and secure access controls. Pilot studies could be conducted to evaluate the operational, security, and user acceptance outcomes of implementing such systems, as recommended by Masenya (2020) and Matlala, Ncube, and Parbanath (2022).

5.2.4 Balance between centralised and decentralised records management approaches

The current reliance on personal computers and external hard drives aligns with Huda's (2022: 63–64) view of employee empowerment but also raises security and consistency concerns highlighted by Ahanger et al. (2024: 130) and Masenya and Ngulube (2020: 7). Comparative studies could determine whether hybrid approaches combining central oversight with limited local autonomy can preserve flexibility while safeguarding integrity.

5.2.5 Security risk assessments

Given the concerns raised by participants regarding data safety, security risk assessments of current practices are also needed. Building on Cory (2019: 2) and Albshaier et al. (2024: 109560), such studies could evaluate the vulnerabilities of personal storage systems and the cost–benefit of implementing encryption, secure access protocols, and institutional backup measures.

5.2.6 Institutional memory

The findings also highlight the potential impact of poor digital records management on institutional knowledge and memory. As suggested by Matlala and Maphoto (2023:

75–76) and Odutola and Ogbonyomi (2023: 98), research could assess how inconsistent practices affect decision-making and organisational continuity, and whether the appointment of qualified personnel improves long-term accessibility.

Comparative benchmarking presents another valuable research avenue. Drawing on the comparative approach adopted in this study and the work of Proenca (2022: 6) and Brucnkslill and Demb (2012:37), future studies could position NIOH's practices against international standards and successful case studies from similar institutions, identifying adaptable best practices.

5.2.7 User behaviour and institutional culture

The influence of user behaviour and institutional culture on digital records management deserves closer examination. As Sithole and Dewah (2022: 77–78) note, trust between records creators and managers can promote access and compliance, while Huda (2022: 63–64) suggests that empowerment may also influence staff attitudes toward centralised systems. Research could therefore investigate the cultural and interpersonal factors that determine adherence to secure, standardised digital records management practices.

Pursuing these research directions, scholars and practitioners can not only address the gaps identified in this study but also contribute to the advancement of effective, secure, and sustainable digital records management practices within the wider field of information science.

Chapter 6: Summary

6. Conclusion and recommendations

6.1 Conclusion

The findings underscore an urgent need for the NIOH to prioritise the development of a standardised, secure, and modern digital records management policy. Doing so will not only address current challenges but also position the institution to better manage its digital assets in an increasingly data-driven environment.

Based on the literature review conducted and data analysis done (themes) the study concludes that the records keeping system at NIOH is lagging the digital international standards of records keeping. Therefore, an organisational change is required for NIOH organisation reap the benefits that come with utilising digital records-keeping system.

The study concludes that change in the utilisation of digital records-keeping system at NIOH is required.This will help the institution to benefit from electronic record-keeping system advantages such as having greater efficiency, lower records storage cost, reduced potential for litigation and penalties, improved customer service, and greater transparency among other bnefits.

Utilising a digital records system will help the NIOH manage shortcomings that come with ERM and ERK, such as fragility of the electronic or digital media, ease of manipulation and absence of self-evident and ready contextual information. The study accomplished its purpose to explore the negatives and positives of a centralised digital records-keeping system, inform staff about its importance and identify areas for improvement at the NIOH policies, regulations and processes regarding the use of digital records enhancement.

6.2 Recommendations

The study addressed its objectives which is to enhance digital record access at NIOH in which digital records-keeping at the NIOH can be improved while at the same time ensuring staff that their digital record safety is not compromised. This is to help the

NIOH staff to trust in the information service unit's institutional repository. This will in turn enhance information accessibility. Below are the recommendations based on the objective addressed by the study.

6.2.1 Implement functional Access Controls and Authentication Mechanisms

Establish robust, multi-layered access control systems to ensure that staff can only access information relevant and appropriate to their roles and responsibilities. This should include role-based access permissions to limit data exposure and multi-factor authentication (MFA) to verify user identities before granting access. By restricting access to sensitive records and safeguarding against unauthorised entry, the organisation will minimise data breaches and enhance overall confidentiality. These measures not only protect information but also reassure employees that the system is secure, thereby fostering greater trust and confidence in digital operations.

6.2.2 Regular Auditing and Monitoring of Digital Records

Introduce a structured program of regular audits and real-time monitoring to detect inconsistencies, suspicious activity, or potential tampering in digital records. These would be systematic audits implemented by the institution. Automated alerts and audit trails can provide early warnings of anomalies, ensuring that issues are identified and resolved promptly. Such proactive oversight reinforces the integrity, reliability, and authenticity of digital records. By maintaining transparent monitoring processes, staff can be confident that the system operates with accountability and that data manipulation or loss will be swiftly addressed.

6.2.3 Strengthen Staff Training and Awareness

Deliver continuous training and capacity-building initiatives to enhance staff competence in digital record-keeping best practices. Training should emphasise key areas such as data security practices, privacy regulations, record management standards, and how to identify and respond to security threats. Well-informed employees are less likely to make errors or violate protocols, reducing errors and breaches. Moreover, staff who understand and value digital systems are more likely

to engage positively and adhere to best practices, fostering a culture of shared responsibility and trust and confidence in the organisation's digital records-keeping system.

6.2.4 Use Encryption and Digital Signatures for Data Security

Apply strong encryption techniques and digital signatures to protect sensitive information both in storage and during transmission, preventing unauthorised interception or access. This would ensure mantainance of records authenticity. Incorporating digital signatures will also verify the origin and authenticity of records, ensuring that documents cannot be altered without detection. These security measures will keep data secure during storage and transmission, reassuring staff of the system's confidentiality and integrity

6.2.5 Develop Clear Policies and Procedures

Create and enforce a comprehensive framework of policies, procedures, and compliance standards regarding digital records management. These should define roles, responsibilities, access protocols, retention periods, and data security measures. Clearly documented guidelines reduce ambiguity, promote accountability, and ensure consistency in how staff interact with digital records-keeping systems. When employees understand what is expected and how their actions contribute to security and compliance, their confidence in the system's fairness and reliability increases significantly. In the absence of Digital records-keeping strategy, the NIOH Information Services Unit will keep on struggling to force staff to use central repository. It became very clear that the desired strategy of NIOH is to move away from decentralized records-keeping system to centralised one (Mulokoshi, 2024).

6.2.6 Develop Transparent and User-friendly Digital Record Systems

Design digital record systems with easy navigation, transparent in access rights, change tracking and detailed audit trails for all activities, and visible access permissions. When users can clearly see how data is managed, who has access, and how changes are tracked, they develop a stronger sense of trust in the system's

integrity and integrity. User-friendly interfaces also reduce operational frustrations, making staff more likely to adopt and effectively use digital solutions, thus improving both efficiency and confidence. This recommendation promotes wider adoption of dgital records-keeping systems and effective use.

Implementing these recommendations will support the National Institute for Occupational Health (NIOH) in creating a secure, transparent, and efficient digital records management environment. By prioritising data protection, accountability, and user empowerment, the organisation can strengthen staff confidence andenhance information accessibility, while upholding the integrity of digital records.

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LIST OF APPENDICES

Appendix A: UNISA research ethics approval

UNISA university of south africa

College of Human Sciences_CREC

NHREC Registration # : (Rec-240816-052)
Ref #: 4060
Name: Mr Lwando Matomane
Student #: 63372509

Date: 03/03/2025

Dear: Mr Lwando Matomane

Decision: Ethics Approval from 03 March 2025 to 02 March 2026

Researcher: Mr Lwando Matomane

147 De Korte street, Braamfontein,

Johannesburg

63372509@mylife.unisa.ac.za 060 390 9104

Supervisor: Dr Daniel Rankadi Mosako mosakdr@unisa.ac.za

The Utilisation of Digital Records Keeping: A Case Study of the National Institute for Occupational Health in South Africa

Qualification: Master of Information Science

Thank you for the application for research ethics clearance by the College of Human Sciences_CREC for the above-mentioned research study. Ethics approval is granted for one year.

The **low-risk application** was **reviewed** by the College of Human Sciences_CREC on **03 March 2025** in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
2. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the College of Human Sciences_CREC.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.

5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. No field work activities may continue after the expiry date (**02 March 2026**). Submission of a completed research ethics progress report will constitute an application for renewal, for Ethics Research Committee approval.

Additional Conditions

1. Disclosure of data to third parties is prohibited without explicit consent from Unisa.
2. De-identified data must be safely stored on password protected PCs.
3. Care should be taken by the researcher when publishing the results to protect the confidentiality and privacy of the university.
4. Adherence to the National Statement on Ethical Research and Publication practices, principle 7 referring to Social awareness, must be ensured: "Researchers and institutions must be sensitive to the potential impact of their research on society, marginal groups or individuals, and must consider these when weighing the benefits of the research against any harmful effects, with a view to minimising or avoiding the latter where possible." Unisa will not be liable for any failure to comply with this principle.

Note

The reference number 4060 should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.

Kind regards,

Prof Khatija Khan
Chair of College of Human Sciences_CREC
E-mail: khankb@unisa.ac.za

Professor Omwoyo Bosire Onyancha
Executive Dean / By delegation from the Executive Dean of College of Human Sciences_CREC
E-mail: onyanob@unisa.ac.za

Appendix B: NIOH/NHLS Approval letter to conduct a study

Academic Affairs and Research
1 Modderfontein Road, Sandringham, 2031
Tel: +27 (0)11 555 0367/0406
Email: babatyi.kgokong@nhls.ac.za
academic.research@nhls.ac.za
Web: www.nhls.ac.za

12 November 2024

Applicant: Lwando Matomane
Institution: Unisa
E-mail Address: 63372509@mylife.unisa.ac.za
Tel: 011 489 9300 **Cell:** 060 390 9104

Project Title: The utilisation of digital records keeping: A case study of the National Institute for Occupational Health in South Africa

Reference Number: PR2455083

Research Application Type(s):
1. Scientific Survey or Questionnaire

RE: APPROVAL LETTER: REQUEST TO ACCESS NHLS RESOURCES FOR RESEARCH PURPOSES

This letter serves to advise that the application requesting permission to conduct the above-mentioned research using the listed NHLS resources has been reviewed and **"Approved"**. Please note that the approval is granted **without undergoing the full internal peer review process** on the condition of the **urgency of the request and its time-sensitive nature**, **therefore further clarity may be required by the processing unit.** You are required to comply with the NHLS Research Material and Data Access Policy and requirements stated below.

1. All material and data requested shall be used as per the research protocol submitted to the NHLS and as approved by the relevant Health Research Ethics Committee (HREC) in South Africa.
2. Access to the NHLS material and/or data shall be limited to the minimum required for successful completion of the approved study and shall be made available ***without patient names and other patient identifiers (including, but not limited to, national identity numbers, hospital/clinic file numbers, addresses and telephone numbers)***.
3. Confidentiality shall be maintained at the participant and institutional level and there shall be no disclosure of personal information or confidential information.
4. Data and/or material shall not be shared with other parties unless approved by the NHLS
5. The material and/or data obtained from the NHLS shall be anonymised and not, for any reason, be used to track or recruit patients as no pre-approval/consent is obtained from patients.
6. Processes shall be discussed with the relevant NHLS departments (i.e. Corporate Data Warehouse (CDW), NHLS Laboratory Management, Operations Office, etc.) and agreed upon.
7. Any amendments to the study requirements, including the use of the material and/or data for purposes not initially disclosed to the NHLS) shall be cleared by an approved HREC and submitted to the NHLS for approval via the AARMS system – https://aarms.nhls.ac.za.
8. The NHLS shall be acknowledged as a source of material and/or data in any output, such as abstracts and journal articles, emanating from the project.
9. A final report of the research study and any published output resulting from this study shall be submitted to the NHLS via AARMS

Please note that this letter constitutes approval by the NHLS Academic Affairs and Research Office. The NHLS entities tasked with providing the material and/data may have additional requirements for access. Data related queries may be directed to NHLS CDW, email: zarina.sabat@nhls.ac.za; contact number: 011 386 6074 and sample related queries (if applicable) shall be directed to the relevant business manager.

Dr Babatyi Malope-Kgokong
National Manager: Academic Affairs and Research

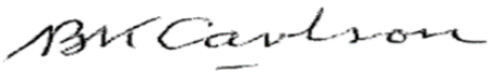
Appendix C: Editor Certificate/Letter

8 Nahoon Valley Place
Nahoon Valley
East London
5241
20 October 2025

TO WHOM IT MAY CONCERN

I hereby confirm that I have edited the following thesis using the Windows 'Tracking' system to reflect my comments and suggested corrections for the student to action and produce a clean and correct copy:

The utilisation of digital records keeping: a case of the National Institute for Occupational Health in South Africa by Lwando Matomane, a thesis submitted in accordance with the requirements for the degree of Master of Information Science in the subject of Records Management at the at the University of South Africa.



Brian Carlson (B.A., M.Ed.)
Professional Editor

Email: bcarlson521@gmail.com
Cell: 0834596647

Disclaimer: Although I have made comments and suggested corrections, the responsibility for the quality of the final document lies with the **student** in the first instance and not with myself as the editor.

Appendix D: Research Study Data collection tools

D 1.1 Pilot study Data collection tool(s) (including questionnaire/ interview questions

Objective	Research questions	Interview question	Data collection tool
• To examine why NIOH staff choose to manage digital records independently • To enhance institutional repository and archive service quality to gain trust from other organizational units • To explore how National Institute for Occupational Health employees access digital records and the resulting benefits for the organization and staff. • To assess perceptions of the	• What factors drive NIOH staff to manage digital records independently? • How can the quality of institutional repository and archive services be improved to establish trust among other organizational units? • How do employees at the National Institute for Occupational Health access digital records, and what benefits do this access methods provide for the organization and staff?	• Which guidelines do you use to manage your digital records independently, rather than depositing them in the NIOH repository? • Can you describe your understanding of the NIOH repository? Have you ever used it? If so, what was your impression? • How do you currently file and access digital records at the NIOH?	Interviews: Open-ended questions.

institutional repository and identify ways to enhance information quality for organisational digital record needs. To enhance digital record access at NIOH without compromising security	• What are the perceptions of the institutional repository, and what strategies can be identified to improve information quality for organizational digital record needs? • How can digital record access at NIOH be improved while ensuring security is not compromised? • How can digital record safety be ensured for organizational benefit	Do you use the repository, if yes how does it benefit you in your work area? If no, what other methods do you use? • What do you think are the most significant benefits of using the NIOH repository? Are there any specific features or functionalities that you find particularly useful at its current state? • Have you ever experienced any issues or challenges while accessing digital records	

		at any repository including at the NIOH? If so, how did you resolve them? • Are there any specific concerns or fears you have about using the NIOH repository in its current state and or digital state? How do you think these concerns could be addressed? • How do you think the NIOH repository could be improved to better meet the needs of staff like yourself if it is digitally managed? Are there any specific features or	

		functionalities you would like to see added? • Have you ever considered the safety and security of your digital records when managing them independently? How do you ensure their safety? • Are there any specific policies or guidelines that you think could be developed or improved to enhance the management of digital records at the NIOH? •	

D 1.2 Full study Data collection tool(s) (including questionnaire/ interview questions

Interview question	Research question
Which guidelines do you use to manage your digital records independently, rather than depositing them in the NIOH repository? **Follow up question**: What guidelines is the participant referring to? The participant should provide clarity on their guidelines.	What factors drive NIOH staff to manage digital records independently?
Can you describe your understanding of the NIOH repository? Have you ever used it? If so, what was your impression? **Follow up question or statements:** 1. The researcher gives clarity on the term 'repository' which makes the participants aware that they have used the repository before but not the NIOH repository. Clarifying the context. The researcher further asks the participants the above question. 2. Participants are asked to provide reasons for not utilising the NIOH digital records keeping system	How can the quality of institutional repository and archive services be improved to establish trust among other organisational units?
How do you currently file and access digital records at the NIOH? Do you use the repository, if yes how does it benefit you in your work area? If no, what other methods do you use?	How do employees at the National Institute for Occupational Health access digital records, and what benefits do these access methods provide for the organisation and staff?

Follow up question or statements: The researcher clarifies that the question refers to digital filing.	
What do you think are the most significant benefits of using the NIOH repository? Are there any specific features or functionalities that you find particularly useful at its current state? **Follow up question or statements:** The participants are asked, what could be their ideal functional digital records keeping?	How do employees at the National Institute for Occupational Health access digital records, and what benefits do these access methods provide for the organization and staff?
Have you ever experienced any issues or challenges while accessing digital records at any repository including at the NIOH? If so, how did you resolve them? **Follow up question or statements**: The researcher asked a follow up question that why would the participant feel that the digital records keeping system at the NIOh would not meet their turnaround time?	How do employees at the National Institute for Occupational Health access digital records, and what benefits do these access methods provide for the organisation and staff?
How do you perceive the institutional repository at the NIOH? Would it be efficient with your digital records?	What are the perceptions of the institutional repository, and what strategies can be identified to improve information quality for organisational digital record needs?
Are there any specific concerns or fears you have about using the NIOH repository in its current state and or	What are the perceptions of the institutional repository, and what strategies can be identified to improve

digital state? How do you think these concerns could be addressed?	information quality for organizational digital record needs?
How do you think the NIOH repository could be improved to better meet the needs of staff like yourself if it is digitally managed? Are there any specific features or functionalities you would like to see added?	How can the quality of institutional repository and archive services be improved to establish trust among other organisational units?
Have you ever considered the safety and security of your digital records when managing them independently? How do you ensure their safety?	How can digital record safety be ensured for organisational benefit?
Are there any specific policies or guidelines that you think could be developed or improved to enhance the management of digital records at the NIOH?	How can digital record safety be ensured for organisational benefit?

Appendix E: Letter requesting permission to conduct a study at NIOH

Lwando Matomane
Information Services
National Institute for Occupational Health
147 De Korte street
Braamfontein, 2000
Lwando1@live.com
0603909104

Date:10 Ma 2024

Prof Nisha (NIOH Research committee chairperson)
National Institute for Occupational Health
25 Hospital street
Braamfontein
2000

Dear Dr. Prof Nisha (NIOH Research committee chairperson)

Subject: Request for Permission to Conduct a Case Study on the Utilisation of Digital Records

I am writing to request permission to conduct a case study titled "The utilisation of digital records keeping: A case study of the National Institute for Occupational Health in South Africa". My name is Lwando Matomane, and I am a librarian at NIOH within the Information Service Unit. This study aims to examine how digital records are utilised within the National Institute for Occupational Health (NIOH) and encourage the staff realise the need of a properly run digital records system that benefits the organisation.

The case study will focus on the efficiency, accessibility, and overall effectiveness of digital records in supporting the National Institute for Occupational health initiatives. It will involve conducting interviews with relevant staff.

Given the sensitive nature of the data involved, we will prioritize privacy and confidentiality. All personal information will be anonymised, and we will obtain informed consent from participants to ensure ethical compliance.

The study is expected to take place 1 January 2024 to 31 December 2026. We believe that our findings will provide valuable insights into the role of digital records in enhancing access to information and digital records management and could contribute to best practices within the field.

We respectfully request permission to conduct interviews with staff members. Attached to this letter, you will find a detailed research proposal and, Confirmation of proposal review from the UNISA information science school for your review. The ethics approval application is still pending and it will be sent as soon as it is available.

Thank you very much for considering our request. I am available to discuss any further details or address any questions you may have. I look forward to the opportunity to collaborate with the National Institute for Occupational Health on this important study.

Sincerely,

Lwando Matomane

National Institute for Occupational Health

0603909104

Appendix F: Participant information sheet

PARTICIPANT INFORMATION SHEET

Ethics clearance reference number:
Research permission reference number (if applicable):

03 July 2024

Title: The utilisation of digital records keeping: A case study of the National Institute for Occupational Health in South Africa

Dear Prospective Participant

My Name is Lwando Silas Matomane and I am doing research with Dr Daniel Rankgadi Mosako, a Lecturer in the Department of Information Science towards a Master of Information Science at the University of South Africa. We are inviting you to participate in a study entitled The utilisation of digital records keeping: A case study of the National Institute for Occupational Health in South Africa.

WHAT IS THE PURPOSE OF THE STUDY?

This study is expected to collect important information that could to encourage the staff to see the need to have properly run digital records keeping system that benefits the organization

WHY AM I BEING INVITED TO PARTICIPATE?

We invite the NIOH personnel who interact with digital records. The study takes into consideration the terms set out in the Protection of Personal Information Act No 4 of 2013 regarding the use of personal information and details and therefore the study will protect the details of those participating in the study and has done this by following necessary channels from the NIOH to contact its employees with the permission obtained through its research committee. In addition to this, the Head of section has been approached, explained the purpose

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

of the study and asked for a permission to have an interview with you. The participants' details will not be disclosed. The approximate number of participants of the study is 11.

WHAT IS THE NATURE OF MY PARTICIPATION IN THIS STUDY?

Your participation is valued as you will be providing us with information which will assist in improving the utilization of records keeping at the NIOH. The study involves an interview with semi-structured interviews. The interview includes the following questions: Which guidelines do you use to manage your digital records independently, rather than depositing them in the NIOH repository?
Can you describe your understanding of the NIOH repository? Have you ever used it? If so, what was your impression?
How do you currently file and access digital records at the NIOH? Do you use the repository, if yes how does it benefit you in your work area? If no what other methods do you use?
What do you think are the most significant benefits of using the NIOH repository? Are there any specific features or functionalities that you find particularly useful at its current state?
Have you ever experienced any issues or challenges while accessing digital records at any repository including at the NIOH? If so, how did you resolve them?
How do you perceive the institutional repository at the NIOH? Would it be efficient with your digital records?
Are there any specific concerns or fears you have about using the NIOH repository in its current state and or digital state? How do you think these concerns could be addressed?
How do you think the NIOH repository could be improved to better meet the needs of staff like yourself if it is digitally managed? Are there any specific features or functionalities you would like to see added?
Have you ever considered the safety and security of your digital records when managing them independently? How do you ensure their safety?
Are there any specific policies or guidelines that you think could be developed or improved to enhance the management of digital records at the NIOH?

The interview will take approximately 20 to 30 minutes.

CAN I WITHDRAW FROM THIS STUDY EVEN AFTER HAVING AGREED TO PARTICIPATE?

Participating in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
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be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

The potential benefit of taking part in this study is to encourage the staff to see the need to have properly run digital records keeping system that benefits the organization. There are no potential monetary benefits for taking part in this study but your participation will contribute in the scientific community and/or society as the knowledge generated from the study benefit the information science field and assist in digital records keeping practice in organisations.

ARE THEIR ANY NEGATIVE CONSEQUENCES FOR ME IF I PARTICIPATE IN THE RESEARCH PROJECT?

There are no potential negative consequences for participating in the study.

WILL THE INFORMATION THAT I CONVEY TO THE RESEARCHER AND MY IDENTITY BE KEPT CONFIDENTIAL?

You have the right to insist that your Name will not be recorder anywhere and that no one, apart from the researcher and identified members of the research team, will know about your involvement in this research OR your Name will not be recorded anywhere and no one will be able to connect you to the answers you give. Your answers will be given a code number, or a pseudonym and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings.

The Researcher and Supervisor will have access to the data. Confidentiality will be maintained by means of keeping data in a secure UNISA repository and signing a confidentiality agreement. Your answers may be reviewed by people responsible for making sure that research is done properly, including the transcriber and members of the Research Ethics Review Committee. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records.

The study may use information obtained from users in a form of the de-identified data for research-related purposes, such as a research report, journal articles and/or conference proceedings. We would like to reassure you that privacy will be protected in any publication of the information e.g. *A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.*

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
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HOW WILL THE RESEARCHER(S) PROTECT THE SECURITY OF DATA?

The researcher will ensure that copies of answers are kept in a safe computer file with security or password only known by the researcher for a minimum of 5 years. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable (such as using the data for a purpose unrelated to the initial aim and objectives or the study). electronic copies will be permanently deleted from the hard drive of the computer through the use of a relevant software programme. The study does not intend to use any hard copies as the answers will be captured using computer tools such as Microsoft Word.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICIPATING IN THIS STUDY?

There will be no incentives or rewards for participating in the study and there are no foreseeable costs that may be incurred by the participants.

HAS THE STUDY RECEIVED ETHICS APPROVAL?

This study has received written approval from the Research Ethics Review Committee of the *College of Human Sciences Research Ethics Committee,* Unisa. A copy of the approval letter can be obtained from the researcher if you so wish.

HOW WILL I BE INFORMED OF THE FINDINGS/RESULTS OF THE RESEARCH?

If you would like to be informed of the final research findings, please contact Lwando Silas Matomane on 060 390 9104 or email 63372509@mylife.unisa.ac.za. The findings are accessible for 2025.
Should you require any further information or want to contact the researcher about any aspect of this study, please contact Lwando Silas Matomane email Lwando1@live.com or call 060 390 9104.

Should you have concerns about the way in which the research has been conducted, you may contact Dr Daniel Rankadi Mosako email on mosakodr@unisa.ac.za or call 082 930 8552. Contact the research ethics chairperson of the College of Human Sciences Research Ethics Committee, Prof Janice Moodley at moodljk@unisa.ac.za Telephone number: 012 429 8069 if you have any ethical concerns.

Thank you for taking time to read this information sheet and for participating in this study.

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

Thank you.

Lwando Silas Matomane