ADOPTION OF ARTIFICIAL INTELLIGENCE TO ENHANCE RECORDS MANAGEMENT PRACTICES AT THE GAUTENG DEPARTMENT OF EDUCATION IN SOUTH AFRICA

BY

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ABSTRACT

Artificial intelligence (AI) is progressively gaining recognition as a valuable system for enhancing records management operations in the era of the Fifth Industrial Revolution (5IR). In South Africa, many government departments, including the Gauteng Department of Education (GDE), are struggling with inadequate record storage capacity. This predicament is largely attributed to poor record-keeping practices. This study sought to address the current records management challenges faced by the GDE, which include insufficient storage of records. This storage constraint leads to several challenges, such as misfiling, overpopulated shelves, and a heightened risk of accidental loss of records. Against this backdrop, AI presents a promising solution that can potentially increase storage capacity and enhance records management operations. This investigation utilised the Technology Acceptance Model (TAM), Digital Transformation Model (DTM), and records management theory (records continuum) to inform the conceptual framework of the study. This study employed a mixed-methods approach with a convergence design, combining qualitative and quantitative data collection methods. This involved in-depth interviews, survey responses, and document analysis techniques. The quantitative data were analysed descriptively and subsequently presented through tables, graphs, and figures. The qualitative data were subjected to thematic analysis and articulated verbatim, incorporating direct quotations from participants to facilitate a more in-depth understanding of the findings. The sample population consisted of the deputy director, assistant director, chief registry clerks, senior registry clerks, and IT technicians. The findings of the study revealed that, although AI technologies have the potential to address existing issues in GDE records management systems, such as space constraints, overcrowded shelves, misfiling, and time-consuming retrieval, several barriers impede their effective adoption. These include negative perceptions of AI in records management, insufficient skills and infrastructure to support AI integration, and a lack of awareness regarding AI models and their benefits in records management. This study provided strategic recommendations aimed at mitigating these barriers and proposed a framework designed to tackle the current records management challenges at the GDE. Additionally, the framework seeks to enhance and streamline records management practices within the GDE, thereby promoting improved efficiency and effectiveness in records management.

Keywords: artificial intelligence, robotic machines, cobotic machines, 5IR, records management, Gauteng Department of Education.

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"Not that we are sufficient of ourselves to think of anything as being from ourselves, but our sufficiency is from God," (2 Corinthians 3:5).

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I am truly grateful for all your support. May God bless you abundantly.

Thabisile Mbali Sikhakhane

December 2025

DEDICATION

This study is dedicated to myself as a testament that the grace of God is sufficient to fulfil every desire of my heart, in accordance with His divine purpose. This accomplishment serves as proof of His unwavering faithfulness and His engrossment in all aspects of my life.

"For the mountains may be removed and the hills may shake,

But My lovingkindness will not be removed from you,

Nor will My covenant of peace be shaken,"

Says the Lord who has compassion on you.

-Isaiah 54:10

DECLARATION

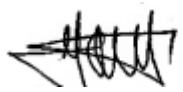
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I declare that this dissertation is my own work and that all sources I have used or referenced have been properly cited and acknowledged with complete references. Additionally, I confirm that I have submitted the dissertation for originality verification and that it meets the accepted standards for originality. I also affirm that I have not previously submitted this project or any part of it for assessment at Unisa for another qualification or at any other higher educational institution.



10 December 2025

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Thabisile Mbali Sikhakhane Date

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LIST OF ABBREVIATIONS

4IR	Fourth Industrial Revolution
5IR	Fifth Industrial Revolution
AI	Artificial Intelligence
DTM	Digital Transformation Model
ECTA	Electronic Communications and Transactions Act
GDE	Gauteng Department of Education
ICT	Information and Communication Technology
IT	Information Technology
MERGB	Managing electronic records in governmental bodies
MISS	Minimum Information Security Standards
MMR	Maternal Mortality Ratio (or other, depending on context)
NARSSA	National Radioactive Substances and Services Agency (or context-specific)
NLP	Natural Language Processing
OCR	Optical Character Recognition
POPIA	Protection of Personal Information Act
TAM	Technology Acceptance Model (or other context-specific meanings)
UNISA	University of South Africa

CHAPTER 1: INTRODUCTION: SETTING OF THE SCENE

1.1 INTRODUCTION AND BACKGROUND OF THE STUDY

AI is a cutting-edge technology that has revolutionised records management in the 5IR era, enabling organisations to manage their records with greater efficacy. The emergence of computer technology and big data spurred the evolution of AI and made it an appealing study topic in a variety of professional fields, including records management (Duan, Edwards & Dwivedi 2019).

AI refers to the technology system that allows machines to mimic human thought processes and behaviours, allowing them to accomplish tasks that typically demand human intelligence (Ade-Ibijola & Okonkwo 2023). Omigie, Krubu, and Solomon (2023) define AI as a discipline focused on creating specialised intelligent software and smart machines intended to carry out human tasks with increased efficiency and security. Examples of AI applications include language models like ChatGPT, virtual assistants such as Alexa and Siri, autonomous vehicles like self-driving cars, data analysis tools like Google Gemini, conversational agents, and content filtering software like email spam filters (Raina, Sharma, Taheri, Dev & Chavriya 2026).

In this era of the 5IR, AI continues to stand out as a leading technology. The 5IR signifies the amalgamation of frontline technologies such as blockchain technology, AI, robotics, and the Internet of Things (IoT) into various industries, with a focus on promoting a harmonious collaboration between people and robots (cobots) (Suliman 2026; Siddique & Miss 2026). According to Dhakal (2026), the 5IR marks a tremendous technological leap, building upon the foundations of the 4IR by fostering a new era of collaboration between humans and robots. This collaboration, a hallmark of 5IR, is made possible by the incorporation of AI technologies, which allows intelligent computer systems and intelligent cobotic machines that function efficiently and navigate safely while enhancing productivity, as noted by George and George (2020).

The advent of 5IR technologies, particularly AI technologies, has facilitated a paradigm shift in records management through enhanced collaboration between records practitioners and intelligent systems (Sibanda 2025 & Schellnack-Kelly 2025). This synergy leverages the strengths of AI to augment the capabilities of records management professionals, thereby enhancing operational efficiency and effectiveness (Mathope 2024). Nonetheless, the adoption of AI technologies within this field raises significant ethical and privacy concerns, including

potential job displacement and algorithmic biases, which pose challenges to core principles underpinning records management (Sibanda, 2025; Chahardoli, 2026; Oyedokun, 2025; Alaoui, 2025; Idowu, Olatunji, Enamudu, Oladokun, & Nkiko, 2026). This necessitates the development of strategic approaches that not only capitalise on the opportunities presented by AI technologies but also actively address their limitations to ensure the effective and responsible management of records.

In this study, AI refers to an amalgamation of advanced technologies and computer systems that are capable of simulating human intelligence to perform records management practices. Records management practices encompass creating, classifying, storing, securing, and disposing of records efficiently and securely throughout their lifecycle (Yusuf & Adekoya 2021; Masenya 2020). Researchers such as Alaoui (2025), Tsabedze (2024), and Modiba (2025) concur that AI has significantly transformed the way organisations manage their records.

AI technologies, especially ML, are indispensable tools that effectively streamline complex tasks like record classification (Hernández & Rockembach 2025. Schellnack-Kelly (2025) notes that traditional classification methods, like file plans, are largely manual, laborious, and inconsistently applied, raising non-compliance risks with laws such as the Promotion of Access to Information Act. ML algorithms can autonomously analyse and classify records according to organisational requirements. This automation decreases the need for manual intervention and risks of non-compliance with laws governing records management. Moreover, it can also improve the ease of access to records (Reis, Amorim, Cohen & Rodrigues 2020).

Consequently, AI-powered collaborative robots (cobots) can digitise paper records and securely transfer them to the cloud, allowing for efficient and quick access to information (Osagie & Oladokun 2024). AI-based cloud storage solutions are designed to handle extensive data from multiple sources and in different formats, and support high-speed data processing (Sunku 2023). This not only addresses the challenge of space limitations but also reduces the reliance on manual labour and enhances the speed of data capture. Based on the findings of Ramamoorthi (2025), the integration of AI and ML algorithms into cloud computing significantly enhances security protocols, improves anomaly detection, and facilitates data backup and recovery processes.

The growing prevalence of generative AI models, such as virtual assistants and conversational bots, has transformed the landscape of records retrieval (Twinomurinzi & Gumbo 2025).

However, Raji, Smart, White, Mitchell, Gebru, Hutchinson, Smith-Loud, Theron, and Barnes (2020) highlight that widespread use of generative AI enables the creation of convincing counterfeit records, such as fake documents and ID papers. This raises concerns about the potential for these technologies to generate false or misleading information, which can compromise the authenticity and dependability of official records. Nonetheless, these technologies provide prompt responses to inquiries, significantly boosting customer satisfaction. Moreover, advanced AI algorithms, particularly those utilising reinforcement learning, can tailor the records management experience to individual client interactions and preferences (Kamalov et al. 2023). For instance, if a client consistently searches for finance-related records, AI-powered algorithms can deliver relevant suggestions based on their search history. This targeted approach not only simplifies the process of locating necessary information but also further enhances the overall user experience, demonstrating the profound impact of AI on productivity and customer service.

AI encryption methods can offer an extra layer of confidentiality for sensitive records, thereby decreasing the number of threats associated with data breaches (Indepth Research Institute 2023; Haupert 2024). This can be effectively achieved through employing AI models, such as neural networks, which can be trained to enhance the security of records by facilitating real-time threat detection and proactive risk management. This approach enables organisations to fortify their security posture by anticipating and addressing potential vulnerabilities before they materialise.

Furthermore, AI can streamline tasks such as determining retention periods and managing record disposal (Mudenda 2025). By following established organisational policies and their corresponding retention periods, AI algorithms can efficiently categorise data and assign specific retention periods to each data category. This capability not only enhances compliance with retention policies but also facilitates the automated identification of records that are due for disposal, thereby improving overall records management within organisations.

These advanced solutions demonstrate that AI technologies can manage all aspects of the records lifecycle processes, from creation to disposition, with a high degree of efficiency (Modiba 2022; Tsabedze 2023; Osagie & Oladokun 2024; Boukerzaza 2024; Mathophe 2024; Sibanda 2025; Muchaonyerwa & Ndlovu 2026). Nonetheless, it is crucial to acknowledge the practical challenges of integrating AI into records management systems. These challenges include issues related to data privacy, algorithmic bias, substantial infrastructure and

implementation costs, potential disruptions to the workforce, and ethical concerns surrounding transparency and accountability (Raji et.al 2020; Elsawy 2026; Alaoui 2025; Boukerzaza 2024; Twinomurinzi & Gumbo 2025). Therefore, organisations intending to implement AI solutions in records management should not ignore these critical challenges.

While AI-powered services are prevalent in various facets of human life worldwide, adoption rates differ between affluent and emerging nations (Ade-Ibijola & Okonkwo 2023). Well-off nations like Germany, China, and the United States continue to be at the vanguard of global AI applications. This progress in AI can be attributed to their strong economies, advanced technological infrastructure, and significant investments in research and development (Chin, Wong, Cham, Thong & Ling 2024; Demaidi 2023). In these core countries, AI is increasingly being utilised in various sectors, including manufacturing industries, finance, retail, education, and surveillance (Kshetri 2020). However, the utilisation of AI across the African continent is presently in an embryonic phase. According to Ade-Ibijola and Okonkwo (2023), this lag may be attributed to differing perspectives on AI, with some viewing it as a game-changer and others seeing it as a potential threat to their livelihoods and cultural identity. The assimilation of AI in Africa has the propensity to facilitate a digital economy, catalyse innovation, and sustainable growth (Ade-Ibijola &Okonkwo 2023).

In Africa, pioneering initiatives such as Data Science Africa (DSA), based in Kenya, are committed to bridging the gap by making AI solutions more accessible and affordable across the continent (Arakpogun, Elsahn, Olan & Elsahn 2021. Meanwhile, a number of African nations, such as Nigeria, Ghana, South Africa, Algeria, and Egypt, are driving innovation by setting up government agencies to formulate and implement national AI strategies (Arakpogun et al. 2021). Jaldi (2023) affirms that South Africa has paved the way in this regard. In 2020, the President of South Africa sought to position the nation as an active participant in the global 4IR by establishing the Presidential Commission on the Fourth Industrial Revolution (PC4IR). The PC4IR conceptualises AI as a potent instrument capable of markedly propelling national development (PC4IR 2020; Mashish 2023). This technological advancement may lead to improved productivity and efficiency, which, in turn, contributes to the social and economic advancement of the country. Additionally, it enables the nation to engage in partnerships with other emerging economies, thereby promoting international collaboration.

Furthermore, Mashish (2023) emphasises the South African government's efforts to promote the utilisation of AI, as evidenced by the establishment of various programmes designed to

accelerate its growth and integration into the country's economy. A notable example is the establishment of the Artificial Intelligence Institute of South Africa (AIISA) by the Department of Communications and Digital Technologies in 2022. This initiative brings together researchers, industry professionals, and policymakers to foster collaboration and innovation. Additionally, the Centre for Artificial Intelligence Research (CAIR), an initiative of the Department of Science and Innovation, facilitates knowledge sharing and innovation among experts from various disciplines to develop cutting-edge AI solutions. These initiatives demonstrate South Africa's growing interest in AI and its potential to drive economic growth, improve efficiency, and enhance competitiveness (Mashish 2023).

The incorporation of AI into South African government record-keeping systems can provide a potential solution to the challenges associated with insufficient storage and the management of rapidly increasing volumes of government records (Morobane 2021). However, the literature indicates that the adoption of AI technologies within records management in South Africa is confronted by a multitude of challenges. These obstacles include a deficiency in the technical proficiency of records management practitioners concerning AI tools (Idowu, Olatunji, Enamudu, Oladokun, & Nkiko 2026; Sikhakhane 2025). Additionally, there are significant inadequacies in the existing technological infrastructure (Flinders & Smalley 2024; Modiba, Ngulube, & Marutha 2022). The absence of comprehensive legislative and institutional policies further impedes progress in this domain (Malatji & Marutha 2025). Moreover, the high financial costs associated with the acquisition and implementation of AI technologies constitute a substantial barrier (Adekanye 2025). Overcoming these obstacles is essential for organisations such as the GDE to transform their records management practices through the adoption of AI technologies.

The GDE, like many other South African government entities, is struggling with inadequate storage facilities for records. This storage shortage leads to overcrowding of shelves, misplaced files, and potential destruction of records. The primary underlying cause of this predicament is ascribed to the inappropriate management of records, which is an epidemic across South African government entities (Bakare, Abioye & Issa 2016; Harun, Yatin, Syahirah, Norolazmi, Mahathir, Ahmad & Kamal 2018). As a result, finding and retrieving records takes a long time (Kamble & Trivedi 2023). There are no initiatives, such as digitalisation or other strategies, to address space constraints within the department. This status quo not only hampers efficient record management but also jeopardises the security and accessibility of the records.

The GDE has dedicated substantial efforts to enhance its records management system. These efforts include training GDE employees in record safeguarding, compliance with records management policy, and implementing SharePoint as a backup and tracking tool. Nevertheless, the lack of adequate resources continues to hinder the full realisation of these efforts, posing ongoing challenges in maintaining and supporting these systems effectively.

The adoption and use of AI can help bridge this gap by providing models that can digitise all GDE records and securely transfer them to cloud-based storage. This facilitates rapid access to records and ensures their secure storage within cloud-based infrastructures. Furthermore, cloud-based storage solutions provide improved preservation of digital records by safeguarding them against obsolescence, corruption, and degradation (Matolib 2025). This enhances the durability of digital preservation efforts, ensuring that digital content remains accessible to user communities over extended periods and across future generations. Cloud storage not only serves as a repository for these records but also provides comprehensive security protocols and guarantees efficient retrieval when required. Thus, the purpose of this study was to investigate the adoption of AI to advance records management practices at the GDE. The next section provides a detailed contextual background for this study.

1.2 CONTEXT OF THE STUDY

The GDE was launched in 1994 to take over the education department of the dissolved Transvaal Province. The GDE is dedicated to delivering high-quality education to students throughout the Gauteng Province of South Africa. Its responsibilities include managing the operations of public schools and executing policies and strategies to ensure equal educational opportunities for all learners (GDE Annual Report 2018; GDE Annual Report 2019; GDE Annual Report 2020; GDE Annual Report 2021; GDE Annual Report 2022; GDE Annual Report 2023). The department supervises over 2,000 public schools and employs more than 70,000 teachers and administrative personnel (GDE Annual Report 2022/2023).

The GDE provides education to all students in the Gauteng area, as outlined in South Africa's Constitution. Consequently, the GDE aims to ensure that every learner in Gauteng excels academically and graduates from GDE schools equipped with the knowledge, skills, and qualifications necessary to maximise their chances of success in adulthood (GDE Annual Report 2018; GDE Annual Report 2019; GDE Annual Report 2020; GDE Annual Report 2021; GDE Annual Report 2022; GDE Annual Report 2023). Additionally, to fulfil its constitutional obligations, the department implements a variety of educational programmes, including Early

Childhood Development, Public Ordinary Schools, Independent Schools, and provisions for Learners with Special Education Needs (Annual Report 2022/2023).

1.2.1 The GDE district offices and functions

The GDE operates 15 district offices across the Gauteng province, with its central head office located in the Johannesburg CBD. The primary objective of the GDE district offices is to enhance the efficiency of service delivery to schools, thereby ensuring the provision of quality education for all learners within the province (Policy on the Organisation, Roles, and Responsibilities of Education Districts 2018). The head office oversees the functions of the district offices, which are organised according to the four regions of Gauteng: Johannesburg, Tshwane, Ekurhuleni, and the Sedibeng region. Figure 1.1 presents GDE district offices according to regions.

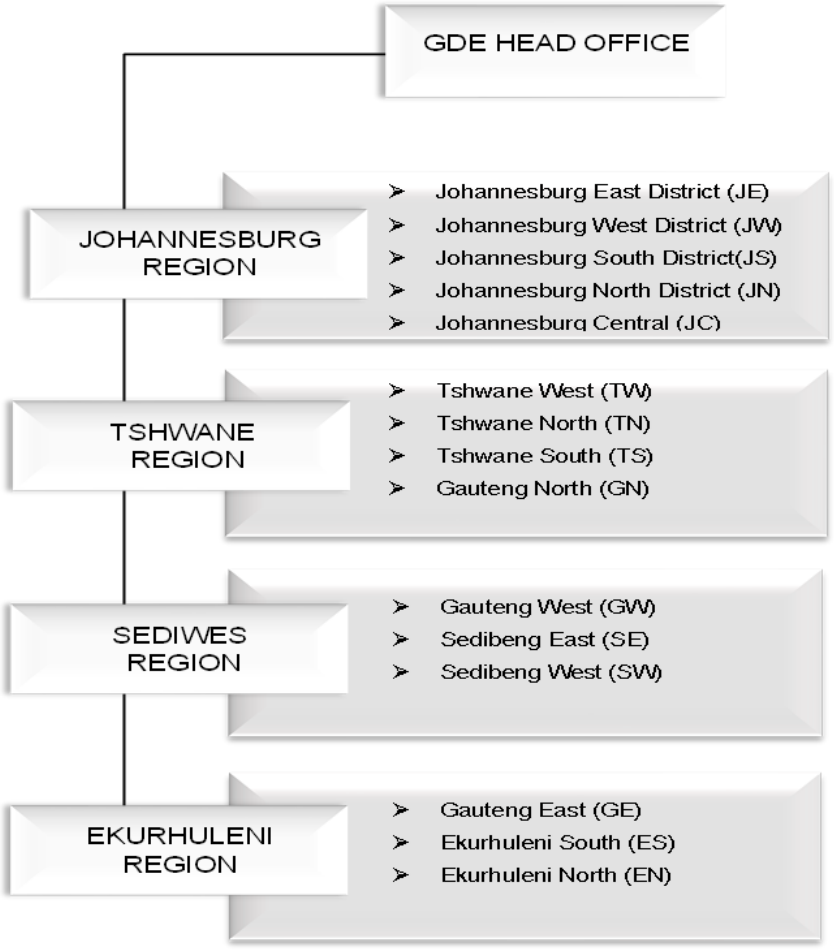


Figure 1.1: GDE district offices per region

(Source: Researcher 2025)

1.2.2 Records management at the GDE

The GDE routinely produces a significant volume of records each day, encompassing both traditional and digital formats. These records include administrative transactions, personal records, meeting minutes, reports, financial transactions, and legal materials (Mureebe & Lwanga 2023; Ngezana & Muchaonyerwa 2020). These records are essential, as they provide critical evidence of the department's activities, decisions, and transactions (Mosweu & Bwalya 2022; Matlala, Ncube & Parbanath 2022). Upon the acquisition of these records, records management professionals perform an authentication process to ensure that they align with the stated contents before they are entered into the record book. Subsequently, the records are classified according to the GDE file plan. To effectively manage the vast collection of physical records, the GDE uses registry offices located within various district offices. These specialised facilities are dedicated to the meticulous handling of records management activities, ensuring that records are organised and accessible by authorised personnel when required (Harun et al. 2018; Tintswalo, Mazenda, Masiya & Shava 2022).

The registries are frequently closed, and access remains restricted to records management practitioners. Restricting permission to only records practitioners reduces the danger of breaches and information leaks (Ajibola, Olatunji & Oduroye 2020; Taharudin & Izhar 2018). However, due to space constraints, other records are stored in boxes outside the registries, which poses a security risk because they can be accessed without authorisation.

The GDE currently uses SharePoint to manage electronic records. SharePoint is an internet-based collaboration and document management system that aids the GDE district offices in effectively storing, organising, sharing, and accessing information from any device connected to the internet (Wolfe 2023; Khumalo & Mearns 2019; Elantis Solutions Inc. 2023). SharePoint assists records management practitioners in locating files stored in physical filing systems. Additionally, district offices' records custodians are consistently encouraged to use SharePoint, as it serves as a backup for records as well as a tool for records tracking (Wolfe 2023). The GDE records practitioners are encouraged to capture file transactions in both physical record books and the SharePoint platform when clients request access to specific records. This dual recording approach ensures the maintenance of a comprehensive trail of record movements, thereby enhancing the ability to track records, especially in instances where traditional record books may be lost or become inaccessible. Table 1 delineates the GDE records management process.

Table 1.1: GDE records management process

Task	***Description***
Records creation/ receipt	The department dispatches records generated from business activities to the records offices, where records management practitioners receive them. Upon receipt, the practitioners verify whether the content corresponds with the assigned labels. Following this verification, the records are manually entered into the records book.
Records classification	Following the receipt and capture of records by the records management practitioners, the records are classified in accordance with the approved GDE file plan. The systematic classification of records ensures that the records can be easily identified or accessed when required.
Records storage	GDE records are securely maintained within the registry office, which is designed to ensure the confidentiality and integrity of sensitive information. Access to the registry office is strictly controlled – only authorised personnel are permitted entry. This restricted access serves to safeguard the records and uphold the integrity of the information contained therein.
Records maintenance	The maintenance of both physical and digital records is essential to ensure that they remain in good condition. Currently, the GDE lacks essential practices such as fumigation to prevent pest infestations, temperature and humidity control to mitigate the risks of degradation, and proper handling procedures to minimise physical damage. The same concerns apply to digital records, which also suffer from inadequate maintenance protocols. Without proper measures in place to ensure their preservation, the accessibility and integrity of digital files are similarly threatened.
Records access	GDE records may be requested by any authorised staff member through email, telephone, or in person. However, personal records, such as individual files, are not accessible to anyone, including the owners of such files. Once documents are submitted to the registry, individuals are not permitted to directly request their own personal files; access is exclusively granted to human resources personnel. This

	policy is implemented to restrict access and prevent the loss of files and the potential for missing information.
Records retrieval	When a request for files is made, the records practitioners employ either the Persal number or the identity number to locate the corresponding file within the SharePoint system. Once the location of the records is identified, practitioners proceed to search for the records on the designated shelves.
Records disposal	According to the GDE records management policy, the disposal of any records is strictly prohibited without prior authorisation from the Head of Department (HOD). The GDE registry offices are responsible for the management of active files; however, once these files become inactive, they are transferred to an alternate storage facility. After 20 years, these inactive files are either disposed of or transferred to the National Archives for long-term preservation.

(Source: Researcher 2025)

In an attempt to enhance the state of records management within the GDE, the head office has launched a district-by-district training programme aimed at equipping records management staff with an understanding of the statutory framework guiding records management and imparting strategies for effectively safeguarding records.

This proactive approach reflects the profound commitment and enthusiasm of the GDE in enhancing the efficient management of records within the organisation. However, the GDE continues to grapple with challenges in effectively managing the growing volume of records generated daily, despite numerous interventions. In view of these persistent challenges, this study examined the adoption of AI to enhance records management practices at the GDE.

1.3 PROBLEM STATEMENT

According to NARSSA (2006), government agencies in South Africa are legally compelled to abide by the regulations governing effective records management. This is because well-managed records are imperative for the successful running of any organisation, as they ensure that important information is accurately documented, easily accessible, and securely preserved (International Records Management Trust 1999). However, despite the NARSSA requirement,

poor records management remains a well-documented issue in the country, as noted by scholars such as Makgahlela and Nsibirwa (2021), Tintswalo et al. (2022), and Ngoepe (2016).

The GDE is among many government agencies struggling with insufficient capacity to store the growing number of records generated daily due to ineffective records management. Registry shelves are overloaded with files to the extent that some records are stored in boxes (Ngoepe & Van der Walt 2010). This situation has created substantial challenges in retrieving essential records when required, leading to delays in decision-making and compliance risks, and negatively impacting service delivery (Bakare et al. 2016; Schellnack-Kelly 2013). Insufficient records capacity not only hinders records retrieval but also increases the risk of misplaced files, unintended destruction of records, and unauthorised access (Bakare et al. 2016). The disarray of records increases the likelihood of sensitive information falling into the wrong hands, endangering the security and authenticity of records (Ngoepe 2016).

Furthermore, alongside the inadequate storage infrastructure for GDE records, the GDE storage facility is also deficient in resources for monitoring environment-related factors such as humidity levels and temperature (Tuyisenge 2018). Effective maintenance of records necessitates a comprehensive strategy that involves stabilising moisture levels with humidity controllers, cooling devices to regulate temperature changes, lighting that is suitable to reduce exposure to harmful UV rays, closed-circuit television (CCTV) systems, and strict access restrictions for unauthorised individuals in the storage areas (Pitsonyane & Mnjama 2022).

Insufficient records storage is not an isolated problem unique to the GDE but represents a common challenge confronting many government entities. According to Pum and Sok (2024), this issue largely arises from the inability of conventional storage methods to effectively manage the exponential increase in records produced by governmental agencies. Likewise, Shehu, Ogbonna, and Obim (2025) reveal that numerous government record-keeping systems are unable to effectively manage the high influx of records generated daily.

Limited storage capacity and inadequate facilities reduce the lifespan of records and can lead to breaches of confidentiality due to unrestricted access (Chacha, Kashaija, Ngudungi & Dutu 2022). Improper storage and preservation practices compromise the security and longevity of records, thereby impeding efficient retrieval and service delivery. Kuyela, Imasiku, Chisale, Ntalasha, Muchinga & Ndalameta-Theo 2026). These insights underscore the urgent need to address record storage deficiencies at the GDE. Such deficiencies undermine the fundamental purpose of records management, which is to protect and preserve records (Chacha et al. 2022).

Kumar (2024) underscores that incorporating AI and ML approaches can greatly enhance records management by streamlining storage, speeding up data retrieval, improving data compression, and bolstering security protocols. By adopting these advanced technologies, organisations such as GDE can maximise the potential of their data, ensuring effective storage, retrieval, and better decision-making. This, in turn, results in better service delivery and adherence to records management regulations.

A substantial body of research has addressed the adoption of AI in records management, with key contributions from scholars such as Modiba (2022), Mathophe (2024), Muchaonyerwa and Ndlovu (2025), Modiba, Ngoepe, and Ngulube (2019), Tsabedze (2023), Boukerzaza (2024), and Aloysius, Aloysius, and Emah (2026). Nonetheless, despite these scholarly efforts, there remains a notable gap in understanding the practical aspects of AI adoption within government sectors for effective records management, especially in the era of the 5IR. This gap is even more pronounced within the South African government, where current understanding of AI's role in records management remains largely theoretical, with limited opportunities for hands-on application and real-world integration (Elsawy 2026). This study bridges this gap by examining the factors influencing AI adoption at the GDE and by proposing a framework to facilitate the adoption and utilisation of AI technologies within the department. The proposed framework and the study's findings will also benefit other government entities. Furthermore, the insights generated from this research will make a substantial contribution to the academic discourse by providing actionable guidelines and practical strategies for government agencies, such as the GDE, to enhance their records management practices through AI-driven solutions.

1.4 PURPOSE OF THE STUDY

The purpose of this study was to investigate the adoption of AI to enhance records management practices at the GDE in South Africa.

1.4.1 Objectives of the study

According to Ryan (2022), the objectives of a study refer to the specific goals or targets that researchers set out to achieve. The objectives outlined in this study provided a clear understanding of the researchers' intended outcomes.

The objectives of this study were:

- To analyse legislative and policy frameworks regulating AI and records management practice at the GDE in South Africa.
- To establish the perceptions of records management practitioners regarding the utilisation of AI for managing records at the GDE in South Africa.
- To assess the skills required for records management practitioners to manage records using AI to enhance records management practices at the GDE in South Africa.
- To assess the infrastructure readiness to manage records using AI at the GDE.
- To identify the records management activities that can be performed by AI technologies at the GDE in South Africa.
- To recommend a framework to adopt AI to enhance records management at the GDE in South Africa.

1.4.2 Research questions

This study sought to answer the following questions:

- What legislative and policy frameworks govern AI in records management at the GDE in South Africa?
- What are the perceptions of the records management practitioners regarding the utilisation of AI to enhance records management practices at the GDE in South Africa?
- Which skills are required for records management practitioners to manage records using AI technologies to enhance records management practices at the GDE in South Africa?
- Which infrastructure is required to manage records using AI at the GDE?
- Which records management practices can be effectively performed by AI technologies at the GDE in South Africa?

1.5 RESEARCH DASHBOARD

A dashboard is a reporting tool that gathers and presents data and key metrics for effortless analysis by different users (Vázquez-Ingelmo, García-Holgado, García-Peñalvo & Therón 2021). Similarly, Ng'ong'Ocholla (2022) identified the research dashboard as a tool that simplifies and harmonises research elements in research proposals, theses, and dissertations. The research dashboard, in this study, is a table that delineates the research objectives and questions, as well as the theories, methodologies, and data collection methods employed throughout the research process.

Table 1.2: Research dashboard

RESEARCH OBJECTIVES	RESEARCH QUESTIONS	THEORIES/MODELS	RESEARCH METHODS	DATA COLLECTION METHODS
To analyse the legislative and policy framework regulating AI to enhance records management practices at the GDE in South Africa.	What legislative and policy frameworks govern AI in records management at the GDE in South Africa?	Records Continuum Model (create, capture, organise, and pluralise)	Quantitative and qualitative (descriptive, interpretive, and analytic)	Document review
To establish the user perception of records management practitioners regarding the utilisation of AI for managing records at the GDE in South Africa.	What are the perceptions of the records management practitioners regarding the utilisation of AI to enhance records management practices at the GDE in South Africa?	TAM (user perception concept)	Quantitative and qualitative (descriptive, interpretive, and analytic)	Questionnaires and interviews
To identify the skills required for records management practitioners to manage records using AI to enhance records management	Which skills are required for records management practitioners to manage records using AI technologies to	DTM (people's skills concept)	Quantitative and qualitative (descriptive, interpretive, and analytic)	Questionnaires and interviews

practices at the GDE in South Africa.	enhance records management practices at the GDE in South Africa?			
To identify infrastructure readiness to manage records using AI at the GDE.	Which infrastructure is required to manage records using AI at the GDE?	DTM (technological infrastructure)	Quantitative and qualitative (descriptive, interpretive, and analytic)	Questionnaires and interviews
To identify the records management practices that AI technologies can perform at the GDE in South Africa.	Which records management practices can be effectively performed by AI technologies at the GDE in South Africa?	Records Continuum Model (create, capture, organise, and pluralise)	Quantitative and qualitative (descriptive, interpretive, and analytic)	Questionnaires and interviews

(Source: Researcher 2025)

1.6 JUSTIFICATION OF THE STUDY

The justification of research involves providing a well-reasoned and logically sound explanation for the benefits of conducting a research endeavour (Akanle & Shittu 2020). In view of this, the application of AI at the GDE can significantly mitigate the issues arising from limited physical space for record storage, while simultaneously enhancing records management processes (Ngoepe & Van der Walt 2010; Maina 2022; Modiba 2021). This study has considerable significance, as it endeavours to enhance the management and retrieval of GDE records upon successful implementation.

The findings of this study substantiate the formulation of regulatory guidelines that facilitate the responsible incorporation of AI technologies in records management and policymaking. By

enlightening policymakers on the potential benefits and applications of AI, this research aimed to enable them to craft informed policies that promote the ethical utilisation of this technology.

The findings and recommendations of this study will significantly benefit GDE and other public records management practitioners by enhancing their understanding of AI technologies in records management. This knowledge will enable practitioners to develop the necessary skills to effectively utilise AI tools, leading to improved efficiency and accuracy in records management processes. Additionally, the insights gained from this research can inform higher education institutions across South Africa, guiding the development of curricula that prepare future professionals with the essential competencies for an AI-driven world.

Moreover, this research is in alignment with the South African government's strategic initiatives aimed at leveraging contemporary technologies to elevate the national economy. The South African Artificial Intelligence Plan 2024 highlights the pressing need for comprehensive research into the impact of AI. While the initiative concentrates on various sectors of the economy, this study uniquely contributes by illustrating how AI technologies can enhance the domain of records management within governmental sectors.

The proposed framework developed by this study guides the GDE on how to harness the synergistic potential of AI technologies and human intelligence, aiming to optimise record management practices through the strategic deployment and implementation of a collaborative approach. Recent studies found that recordkeeping within government entities is in disarray (Ngoepe & Van der Walt 2010; Schellnack-Kelly 2013; Mathope 2022). This situation has been widely documented and has raised concerns regarding the effective management of important information within these organisations. Therefore, the framework of this study can be advantageous for other governmental entities that are facing similar records management challenges as the GDE.

1.7 SCOPE AND DELIMITATION OF THE STUDY

According to George (2023), the scope and delimitations in research refer to the guidelines that outline the parameters of the investigation and express the intentions of the study. Okurut (2022) and Caballera (2021) assert that the scope and delimitations of the study determine the bounds within which the investigation will be conducted. In this regard, this study was centred on GDE records registries, which include the office and 15 district offices of the GDE.

The study specifically focused on key personnel within the records management section, including the deputy director, assistant director, chief registry clerks, senior registry clerks, and IT officials. The researcher posited that these individuals' insights and expertise would yield essential perspectives on the implementation of AI. Conversely, personnel from other divisions of the GDE who did not operate within the registry office would be ill-equipped to comprehend the intricate processes and procedures associated with records management.

Consequently, this study was confined to the Gauteng province, focusing on GDE precincts. Within the GDE, the study particularly focused on the district registry offices. The rationale behind selecting this restricted geographic area was to offer an extensive and focused analysis of the implementation of AI technology within a clearly defined province, department, and section (Bhosale 2024). In terms of duration, the study was carried out over two years, from April 2024 to April 2026. This timeframe was selected to allow for comprehensive data collection, analysis, and reporting within a reasonable timeframe. By setting a specific study duration, the researcher remained focused and ensured the timely completion of objectives and deliverables (Caballera 2021). Additionally, this study opted for a mixed-methods approach, integrating surveys, interviews, and the document review technique to gather data. The rationale for employing this methodology was to acquire a thorough understanding of GDE employees' perceptions, experiences, and obstacles related to the usage of AI in records management. By virtue of this approach, the investigation was able to transcend the limitations inherent in single-methodological designs, thereby providing an empirically grounded and theoretically informed understanding of the research questions under investigation.

Furthermore, this investigation merged technology adoption theories such as the TAM and the DTM, due to the absence of a singular theory in studies pertaining to AI adoption in records management. Through this integration, the researcher believes that the TAM and the DTM can offer a better understanding of AI adoption in records management. Furthermore, the records management theory, namely the records continuum, was incorporated to develop a conceptual framework. Through the amalgamation of these varied theoretical perspectives, this research aimed to examine significant variables that could influence the implementation of AI within the records management system of the GDE.

This study was centred exclusively on the practical use of AI technologies in records management processes within the GDE registry offices, excluding other sections or units within the GDE. This focus was essential to guarantee that the research outcomes are pertinent and

applicable to the particular section within the GDE (Theofanidis & Fountouki 2019). Furthermore, the results and recommendations of the investigation pertained specifically to GDE records management and may not apply to other educational institutions or organisations outside this context unless they encounter similar challenges as those faced by the GDE.

1.8 DEFINITION OF CONCEPTS

This section provides an overview of the fundamental concepts and terminology used throughout this study.

1.8.1 Artificial intelligence

AI is a vast and heterogeneous branch of computer science that strives to develop intelligent robots that think and learn like humans (Khanfar, Kiani Mavi, Iranmanesh & Gengatharen 2026). This cutting-edge technology has resulted in a broad spectrum of innovative applications, notably chatbots, smart spam-detecting email filters, virtual assistants like Siri and Alexa, and self-driving cars (Zouhaier 2022; Mardiati, Aisyah, Grataridarga & Wulandari 2023). Rolan et al. (2019) posit that AI systems are digital platforms that automate or support tasks traditionally associated with human cognition. Davenport and Kalakota (2019) argue that AI cannot be considered a separate technology, but rather a convergence of multiple technologies that collectively have far-reaching implications across various industries and sectors. In this study, AI refers to the synergistic integration of various computer systems and an array of technologies, notably ML, NLP, DL, and neural networks, to enhance records management practices by enabling automation, intelligent data processing, and improved information retrieval.

1.8.2 Robotics

Lynch and Park (2017) define robotics as a discipline related to technology that includes the design, manufacture, operation, and use of robots. Robotics draws upon various technological areas such as mechanical engineering, electrical engineering, computer science, sensors, and AI (Dabas 2026). Combining robotics with AI results in the establishment of intelligent automatons that can learn and perform complex tasks like sorting, digitisation, and classification of records (Madakam, Holmukhe & Jaiswal 2019). The amalgamation of AI and robotics presents a paradigmatic opportunity for organisations to reengineer their record

management systems, resulting in major improvements in operational efficacy and compliance with records management regulations (Radke, Dang & Tan 2020).

1.8.3 Collaborative robots

Cobots, often referred to as collaborative robots, are specialised robotic systems engineered to operate alongside human workers (Javaid, Haleem, Singh, Rab, & Suman 2022). According to George and George (2020), cobots refer to robots that are designed to enhance production automation safely and cost-effectively by collaborating with human workers. Castillo, Ortiz, Velásquez and Saavedra (2021) opine that the integration of humans and robots working closely together within a shared workspace represents an innovative concept within the setting of the 5IR. In the context of this study, cobots are defined as machines equipped with sensors and advanced programming that enable them to safely interact with human employees to digitise, sort, label, and classify records, improving efficiency, accuracy, and compliance.

1.8.4 Fifth Industrial Revolution

The 5IR is a transformative change that emphasises the importance of human workers as vital partners in the workplace, shifting focus away from a sole dependence on machines and automation (Coelhoa, Bessaa, Landeckb & Silvaa 2023). According to Nahavandi (2019), the 5IR is characterised by the integration of advanced technologies into the traditional workplace, allowing for collaboration between humans and machines.

This integration not only enhances productivity and efficiency but also creates a more dynamic and flexible work environment. This study conceptualises the 5IR as an integration of advanced technologies and digital solutions within organisational settings for intelligent records management alongside human employees. The focus of this research is on the 5IR, which, in the context of this study, is characterised by the collaboration between records management practitioners and AI technologies.

1.8.5 Records management

Records management involves identifying, categorising, securing, retrieving, and disposing of or archiving records to ensure their authenticity, accessibility, and confidentiality (Yusuf & Adekoya 2021). According to Kirvan (2023), records management is the supervision and governance of any type of records. Mathope (2022) denotes that records serve as indispensable tools for organisations to track and document their activities. However, as noted by Claude (2024), the integrity and usefulness of records can be compromised without adequate

management, potentially resulting in information loss and operational difficulties for the institution. Mosweu and Rakemane (2020) assert that proper records management is critical for fostering openness and accountability within organisations, serving as an essential pillar of good governance. In this study, records management refers to the set of strategies and actions undertaken by records practitioners to ensure that records are properly preserved, securely stored, and readily accessible whenever needed.

1.9 CONCEPTUAL FRAMEWORK

According to Hughes, Davis and Imenda (2019), a conceptual framework is commonly viewed as a collection of concepts, assumptions, beliefs, expectations, and theories that underpin and inform a research study. A conceptual framework describes how a researcher understands the relevant components or variables in their study, as well as the relationships between them (Luft, Jeong, Idsardi & Gardner 2022). In other words, it reflects the researcher's understanding of the approach to investigating the research problem (Adom, Hussein & Agyem 2018). In alignment with this understanding, the researcher highlighted several key concepts from the existing literature that are deemed pertinent to examining the adoption of AI in records management at the GDE. These concepts encompass the records continuum, the policy and legislative framework, the Technology Acceptance Model, and digital transformation.

1.10 RESEARCH METHODOLOGY

Research methodology serves as a systematic framework for outlining and defining the research project (Swarooprani 2022). Patel and Patel (2019) opine that research methodology not only thoroughly defines all the different steps researchers frequently undertake while investigating their research problem but also provides the underlying justification for those procedures. The methodology section of a research paper, thesis, or dissertation is crucial as it provides a comprehensive account of the research design, data collection techniques, and analytical approaches employed. This detailed exposition allows readers to critically appraise the reliability and validity of the findings, and to evaluate the overall rigour of the study concerning the dissertation topic (McCombs & George 2022; Pamplona 2022). The methodology of this study was based on a pragmatic worldview, which included a pluralistic ontological and pragmatic epistemological perspective. This study employed a mixed-methods approach with a convergent design and parallel sampling approaches. Data were gathered using a combination of interviews, questionnaires, and document analysis. Chapter 4 provides a full overview of the research methodology of this study.

1.11 ORGANISATION OF THE DISSERTATION

The outline of the dissertation is as follows:

Chapter 1: Introduction to the study

This chapter sets the stage for the research by providing a comprehensive overview of the study's foundation. It delves into the background and introduction, clearly defining the statement of the problem, outlining the study's objectives, and posing research questions. The chapter also establishes the justification for the study, specifies its scope, and clarifies key terminology.

Chapter 2: Literature review and conceptual framework

This chapter provides a synthesis of the existing literature on the application of AI to manage records, incorporating key findings from previous studies and conceptual frameworks that underpin this research.

Chapter 3: Research methodology

This chapter outlines the methodology employed in the study, encompassing a research paradigm, the research design and scope of the study, the selection of participants, the strategies used to collect data, the methods of data analysis, and the ethical principles that guided the research process.

Chapter 4: Presentation of the findings

The findings of the study are presented in this chapter.

Chapter 5: Interpretation and discussion of the research findings

In this section, the researcher interprets and discusses the findings of the study.

Chapter 6: Summary, conclusions, and recommendations of the study

This chapter presents a comprehensive summary of the research study, highlighting the key findings and drawing conclusions. Additionally, the chapter provides recommendations for future research and practical applications.

1.12 SUMMARY OF THE CHAPTER

In this chapter, a comprehensive and cohesive overview of the study was presented, encompassing a discussion of the study's foundational background and context, the articulation

of the problem statement, and the delineation of the research purpose, objectives, and questions. Additionally, the chapter elaborated on the justification of the study, alongside the scope and delimitations of the study. Furthermore, key concepts were defined, the research methodology was articulated, and the structure of the dissertation was outlined. The researcher provided a clear description of the current records management process of the GDE and identified the underlying issue that prompted this investigation. The following chapter presents a review of the existing literature concerning the application of AI in records management.

CHAPTER 2: CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

2.1 INTRODUCTION

This chapter provides a review of the current academic literature on the utilisation of AI in records management. A literature review is the process of examining and analysing previously published materials related to a specific academic subject (Snyder 2019). Ebidor and Ikhide (2024) assert that drawing on and linking to pre-existing knowledge constitutes a vital methodological approach for identifying areas of deficiency within the literature and suggesting prospective directions for future research. Therefore, scholars engage in literature reviews to uncover relevant theories, methodological frameworks, and gaps existing within the current body of research (McCombes 2023). These reviews serve not only to enhance scholarly understanding but also to guide future studies in a manner that is informed and cogent. Researchers should therefore prioritise literature that is aligned with their specific research problem. Failure to establish this alignment may result in an inadequate literature review, which could lead to misinterpretations and biases concerning the relevant topic (Chigbu, Atiku & Du Plessis 2023). According to Creswell and Creswell (2018), a literature review serves to delineate the boundaries of research by guiding the investigator in identifying and focusing on a specific area of the study. An extensive literature review, irrespective of the format or thematic direction it may adopt, is distinguished by the author's meticulous engagement in the in-depth analysis and critical appraisal of significant information pertinent to the field (Chigbu et al. 2023).

2.2 THE IMPORTANCE AND THE PURPOSE OF THE LITERATURE REVIEW

Mauer and Venecek (2022) claim that the literature review is crucial for substantially contributing to the accomplishment of the objectives of the study and highlights the researcher’s expertise in the applicable academic discourse. The core purpose of a literature review is to conduct a thorough review of academic works produced by qualified and accredited experts in the relevant field of study (Faryadi 2018). A comprehensive literature review plays a crucial role in the formulation of a conceptual framework or theoretical foundation that underpins a research endeavour. Additionally, it serves as a significant mechanism for tracking the evolution of a particular research topic throughout time (Ebidor & Ikhide 2024; Faryadi 2018). Moreover, the literature review serves the purpose of educating the researcher on the topic and enhancing their comprehension of the existing body of literature prior to formulating an argument or rationale (Arshed & Danson 2015). The process of

conducting a literature review not only fosters a comprehensive understanding of a specific topic but also locates the researcher's contributions within the established body of knowledge (University of South Carolina 2023).

2.2.1 Literature review process

A rigorously performed literature review serves as an essential bedrock for the evolution of knowledge and scholarly advancement (McCombes 2023). Undertaking a literature review necessitates a series of systematic steps to ensure a comprehensive and effective appraisal of the extant research pertinent to a specific topic (Golash-Boza 2022). Table 2.1 delineates a quintet of sequential steps that encapsulate the fundamental elements of the literature review process.

Table 2.1: Literature review map

	Literature review step	*Description*
Step 1	Search for relevant literature	When preparing a literature review, it is important to find relevant academic sources. Critically evaluate influential literature in your field and focus on current publications (Zvaita 2023; Arshed & Danson 2015). Sources may include scholarly books, peer-reviewed journal articles, conference proceedings, government reports, theses, media reports, and online resources.
Step 2	Evaluate and select sources	In the second phase, the researcher analyses sources, considering both supporting and opposing viewpoints. This involves understanding the strengths, weaknesses, and limitations present in the literature (Faryadi 2018).
Step 3	Identify themes, debates, and gaps	This phase requires a systematic approach to delineate the core elements in each principal section of the work. Specifically, this stage involves outlining (a) the main argument, (b) the supporting evidence, and (c) the key takeaway. After mapping these out, combine the main sections to ensure they do not overlap. This will help you move on to the writing stage (Mauer & Venecek 2022).

Step 4	Organise Your Review	This phase necessitates the organisation of the literature review in a coherent framework, typically structured either thematically or chronologically, to facilitate the clear and logical presentation of information (Dumay 2024).
Step 5	Write your literature review	Draw upon your notes to compose a detailed review that amalgamates your topic's crucial findings, arguments, and perspectives (Zvaita 2023).

(Source: Researcher 2025)

2.2.2 Referencing of sources

In the realm of academia, referencing functions as a systematic approach aimed at clarifying the sources of concepts, theoretical frameworks, quotations, and pertinent information necessary for the successful completion of academic tasks (Mejorada, Doong, Retorta, Curayag, Lonzon, Ederio & Calaca 2023). According to Zvaita (2023), referencing involves employing a consistent citation format to accurately credit the sources referenced in a literature review. Santini (2018) highlights the necessity for authors to provide proper attribution to the materials they cite in their writings, thereby preventing plagiarism. As noted by Divecha, Tullu, and Karande (2023), plagiarism is a substantial concern in academia and ranks as one of the foremost reasons for the degradation of authors' academic integrity.

Proper citation practices can bolster arguments and enhance the scholarly validity of a research paper (Mejorada et al. 2023). Santini (2018) emphasises that effective referencing entails attentiveness to details, including the accuracy of pagination, the correct spelling of authors' names, and the factual correctness of relevant information discussed in the paper.

2.2.3 Literature review map

A literature map functions as a visual schema representing academic research on a designated topic, utilising diagrams and images for clarity (Dwivedi 2023). Its purpose is to discern interconnections and key themes within the literature, allowing for the assessment of how a new study enhances current scholarship without replicating prior investigations (Murugan 2020; Creswell & Creswell 2018). The practice of mapping ideas, arguments, and concepts in a literature review is a vital element for effectively organising and understanding the scope of the research (Bhosale 2022). Figure 2.1 depicts the literature of this study.

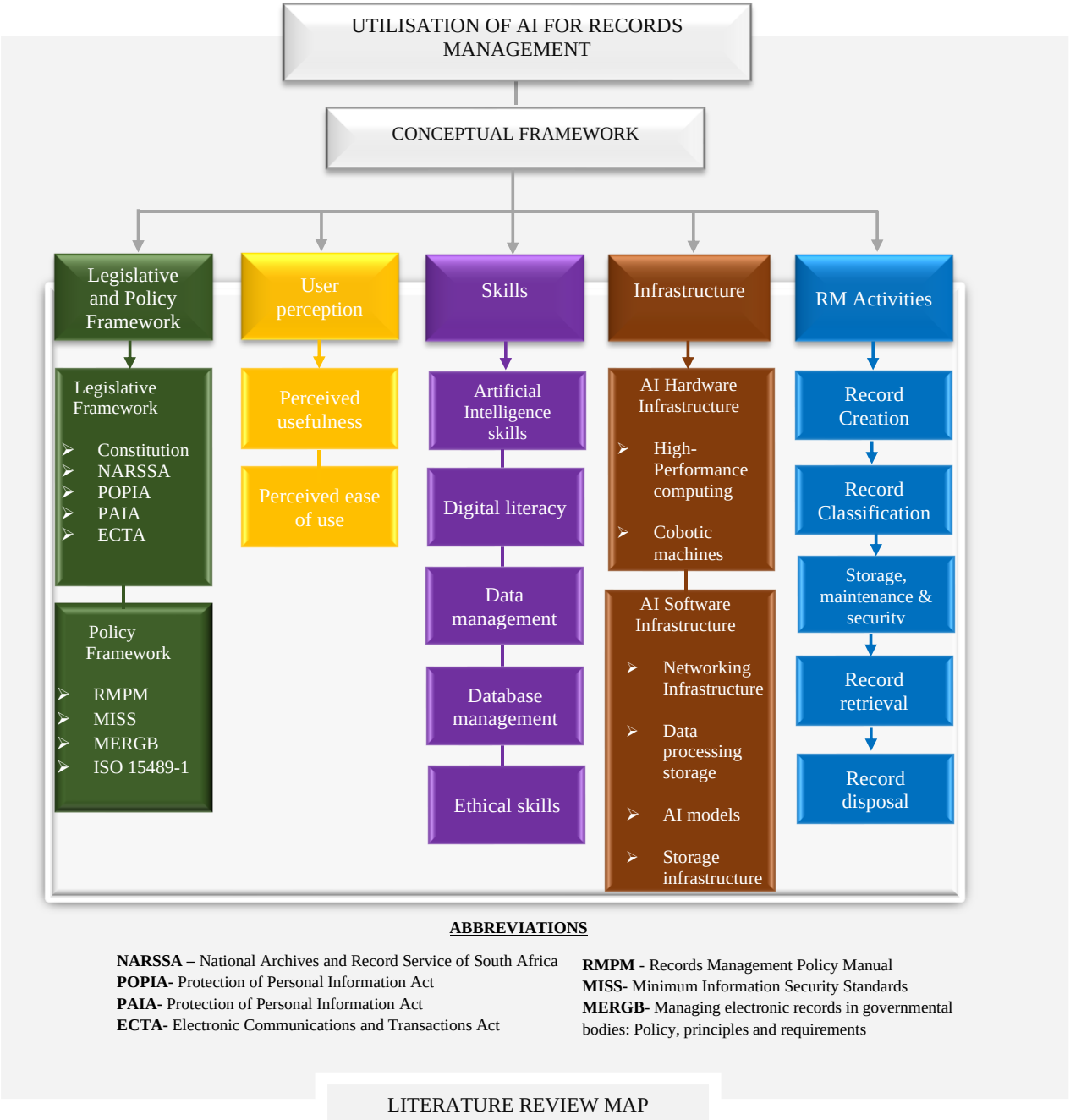


Figure 2.1: Literature review map

(Source: Researcher 2025)

2.3 CONCEPTUAL FRAMEWORK

In their study, Adom et al. (2018) characterise a conceptual framework as a fundamental structure that aids researchers in systematically structuring their investigation of a particular topic. The conceptual framework serves as a visual representation of the relationships between key concepts, providing a methodical way to organise and analyse intricate research ideas

(Mensah, Agyemang, Acquah, Babah & Dontoh 2020). Swaen and George (2022) highlight that the conceptual framework is employed in research to focus on specific ideas and connections relevant to the issue at hand, enabling researchers to tailor the framework to suit the distinct characteristics of their study.

Van der Waldt (2020) affirms that a well-developed conceptual framework is a significant structuring tool that acts as an outline for the research process. While a theoretical framework draws upon established theories that have been verified and endorsed by others in the discipline, a conceptual framework is based on the concepts or variables that are related to the topic of the study (Sreekumar 2023; Kivunja 2018). Ukwoma and Ngulube (2021) assert that a conceptual framework can be employed in interdisciplinary studies where there is no established theory to explain the research variables. In this study, a conceptual framework was used due to the interdisciplinary nature of the study. This study covered interdisciplinary fields, including computer science, information technology, and records management. Thus, the utilisation of a conceptual framework was crucial, as it facilitated the integration of concepts across these diverse fields, developing a thorough comprehension of the subject under investigation (Mensah et al. 2020).

Furthermore, this study used abductive conceptual frameworks to uncover novel insights and potential resolutions for enhancing records management procedures through AI technologies. As observed by Delve and Limpaecher (2023), abductive reasoning allows researchers to investigate and interpret data in a manner that fosters the discovery of new insights and potential solutions. Unlike deductive frameworks, which prioritise logical validity, and inductive frameworks, which emphasise empirical evidence, abductive frameworks are adept at managing uncertainty and complexity within research contexts (Caroprese, Zumpano & Bogaerts 2022; De Oliveira, Martins & Matsumoto 2018). Abductive conceptual frameworks aid the researcher in deciphering information, resulting in a deeper comprehension of the research problem and stimulating new insights in the area (Van der Waldt 2020). Moreover, abductive conceptual frameworks are useful in fields like AI and records management, where there is a need to constantly adapt to and evolve in response to changing technologies and practices.

This conceptual foundation of the study was based on a synthesis of three theoretical frameworks: the TAM (perceptions), the Digital Transformation Model (skills and infrastructure), and records management theory, the records continuum, as well as the policy

and legal framework that oversees records management activities. Figure 2.2 depicts the conceptual framework that will guide this investigation.

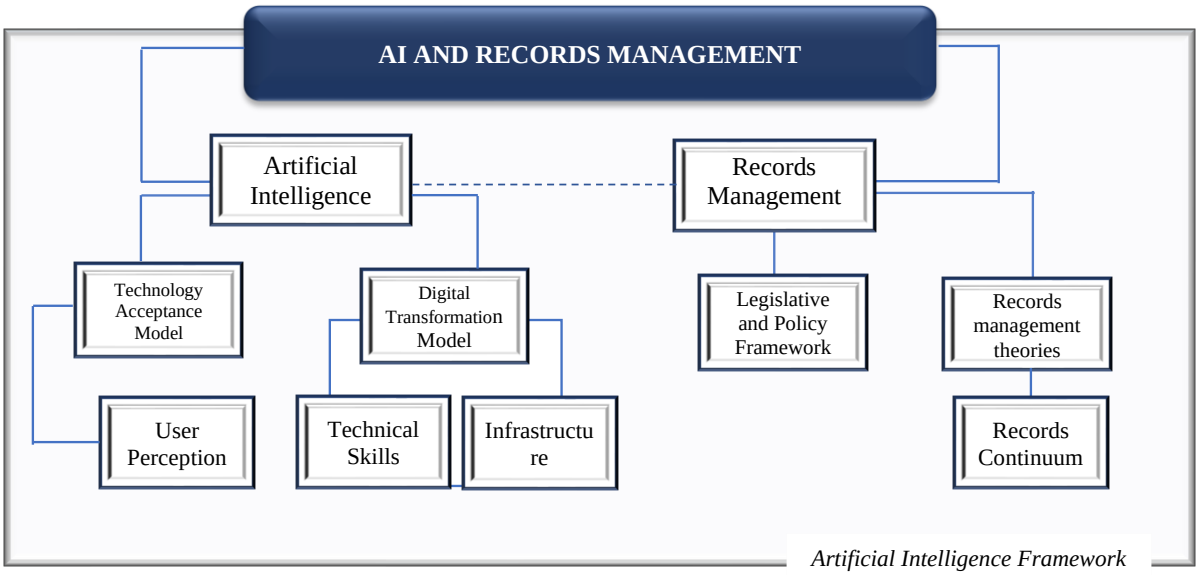


Figure 2.2*:* Conceptual framework

(Source: Researcher 2025)

2.3.1 The TAM

The TAM was introduced in 1986 and is predominantly attributed to the work of Fred Davis. As noted by Allen (2020), TAM serves as an effective framework for assessing consumer attitudes towards emerging technologies. Supporting this view, Marikyan and Papagiannidis (2023) emphasise that TAM serves as a reputable framework for gauging the acceptance and utilisation of cutting-edge technologies within organisations. This study used TAM based on its endorsement as a theoretical framework for technology adoption. According to TAM, the success of technology implementation is largely influenced by user perceptions. Additionally, the theoretical constructs of TAM provide a solid foundation for investigating the complex dynamics among individual perceptions, usability, and technological adoption (Hoang & Le Tan 2023). TAM identifies two key factors that significantly affect the likelihood of technology acceptance among potential users: perceived usefulness and perceived ease of use (Davis 1986). Perceived usefulness refers to an individual's belief that the application of a specific technology will enhance their work performance (Davis 1986). Conversely, perceived ease of use reflects the extent to which users perceive a system as being easy to operate. Understanding and addressing user perception is critical for efficient integration and successful application of

AI in records management. This study employed TAM to explore the perception of GDE employees concerning AI technologies before its official deployment.

2.3.2 Digital Transformation Model

The DTM was introduced by Verina and Titko in 2019. Bhaskar (2023) and Aras and Büyüközkan (2023) agree that the DTM entails the integration of technological innovations into every facet of an enterprise, leading to a significant shift in operations and value delivery to consumers. Tratkowska (2019) emphasises that the DTM underlines the vitality of harmonising three basic elements: people, processes, and technology. According to this model, the successful delivery of any project requires the effective coordination and synchronisation of these components. However, this study focused on the concept of skills and technological infrastructure. Skills are essential for the effective integration of new technologies in business. According to Bhaskar (2023), organisations must enhance employee skills to ensure successful technology implementation. Technological infrastructure encompasses the specialised hardware and software that provide essential resources for the efficient development, deployment, and utilisation of technology (Wohlfarth 2024). Therefore, this study adopted the concept of skills to evaluate the proficiency of records management professionals concerning the competencies necessary for the management of records through AI. Furthermore, the study adopted the concept of infrastructure to examine the readiness of the GDE infrastructure for managing records with the aid of AI technologies.

2.3.3 Legislative and policy framework

Adherence to legislative and policy frameworks is of the utmost importance for the successful management of records (Ngoepe & Saurombe 2016). According to Netshakhuma (2019), the formation of a robust legislative and policy framework is essential for guiding records management professionals in their efforts to handle records proficiently. Likewise, these frameworks are fundamental to ensuring the responsible and efficient implementation of AI technologies for records management. In South Africa, the framework governing the management of records is underpinned by various pieces of legislation and policies. These include the Constitution of the Republic of South Africa, adopted in 1996; the National Archives and Records Service of South Africa Act, No. 43 of 1996; the Promotion of Access to Information Act, No. 2 of 2000; the Protection of Personal Information Act, No. 4 of 2013; and the Electronic Communications and Transactions Act, enacted in 2002. The established policies in South Africa that govern records management include a records management policy

manual, managing electronic records in governmental bodies: policy, principles, requirements, minimum information security standards, and records management standard operation procedures. This investigation aimed to review the existing legislative and policy framework that governs records management and technology at the GDE, thereby determining the extent to which these regulations support the integration of AI.

2.3.4 Records management theories

The records lifecycle and the records continuum are two major theories in archival science that govern records management. The life-cycle theory promotes an orderly framework by adopting a systematic approach to record management (Matlala & Maphoto 2020). Nevertheless, scholars have contended that the life-cycle paradigm is predominantly effective for the administration of paper-based records, as it is perceived to be inadequate when applied to electronic records (Zawiyah & Chell 2000). In the digital age, electronic records pose unique challenges because of their evolving, interconnected characteristics and the requirement for continuous management and preservation of their context.

To overcome these issues, the Records Continuum Model was developed in Australia in the 1990s. This model offers a more comprehensive approach suited to the complexities of digital records, moving beyond the limitations of the linear lifecycle (Potter 2025). The continuum model views recordkeeping as a holistic and integrated process, where records are created, managed, and preserved simultaneously across multiple dimensions and timeframes (Hurley, McKemmish, Reed & Timbery 2024). This approach helps maintain the authenticity and accessibility of records and the relevance over time (Hessami 2022; Matlala & Maphoto 2020). The Records Continuum Model offers a theoretical framework essential for addressing the complexities and advancements related to digital records and the integration of AI, thereby promoting a more robust and flexible records management system.

2.3.4.1 Records Continuum Model

Frank Upward introduced the Records Continuum Model in the 1990s as a response to the pressing issues regarding preserving digital records in archival science. Kemoni (2008) underlines the value of the Records Continuum Model in providing a theoretical basis for tackling the intricate issues of maintaining paper-based and digital records. Matlala and Maphoto (2020) assert that the Records Continuum Model is crucial in navigating the complexities of recordkeeping in the digital age. Furthermore, the records continuum concept

conceptualises records as capable of moving across four dimensions rather than progressing in a linear direction (Karabinos 2015).

Hessami (2022) posits that the Records Continuum Model assumes a critical role towards assisting organisations to build and sustain fundamental records management functionality. These functionalities include ensuring accurate record creation, systematic classification, strategic disposal of redundant records, and secure digitisation. AI can significantly enhance the efficacy of the Records Continuum Model. AI-powered cobotic machines can digitise paper-based records accurately and expeditiously (Haupert 2024; Ripcord Company 2019). By implementing ML algorithms, organisations may efficiently classify records based on their content, following the organisation's file plan (Franks 2018). Moreover, AI can streamline information retrieval processes by efficiently processing large volumes of data to extract relevant information (Crown Records Management 2023). Additionally, AI models such as Google Gemini and ChatGPT can create/generate novel outputs based on input data given by users (University of Northern British Columbia 2024; Tsabedze 2023). AI can enhance the disposal of records by utilising ML algorithms and rule-based systems to monitor the record lifecycle, assessing when records should be disposed of based on predetermined criteria and conditions (Indepth Research Institute 2023). Figure 2.3 illustrates the Records Continuum Model.

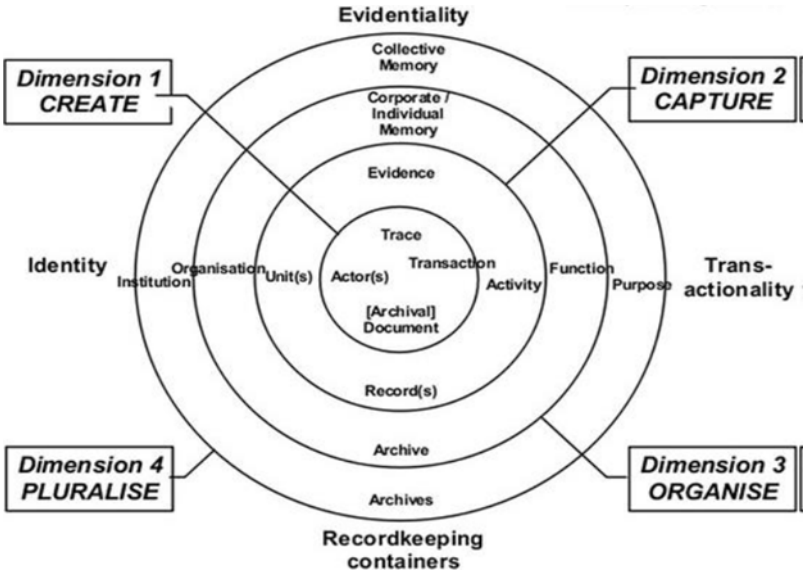


Figure 2.3*:* Records Continuum Model

(Source: Upward 1990)

2.3.5 Records management activities

Records management activities include the procedures and approaches used to create, classify, maintain, store, secure and dispose of records. Yusuf and Adekoya (2021) stress the need for records and information managers to thoroughly grasp how to effectively create, use, and store records in both manual and electronic formats as part of their daily operations. It is essential to correctly comprehend and apply records management practices to achieve optimal results. By doing so, records management can foster a culture of openness, accountability, and social cohesion, which is vital for effective governance and decision-making (Tintswalo et al. 2022; Masenya 2020). Furthermore, with adequate AI infrastructure, AI can enhance all records management practices by automation (Cole 2023). Automation is the use of technology to perform tasks that involve creating, capturing, classifying, storing, maintaining, and disposing of records with minimal human intervention (Ricoh 2023). With intelligent cobots, organisations can streamline the records management workflow, improve accessibility, ensure data integrity, and optimise the overall efficiency of record-keeping processes (InterPARES 2022; Mardiati et al. 2023).

2.4 LEGISLATIVE AND POLICY FRAMEWORK GOVERNING RECORDS MANAGEMENT IN SOUTH AFRICA

According to Ngoepe and Saurombe (2016), legislative and policy frameworks exert a significant influence on how records are managed. Marutha (2019) underscores that the implementation of relevant legal and policy standards in records management is essential for protecting privacy and confidentiality, as well as for preventing loss, alteration, and damage of records. Public entities in South Africa are mandated to adhere to various legal and policy frameworks pertaining to the proper governance of records. Malatji and Marutha (2023) emphasise that compliance with legal and policy frameworks is essential for effective records management; without these guidelines, recordkeeping processes may be compromised, leading to inadequate management of records throughout their life cycle. The lack of legal and policy standards highlights a notable lack of accountability and an inadequate awareness of records management protocols, implying that personnel may not be sufficiently educated about their duties related to recordkeeping (Makwae 2021; Katuu & Ngoepe 2015).

Appropriate legislative measures and policy frameworks are essential for the creation and administration of authentic, reliable, and usable records that can uphold governmental and business operations for an indefinite period (Tsabedze & Ngoepe 2021; Matlala, Ncube &

Parbanath 2022). Numerous countries have developed legislative frameworks to regulate and guide the management and retention of records generated through various functional activities. In South Africa, the Constitution of South Africa, enacted in 1996, serves as the foundational legal framework guiding all legislative structures in the country. As a result, the legal and regulatory aspects related to records management are fundamentally informed by this constitutional foundation.

2.4.1 Legislative frameworks governing records management in South Africa

The following is the legislative framework governing records management:

2.4.1.1 The Constitution of the Republic of South Africa

Chapter 2, section 32 of the Constitution, articulated in the Bill of Rights, asserts that individuals are granted the right to access information that is in the custody of state authorities and any additional information stored by other individuals, provided that such information is necessary for the enforcement or protection of their rights (Constitution of the Republic of South Africa 1996). This indicates that access to information is recognised as a constitutional right within the context of South Africa. The accessibility of records when required is contingent upon effective records management practices.

The constitutional framework of South Africa gives rise to various legislative instruments pertinent to records management, including the National Archives and Records Service of South Africa Act (NARRSA), the Protection of Personal Information Act, No. 4 of 2013 (POPIA), the Promotion of Access to Information Act (PAIA), and the Electronic Communications and Transactions Act (ECTA).

2.4.1.2 The National Archives and Records Services of South Africa Act

The NARSSA Act 43 of 1996 is a legislative framework in South Africa that governs the management and preservation of records and archives. According to NARSSA, South African governmental bodies are obligated to ensure proper management of records in all formats (Matlala & Ncube 2025). Netshakhuma (2018) underscores that the inception and evolution of NARSSA were driven by the conviction that this legislative framework would foster transparency and accountable governance. However, the literature identifies various shortcomings in NARSSA concerning its capability to support effective records management. These issues are compounded by the incorporation of information and communication technology (ICT) within organisations, leading to the generation of substantial quantities of

electronic records. Shibambu and Ngoepe (2020), Shekgola and Ngoepe (2024), and Mojapelo and Maleka (2023) concur that NARSSA is currently deficient in the requisite infrastructure to integrate digital records into its archival stewardship. South African legislative requirements stipulate that records must undergo an appraisal process, whereby those deemed to possess archival significance are to be transferred to either the National or Provincial Archives after 20 years. However, this procedural requirement is not consistently applied to digital records, primarily because NARSSA lacks the necessary infrastructure to effectively manage and incorporate digital records into its archival stewardship. Ngoepe and Saurombe (2016) argue that NARSSA has not completely ignored the management of digital records; rather, it provides a general framework that leaves the creation of specific guidelines to be determined through secondary legislation and normative documents. This viewpoint places the duty on organisations to implement their own electronic records management policies aligned with NARSSA guidelines to ensure effective management of their electronic records. Furthermore, this approach implies that organisations aiming to adopt 5IR technologies, such as AI for enhanced records management, must also undertake similar initiatives. Supporting this view, Modiba (2022a) underscores the necessity for organisations to draft and enact legislation that facilitates the effective application of AI and robotic technologies in records management, thereby enabling the provision of more efficient and technologically advanced records management services.

2.4.1.3 Protection of Personal Information Act

Chapter 2(14) of the Constitution of the Republic of South Africa (1996) establishes a legally enforceable right to privacy, safeguarding individuals against unwarranted intrusions by the state or other entities into their personal affairs and communications. The POPIA was legislated to enhance the safeguarding of personal information. The primary objective of the POPIA is to actualise the constitutional right to privacy by ensuring that personal information is protected during processing by responsible parties (POPIA 2013). Compliance with the POPIA is required for all sectors that collect, process, and store personal information.

According to the legislation, organisations are required to safeguard the integrity and confidentiality of personal data through appropriate measures. These measures should prevent any loss, damage, unauthorised destruction, or illegal access or processing of personal information (POPIA 2013). Consequently, organisations that handle personal records, like employee files, must restrict access to those who have a valid "need to know" for business

reasons. This practice ensures the accurate creation and upkeep of employee summary records (Makwae 2020). Staunton and De Stadler (2019) stress that the enforcement of the POPIA is continually compromised by the swift evolution of emerging technologies, which fundamentally transform how personal data is stored, processed, and transmitted.

The increase in identity theft, along with the improper handling and commercialisation of personal information in the digital realm, has complicated the management of digital personal records, thereby obstructing effective compliance with POPIA (Johnstone 2021). Furthermore, the emergence of technologies like AI and cloud computing in information systems has posed threats to the essential right to privacy (Gilani, Al-Matrooshi & Khan 2023). For instance, there are considerable concerns regarding the safeguarding of personal information on cloud platforms, and the increasing use of AI in surveillance technologies like facial recognition raises issues about privacy and the use of data without consent. The extensive use of these technologies calls for a detailed review and modification of the POPIA to ensure that privacy considerations are integrated into the development and design processes of these technologies (Jogwe 2021; Panagopoulou 2024).

Despite the obstacles, POPIA has transformed the landscape of information privacy within organisations by providing information regulators with the authority to pursue legal action against non-compliant entities (Makovhololo, Sekgweleo & Makovhololo 2019). As a result, many organisations are increasingly cautious about adhering to these regulations due to the potential repercussions they could encounter.

2.4.1.4 Promotion of Access to Information Act

The PAIA establishes the legal framework for fulfilling the right to access information, as enshrined in section 32 of the Constitution of the Republic of South Africa. The historical context of South Africa's apartheid system is marked by institutionalised violations of fundamental human rights, including the right to access information. Thus, the establishment of the right to access is aimed at fostering access and transparency (PAIA 2000). Access to public information is essential for citizens to remain informed, particularly since much of this information is controlled by the state and generated using public resources. Deleke (2016) notes that South Africa was the first nation in Africa, more than two decades ago, to acknowledge the right of access to information and to enact legislation through the PAIA to ensure the practical enforceability of this right. This legislative milestone underscores South Africa's commitment to transparency and accountability in governance. Nonetheless, Mojapelo (2024),

in his study titled "Strengthening Public Sector Records Management through the Information Regulator in South Africa," identified pervasive deficiencies in the implementation of PAIA in the public sector. He identifies inadequate records management as a key barrier, emphasising that access to information fundamentally depends on the proper management and availability of records. Poor records management impedes access, which ultimately undermines the purpose of the legislation. To ensure compliance with PAIA, organisational records must be managed efficiently, allowing for retrieval within a reasonable timeframe, as required by PAIA.

Additionally, Khumalo, Bhebhe and Mosweu (2016) state that there is a significant shortage of training and internal capabilities among professionals responsible for handling public requests. This underscores the necessity for skilled information officers to enhance access to information. Other obstacles to complying with POPIA include limited resources and systems to properly manage records and outdated laws and regulations governing records management (Nkwe 2020). Moreover, the South African History Archive (2019) contends that the PAIA restricts access to specific records, while the Constitution demands access to all information. This limitation can allow organisations to withhold information. Additionally, requests may be deemed refused if not answered within 30 days, enabling entities to ignore them without repercussions. Notwithstanding its limitations, the PAIA is frequently considered to be more advanced than comparable legislative frameworks in nations such as Zimbabwe, Botswana, and Nigeria (Khumalo et al. 2016; Osawe 2022).

Inadequate public access to information catalyses corruption by facilitating covert transactions that favour a select elite. For instance, in Nigeria, public institutions frequently respond to requests for information with outright denials or protracted delays, thereby exacerbating the opacity of governance and contributing to elevated levels of corruption (Madubuike-Ekwe & Mbadugha 2018). This scenario exemplifies how non-compliance with access to information legislation can profoundly influence corruption dynamics in South Africa and other contexts.

The literature highlights that successfully implementing the PAIA requires several critical elements. These include adequate resources, clearly defined roles and responsibilities, educational and awareness programmes, ongoing monitoring, oversight, and effective enforcement strategies (Mojapelo & Ngoepe 2017; Mojapelo 2024; Khumalo et al. 2016; Nkwe 2020).

AI is leading the way in providing instant access to records through sophisticated AI models, such as chatbots and AI-enhanced search platforms, such as Meta AI and Microsoft Copilot.

Modiba (2022a), in his study examining the legislative frameworks governing the application of AI for records management at the Council for Scientific and Industrial Research in South Africa, concluded that information officers can utilise AI technologies, including robotics and integrated software systems, to effectively locate and retrieve records upon request. This suggests that AI holds considerable potential to enhance organisational compliance with PAIA. However, the implementation of such technologies must adhere to regulatory frameworks aimed at preventing unauthorised access to sensitive information, thereby ensuring compliance with applicable legislation.

2.4.1.5 Electronic Communications and Transactions Act

In South Africa, the principal law regulating digital communications is the ECTA. This legislation provides legal recognition for electronic communications, ensuring that electronic documents carry the same legal weight as traditional paper documents (ECTA 2002; Singh 2022). According to Staunton and Stadler (2019), the ECTA is designed to facilitate electronic transactions, enhance access to these services, and implement safeguards against the misuse of information systems.

In contemporary business environments, numerous organisations are leveraging technology to streamline their operational processes. As a result, electronic records have become integral to organisational decision-making frameworks (Singh 2022). The ECTA recognises that electronic records and signatures carry the same legal weight as traditional paper documents, making their proper management vital for organisations. To ensure the integrity and authenticity of these digital records, organisations must establish robust systems that effectively monitor and govern their usage. This is particularly important because electronic records can be modified with relative ease, which poses a risk to their reliability.

The study conducted by Netshakhuma (2022) regarding the impact of Provision 27 of the ECTA on Education and Emerging Technologies in South Africa indicated that non-compliance with the ECTA stems from insufficient awareness and training regarding the specific requirements for electronic transactions. This finding underscores the necessity for organisations to implement comprehensive training programmes aimed at enhancing the competencies of their records management personnel, thereby facilitating adherence to the legislative requirements set forth by the Act.

Recent scholarly investigations have indicated that technological innovations have profoundly transformed both our modes of communication and transaction processes. However, the

existing legal framework falls short of encompassing the contemporary technologies that have outstripped the electronic and digital transactions delineated by ECTA (Van Eck & Agbeko 2023). There is an escalating demand for regulatory measures for advanced automated systems, AI technologies, and robots capable of independent decision-making and exhibiting characteristics akin to those of human beings, often referred to as "electronic persons". This highlights the urgent need for proactive revisions of the ECTA to incorporate technological advancements in contractual interactions. These changes are crucial to ensure that the ECTA remains relevant and aligned with the rapidly evolving industrial landscape, which significantly affects both human lives and various sectors.

2.4.2 Policy framework governing records management in South Africa

A policy structure is a systematic assembly of instructions that defines broad boundaries and rules regarding values, ethical standards, operational and managerial objectives, and implementation strategies (Bandler 2022). As noted by Lakhno (2023), policies are often utilised in organisations to govern internal regulations and procedures. In records management, policies influence the procedures for handling records; therefore, their absence may result in certain practices being jeopardised, which can lead to improper management of records throughout their lifecycle (Malatji & Marutha 2023). Furthermore, records management policies delineate what information an organisation is required to maintain as records, the processes for overseeing these records, their duration of retention, and the methods for ensuring their safe disposal (Maseh & Mutula 2015).

The absence of a policy framework leads to ineffective records management and creates gaps in accountability and understanding related to this area. As a result, employees may not have a clear picture of their responsibilities regarding records management (Motlhasedi 2024). This highlights the importance of all organisations to develop comprehensive policy guidelines to improve their record-keeping practices. Records management in South Africa is governed by various policies and guidelines that aim to ensure effective management, security, and accessibility of records across governmental bodies.

2.4.2.1 Records Management Policy Manual

The Records Management Policy Manual establishes organised guidelines for the effective management of records within government agencies. The primary purpose of this manual is to provide thorough guidance on the management of records across all formats in an integrated manner (Records Management Policy Manual 2007). Organisations can use this manual to

create customised records management policies that clearly define their goals and identify the records most at risk of data loss or unauthorised access (Garland 2019). A records management policy is essential for enhancing organisational efficiency by establishing a systematic process for managing important records from their creation to their disposal. This process ensures the integrity of information and compliance with legal requirements (Krstic 2024). Moreover, this manual stipulates that records managers are obligated to retain the document and update it in line with any amendments or additional instructions as made available to them from time to time (Records Management Policy Manual 2007). This allows records managers to modify their records management policy to align with their organisational objectives, as long as they remain consistent with the original guidelines.

2.4.2.2 Minimum Information Security Standards

The MISS create a detailed framework for managing and protecting records in the public sector. This essential document specifies the requirements necessary to establish the procedures and actions needed to secure organisational records (MISS 1996). Records are susceptible to a range of security threats, including subversion, damage, theft, cyber fraud, and natural disasters such as fires or floods. These threats can undermine the authenticity and accessibility of the records. Therefore, organisations need to implement strong security measures to protect their information from these risks. The protection of records from unauthorised access and harm is a core aspect of records management, requiring organisations to have reliable security measures in place (Oseni, Bakare & Alli 2023). While security protocols are necessary, they must also be used transparently and not to cover up corruption or wrongdoing (Touray 2021).

The increasing reliance on digital technology has created new cybersecurity challenges, making it easier for hackers to access digital records and compromise confidential client information (Moyana & Chuma 2023). This suggests that, in the absence of robust security measures, cybercriminals can both access these records and implant malware within systems, thereby compromising critical client data. Addressing security alerts should be regarded as a fundamental component of best practices in records management.

Recent academic research promotes the use of technologies such as AI and blockchain as effective strategies for safeguarding organisational records. These studies highlight that the sophisticated integration of these technologies allows for the detection and tracing of even minor security breaches (Osagie & Oladokun 2024; Modiba 2025; Masenya 2020; Olaniyan, Moradeyo, Popoola & Araromi 2023). However, the implementation of these technologies

necessitates guidelines and regulations to oversee their application. This indicates that policies like MISS must include provisions for record security and clarify how the technology will ensure the protection of those records.

2.4.2.3 Managing electronic records in governmental bodies: Policy, principles, and requirements

This document aims to aid governmental agencies in identifying the critical metadata essential for the long-term preservation of digital documents and to support the creation or revision of their records management policies (Managing Electronic Records in Governmental Bodies: Policy, Principles, and Requirements, 2006). Digital records, like traditional paper records, capture the historical context of governmental decision-making and serve as documentation for business transactions. In the absence of an effective management system for digital records, organisations are unable to generate records that possess legal admissibility and evidential significance (Managing Electronic Records in Governmental Bodies: Policy, Principles, and Requirements, 2006). Nonetheless, the challenges associated with inadequate management of digital records are well-documented in the literature, attributed to various factors, including insufficient skills, policies, procedures, standards, and a lack of knowledge regarding the utilisation of contemporary technologies (Shibambu & Marutha 2022; Matlala & Ncube 2025; Jacobs & Lemekoana 2022).

The widespread utilisation of ICT for record creation makes it a necessity for organisations to establish comprehensive policies to govern the management of digital records. Due to the intricacies of electronic records, electronic recordkeeping systems must be underpinned by precise policies, clearly defined responsibilities, and formalised methodologies for their administration.

2.4.3 ISO 15489-1.2016

ISO 15489 is an internationally recognised standard established by the International Organisation for Standardisation (ISO) to guide records management practices. ISO 15489-1:2016 presents extensive guidelines intended to support records management professionals in the formulation and implementation of effective tools and systems that ensure adherence to relevant legal requirements (Mathope 2022). As noted by Luyombya and Ndagire (2020) and Rafika (2023), these standardised procedures serve as a vital reference for the critical practices necessary for the creation and preservation of records as evidence. Furthermore, ISO 15489 delineates the essential concepts and principles related to the creation, capture, and

management of records, thereby facilitating the establishment and execution of records management policies.

The ISO 15489-1:2016 standard (Clause 6.5) underscores the importance of records management staff possessing the requisite competence and training to fulfil their responsibilities effectively. Mosweu (2019) and Mugwambi and Mutsagondo (2024) point out that a lack of skills represents a significant barrier to successful records management. This indicates that organisations are required to prioritise the development of their records practitioners, not only to ensure effective records management but also to keep pace with advancements in technology within the field. The rapid advancement of technology and comprehensive research on contemporary records management technologies highlight the critical need for records professionals to enhance their skills.

2.4.4 Factors influencing compliance with legal and policy frameworks

Compliance refers to following a set of laws and regulations by ensuring that records management practices align with legal requirements (Makovhololo et al. 2019). Many public sector organisations struggle to comply with the legal and policy frameworks related to records management. The principal obstacles to achieving compliance include the absence of a robust legislative and policy framework, and where such frameworks do exist, a tendency to disregard them (Matlala & Ncube 2025; Ngoepe & Saurombe 2016).

Another factor influencing compliance is the outdated and inadequate legal frameworks that do not accommodate records generated in today's technologically sophisticated environment. Netshakhuma (2018) posits that the obsolescence of legal structures governing archives and records management is largely attributable to governmental priorities centred on reconstruction and development initiatives post-independence, leading to a neglect of this sector. Consequently, many countries have not engaged in regular reviews or updates of their legal frameworks, resulting in diminished efficacy. In this age of technological advancement, there is a pressing need for organisations to keep their records management systems up to date to comply with legislative requirements in today's digital environment.

Motlhasedi (2024) highlights that the lack of awareness among record-keeping professionals about the current legal and policy structures within organisations is another factor influencing compliance. This indicates the necessity for regular training of employees and the importance of emphasising compliance as crucial and mandated. Furthermore, the literature reveals that inadequate infrastructure for record storage poses a significant barrier to the adoption of

effective records management practices as stipulated by legal frameworks (Kashaija & Ndumbaro 2020). Legal requirements mandate public institutions to provide suitable storage facilities for records in all formats. Inadequate storage, such as overcrowded physical spaces or insufficient digital systems, can lead to non-compliance with legislative frameworks. Moreover, the deficiency in the requisite knowledge and skills for effective record handling intensifies the risk of non-compliance, as highlighted by Khayundi (2021). Practitioners in records management who are inadequately trained may find it challenging to execute the relevant legal and policy frameworks.

Adherence to legal standards is indispensable for the efficacious management of public records (Kashaija & Ndumbaro 2020). Compliance with relevant archival and records legislation, along with policy guidelines, is a vital approach to maintaining rigorous recordkeeping standards (Malatji & Marutha 2023). Non-compliance with these laws may precipitate the loss of national archival heritage and inefficient management of governmental data (Matlala & Ncube 2023). Furthermore, compliance with relevant legislation in archives and records management enhances professional practices within the discipline (Khumalo 2021).

2.4.5 Artificial intelligence legislative and policy framework

As AI revolutionises various industries with its enhanced capabilities, it also gives rise to several complex ethical concerns that require regulation. This underscores the need for the development of comprehensive legislative and policy frameworks to govern the responsible use of AI. The responsible use of AI technologies involves its deployment in a way that is both ethical and risk-conscious, ensuring that its capabilities are utilised in a trustworthy manner (Hao, Yuanze & Heqian 2023).

According to Chhatre and Singh (2024), the rapid advancement of AI technologies has created significant gaps in current legal frameworks and data privacy laws, posing substantial challenges across various sectors. For example, the current legislative and policy structures governing archives and records management are inadequate to tackle the distinctive complexities and challenges posed by AI technologies. This underscores the need to reassess and enhance the existing regulatory frameworks in archives and records management to effectively address the implications of contemporary AI advancements. AI legislation and policy frameworks are crucial for data protection, transparency, and addressing ethical issues (Lo 2023). Moreover, AI frameworks are vital for enhancing algorithmic transparency and

ensuring data privacy (Bhagattjee 2024). The lack of a clear legal and policy framework governing the use of AI exposes organisations to ethical, security, and reputational risks.

The development of policies guiding the responsible use of AI within organisations should be aligned with the national AI policies. Notably, a growing number of countries are recognising the capability of AI technologies to drive economic development and improve their competitive edge globally, leading to initiatives to develop national AI policies (Bhagattjee 2024). These nations include India, China, Europe, Brazil, and South Africa, to mention a few. Snail and Morige (2024) note that the goal of these policies is to establish a regulatory framework that supports the responsible application of AI in solving issues related to records management.

In August 2024, South Africa's Department of Communications and Digital Technologies unveiled a draft of its National AI Strategy Framework. The AI policy framework aims to drive economic growth, societal welfare, and AI innovation in South Africa while promoting ethical and responsible AI use (South Africa National Artificial Intelligence Policy Framework 2024). This policy framework serves as a guiding document for the ethical and responsible deployment of AI technologies in sectors across the nation.

2.5 USER PERCEPTION REGARDING AI TECHNOLOGIES

Perception is a psychological concept that refers to how individuals interpret their environment. It is influenced by various factors, such as personal beliefs, past experiences, and cultural context (Leung 2023; Cherry 2023). User perception is defined as the array of feelings, beliefs, and viewpoints that individuals harbour about the technology earmarked for adoption (Inabo 2024). Rahman (2018) asserts that user perception is a critical factor for the success of any product or technology. This construct of perception is fundamentally rooted in the TAM, which delineates the factors influencing users' acceptance of technology.

2.5.1 An overview of the TAM

The TAM, attributed primarily to Fred Davis, was established in 1986 and is fundamentally based on the Theory of Reasoned Action (TRA). The primary objective of TAM is to assist researchers and practitioners in understanding the determinants of technology acceptance or resistance. This model not only provides explanatory insights but also facilitates the formulation of effective interventions in response to these findings (Lai 2017; Islam, Soumia, Rana, Madavarapu & Saha 2024). According to TAM, an individual’s decision to embrace technology is influenced by their beliefs, which are filtered through two primary constructs:

perceived usefulness and perceived ease of use (Lok 2015; Davis 1986; Grover, Kar, Janssen & Ilavarasan 2019). According to Putra (2019), the definition of perceived usefulness comes from the word ‘useful’, which means “able to provide benefits”. On the other hand, perceived ease of use stems from the term ‘ease’, which means “being free from difficulty or effort”.

Some academic literature posits that the two determinants are interlinked, with the perceived usefulness of a system potentially influencing its perceived ease of use, and vice versa (Surrain & Luk 2023; Stein, Messingschlager, Gnambs, Hutmacher & Appel 2024). For example, when users perceive a system’s usefulness for enhancing their work effectiveness, they are less likely to find it challenging to use; in fact, their motivation to excel in its operation may increase.

2.5.1.1 Perceived usefulness

Perceived usefulness is characterised as the belief that engagement with a certain system will contribute positively to an individual’s job performance (Davis 1986). According to Doleck, Bazelais and Lemay (2018), users are predisposed to accept and utilise technology if they believe it will improve their work efficiency and productivity. For instance, records practitioners can be primarily motivated to utilise AI solutions, such as chatbots, based on their ability to deliver vital information promptly and almost at any time, thereby easing the demands on records practitioners’ roles (Gerlich 2023). According to Wicaksono and Maharani (2020), individuals who lack confidence in the ability of a system to assist them in their duties are unlikely to engage with that system. This inference indicates that for the adoption of new technologies, such as AI in records management, it is essential for records practitioners to be persuaded of AI’s capability to augment their job performance.

2.5.1.2 Perceived ease of use

Perceived ease of use is understood as the conviction that operating a specific system will entail minimal effort (Davis 1986). According to Arunachalam (2019), users must maintain confidence in their ability to effortlessly gain mastery over the system, avoiding any feelings of tediousness. If a system is perceived to be relatively uncomplicated, users are more inclined to learn about its functionalities and ultimately show a propensity to persist in its usage (Hamid, Razak, Bakar, Salihin & Abdullah 2016). In his study, Gerlich (2023) introduced the concept of “effort expectancy”, which refers to the degree of ease associated with utilising a given system. This means that for the effective integration of disruptive technologies representative of the 5IR in various domains, including records management, users need to perceive these

technologies as easy to use, as this perception greatly influences their effective deployment. Figure 2.4 shows the original TAM as depicted by Davis.

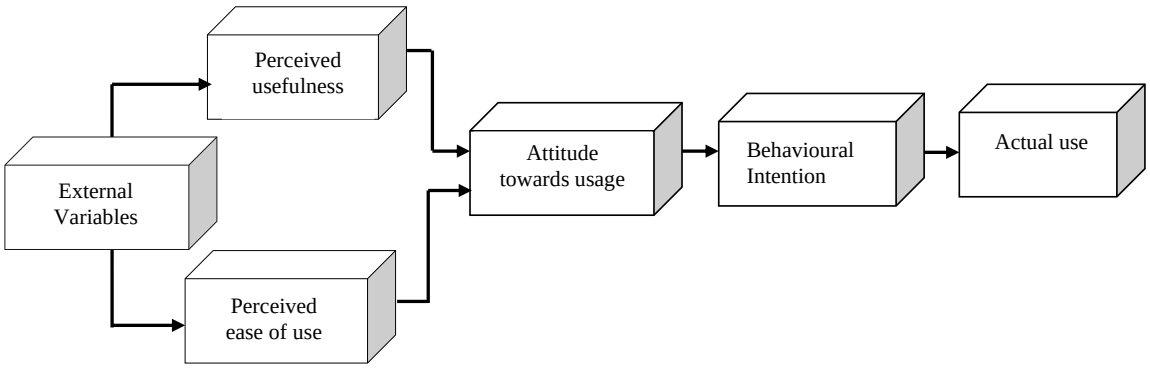


Figure 2.4: Technology Acceptance Model

(Source: Davis 1986)

The TAM, as depicted in Figure 2.5, proposes that the perceived usefulness and perceived ease of use of any technology significantly impact users' attitudes, which subsequently influence their behavioural intentions, ultimately leading to its actual usage (Schorr 2023; Bothma & Mostert 2023; Davis 1989; Yawen & Moyan 2021; Lok 2015).

External variables refer to a range of factors that can affect an individual's perception of the usefulness and ease of use of technology (Bothma & Mostert 2023). External variables are essential for analysing the adoption of a technological system, as they shape users' perceptions of its usefulness and ease of use. Examples of these variables include the anxiety associated with potential job loss, which often arises from the swift advancements in automation and AI, as well as the degree of trust in the technology's reliability and integrity (Liehner, Biermann, Hick, Brauner & Ziefle 2023; Stein et al. 2024). These factors play a crucial role in shaping user perceptions of the technology or system in question (Liehner et al. 2023). For instance, if records practitioners fear that the technology will take their jobs, they may feel threatened and reluctant to accept it. Other examples of external variables that affect user perception include social influence and cultural factors (Yawen & Moyan 2021).

Attitudes toward use refer to an individual's overall evaluation or feeling about using a specific technology. According to Al-Adwan, Al-Adwan, Abbasi, Albelbisi and Habibi(2023), individuals' attitude is subsequently determined by their perceptions of both usefulness and perceived ease of use of the system. However, Prabowo, Ahmad and Ahmad (2024) argue that attitudes towards adoption are mostly influenced by perceived ease of use. These authors

believe that this happens when users feel it is easy to use the technology, which makes their attitudes positive towards it. Attitude towards use centres on the user's emotional responses to technology (Grover et al. 2019). In essence, attitude encompasses whether a person harbours positive or negative sentiments towards using a specific technology. Attitude towards use can markedly influence an individual's behavioural intentions to engage with that technology (Aditia, Nengah, Nursyam, Desi & Zaitul 2018).

The term behavioural intention pertains to an individual's awareness-driven decision or plans to use a certain technology (Doleck et al. 2017). According to Schorr (2023), behavioural intention is influenced both by the attitudes of users and the usefulness of the technology. However, Yawen and Moyan (2021) state that the determination of behavioural intentions is a collective outcome of individuals' attitudes towards the usage of technology, alongside their perceptions of its effectiveness and ease of use.

Despite its widespread application, the TAM has drawn criticism from researchers who underscore its theoretical deficiencies. One notable critique is that TAM predominantly addresses technical dimensions such as perceived usefulness and perceived ease of use, as well as psychological constructs like attitudes and behavioural intention related to technology adoption, yet it fails to account for the personal traits of users (Al-Adwan et al. 2023). Bothma and Mostert (2023) and Lok (2015) concur that other factors, such as perceived enjoyment, which is an intrinsic motivation related to the enjoyment of using a system, and perceived cyber risk, which reflects users' assessments of risks associated with technology use, are also significant predictors of technology adoption. Another criticism against TAM is its failure to adequately consider the influence of cost and structural determinants on technology adoption. While TAM focuses on perceived ease of use and perceived usefulness as key drivers of acceptance, it overlooks how financial considerations and the broader organisational context can influence these decisions (Rahman 2018).

2.5.2 Impact of user perception on the adoption of AI in records management

Perceptions of users are crucial in determining how successfully emerging technologies like AI are accepted and integrated into records management processes. Jamil, Zhang, Anwar, and Mustafa (2025) highlight that employees play a significant role in an organisation's readiness to implement AI, as their attitudes and viewpoints greatly affect whether these technologies are adopted or rejected. Furthermore, evaluating user perceptions helps organisations identify potential challenges in the adoption process and create strategies to address them (Felemban,

Sohail & Ruikar 2024). This means that understanding the perceptions of records practitioners is crucial for promoting the acceptance and effective implementation of AI in records management. Their perspectives can influence organisations' readiness to integrate AI models into their records management systems.

Existing literature indicates that many individuals perceive AI technologies as potential threats to their job security, which presents a significant obstacle to organisational adoption (Soulami, Benchekroun & Galiulina 2024; Holzinger, Zatloukal & Müller 2025). Thus, gaining insight into records practitioners is crucial for developing strategies that present AI as a beneficial tool to boost operational efficiency and productivity among records professionals, instead of a threat.

Furthermore, Olutimehin, Nwankwo, Ofodile, Ejibe, and Soyombo (2024) and Salaheldin and Hussein (2025) emphasise that potential users may reject new technologies due to knowledge and understanding gaps. Therefore, conducting user perception assessments can help identify these knowledge gaps and inform tailored training initiatives that build confidence and competence among records practitioners in working with AI systems. A solid understanding of AI among records management professionals is necessary to foster a positive perception of AI. Such awareness plays a critical role in driving the adoption of AI technologies and supporting an innovative and supportive culture within the field. Additionally, establishing user perceptions can guide the formulation of policies that address the concerns and perspectives of records management practitioners, thereby fostering their active engagement and ensuring proper utilisation of AI tools (Felemban et al. 2024).

Given the considerable potential of AI technologies to revolutionise records management, the endorsement and acceptance of records practitioners are vital for the successful integration of these innovations. A lack of acceptance could result in low engagement from records practitioners, ultimately leading to the underutilisation of AI models.

2.6 SKILLS REQUIRED FOR RECORDS MANAGEMENT PRACTITIONERS TO MANAGE RECORDS USING AI

Skills refer to the capacity to apply knowledge and competencies to achieve specific goals or objectives (Zirar, Ali & Islam 2023). According to Zhang (2019), skills are the taught abilities to obtain specified outputs with a high degree of confidence. The concept of skill was derived from the DTM. Verina and Titko (2019) assert that skills play a vital role in successful digital

transformation. This indicates that for a digital transformation to succeed, it is crucial to develop and improve workforce skills to effectively adapt to emerging technologies.

Wicht, Reder, and Lechner (2021) argue that, in the current age of rapid technological advancement, only information technology (IT) personnel are the most likely to succeed. Through specialised training and continuous professional development, they are better positioned to thrive in this technologically advanced era. According to Gunti (2024), most IT professionals are well-trained and possess the necessary skills to operate computers and adapt quickly to emerging technologies. Nonetheless, this era demands that all professionals, including records management practitioners, undergo upskilling and reskilling to meet the evolving technological requirements and maintain their relevance in the industry.

Mosweu and Ngoepe (2019) highlight a significant skills gap among records management practitioners, attributable to rapid technological advancements and the proliferation of digital records. As a result, the incorporation of AI technologies into records management demands that records professionals enhance their skill sets to effectively operate and collaborate with AI tools. According to Sikhakhane (2025), records practitioners need to acquire relevant expertise to utilise AI models effectively in their records management activities. A deficiency in these skills can obstruct the proper use of AI technologies in records management tasks, ultimately undermining the goals of implementing such innovations. Figure 2.5 presents the skills required to manage records using AI.



Figure 2.4: Skills required to manage records with AI

(Source: Researcher 2025)

2.6.1 AI skills

AI is a broad concept encompassing numerous technologies designed to improve various processes (Witkowski & Wodecki 2025). According to Brown (2023), AI skills refer to the competencies and knowledge essential for developing, deploying and using AI systems and applications. This indicates that an individual proficient in AI possesses a comprehensive understanding of AI models and their responsible application within relevant contexts.

Moreover, the integration of AI into records management systems necessitates a multidimensional and collaborative approach that transcends traditional disciplinary boundaries. This involves cultivating a versatile skill set through multi-skilling and cross-skilling, acquiring expertise from fields such as IT, robotics, and data science, to enable the effective deployment and management of AI-driven systems (Oladokun, Ayinde & Rexwhite 2024). This convergence is vital for leveraging AI models effectively in the management and preservation of records. Therefore, records management practitioners and professionals from various sectors must be willing to break through conventional boundaries, encouraging a culture of interdisciplinary collaboration and continuous learning. Nonetheless, the success of such initiatives depends significantly on the strategic allocation of resources and an unwavering commitment to professional development in the face of rapidly evolving technological changes.

2.6.2 Digital literacy

Digital literacy refers to the proficient use of digital technologies for various tasks, including writing documents, performing calculations, and communicating via email or online platforms (Babu & Chouhan 2023). Sunny and Ramasamy (2024) contend that digital literacy is among the most crucial competencies in modern workplaces, given that technological advancements have altered organisations globally. In the context of the 5IR, digital literacy has become essential and is no longer confined to individuals in the IT sector but has become a demand in all sectors (Audrin, Audrin and Salamin 2024). The unprecedented volume of data generated today requires sophisticated digital skills for its management and interpretation.

According to Elsawy, Al Saadi and Attia (2025), digital literacy in records management is the most essential competency enabling records professionals to employ digital technologies in

records management processes. As technology advances, having these skills is essential for proper records management. Anshari and Hamdan (2022) contend that digital literacy has evolved from being an optional skill to being a fundamental prerequisite. This is true, given that a significant proportion of organisational records are now generated and maintained in digital formats.

Scholars like Mutsagondo and Khumalo (2023) point out that a lack of digital skills in records management is a pressing issue, especially within developing countries. This skills gap can result in significant problems, including challenges in accessing records, the loss of digital records, and the improper destruction of vital documents. Furthermore, digital illiteracy among records professionals may pose significant challenges to the adoption of 5IR technologies (Güğerçin & Güğerçin 2021). By fostering digital literacy among records practitioners, organisations not only empower their teams but also position themselves to successfully adapt to new technological demands.

To bridge this gap, promoting a culture of lifelong learning among records professionals is essential. Ziatdinov, Atteraya, and Nabiyev (2024) argue that, in the face of rapid technological change, continuous learning is vital for professionals to keep pace with new tools and standards. To foster lifelong learning among records professionals, organisations should integrate digital literacy training into their strategic initiatives. By offering regular programmes, workshops, and educational activities, they can promote continuous professional development and enhance understanding of emerging technologies (Bewersdorff, Nerdel & Zhai 2025; Yampolskiy 2024). Furthermore, the integration of AI technologies in records management necessitates that practitioners engage in continuous upskilling and reskilling initiatives (Zavodna, Ueberwimmer & Frankus 2024).

2.6.3 Data management skills

Data represents a fundamental asset for any institution, provided that the organisation possesses the capacity to analyse and derive insights from it (Jain 2023). Data management refers to the systematic approach involved in collecting, sorting, coding, preparing, analysing, storing, and securing data (Tsiligiris & Bowyer 2021). According to Owan and Bassey (2019), the increasing dependence of enterprises on data for evidence-based decision-making has accentuated the critical importance of data management within organisational contexts. As a result, cultivating proficient data management skills has emerged as a key organisational objective (Jain & Mitra 2025). This underscores that data management skills are no longer

restricted to IT personnel alone; rather, every organisational entity handling substantial volumes of records must implement rigorous data management strategies to ensure the preservation and security of records from creation to disposal.

Organisations that integrate AI into records management must ensure that their professionals possess strong data management skills. These skills are vital for accurate data cleaning and preparation, which are crucial for the effective auto-classification of records (Tsiligiris & Bowyer 2021). Data management skills include data analysis capabilities that empower records professionals to examine large datasets, identify patterns, and extract valuable insights (Ghosh 2023). Additionally, data governance is a key aspect of data management, playing a significant role for records practitioners in establishing compliance standards and implementing security measures. This helps protect data from unauthorised access and breaches, thereby maintaining data integrity and quality (Knight & Nurse 2020).

In view of this, organisations aspiring to integrate AI into their records management systems should prioritise targeted training and professional development initiatives focused on enhancing data management skills. Such investments are essential to empower records management professionals to effectively operate and optimise AI-enabled records management technologies.

2.6.4 Database management skills

Database management refers to the systematic processes of accumulating, storing, organising, and securing data (Sande 2024). Stedman (2024) contends that database management plays a vital role in the field of data management. Database management solutions allow for efficient large-scale data retrieval, improve data sharing, and reduce redundancy (Tejeda 2024; Patel, Choudhary & Patil 2023). Effective database management skills ensure the systematic storage, security, and integrity of data, which are foundational for the successful deployment of AI applications (Mullins 2024; Mathenge 2024). Database management skills are a prerequisite for organisations aiming to integrate AI models, such as AI-driven cloud storage for secure recordkeeping and generative AI for optimised data retrieval. To effectively manage large-scale datasets for training algorithms, records management professionals must engage in ongoing professional development to enhance their expertise in fundamental areas such as database modelling, data backup, and recovery strategies (Yasar 2024). Additionally, they need the capacity to monitor database performance, ensure consistent system availability, and respond swiftly to incidents or technical issues (Mathenge 2024).

Technological advancements have catalysed a transition from conventional database models towards more scalable and adaptable solutions capable of meeting the demands of modern AI applications. Traditional database systems are often characterised by limitations in addressing the complexities and scale associated with contemporary data environments and automation needs (Addal 2019). Morg (2021) emphasises that while traditional database management systems offer robustness, they frequently struggle to efficiently manage the volume, velocity, and intricacy of current data ecosystems. This evolution underscores that the existing knowledge base of records professionals, centred on conventional databases, is insufficient for effectively supporting emerging AI-driven technologies, necessitating a paradigm shift in skill sets and technological familiarity.

AI-powered databases use NLP to respond to queries more effectively, allowing organisations to quickly manage customer inquiries with chatbots and virtual assistants (Reddy 2024). This means that organisations planning to leverage generative AI models for record retrieval must adapt their workforce training and development strategies to encompass intelligent database management. The successful implementation of AI-driven databases necessitates a shift from traditional database management competencies, underscoring the critical need for proficiency in AI/ML.

2.6.4.1 Traditional database management skills vs artificial intelligence-powered database management skills

The efficacy of AI-driven database management systems is predominantly contingent upon the proficiency and expertise of personnel in deploying these technologies, rather than on the technological infrastructure itself (Leilli, Barbosa, Lima, Lyra, Salazar, Argôlo, de Almeida & de Souza 2024). For example, when organisations seek to adopt AI-based cloud storage solutions for record preservation, records practitioners must possess the requisite technical competencies to effectively operate and maintain such systems. Traditional database management skills are no longer sufficient to address the evolving and complex challenges brought about by technological advancements (Ingle, Sawale, Parihar, Deshmukh & Cheke 2024). For example, manual adjustments and static configurations may work in smaller or stable environments but are inadequate in the current era of AI technologies. This underscores the necessity for organisations to invest in training their records personnel in modern, advanced database management methodologies. Records professionals constrained to traditional SQL methodologies will face significant challenges in managing unstructured or semi-structured

data due to the limitations inherent in conventional database systems and their lack of capabilities for sophisticated data management and analysis (Gupta 2025). Table 2.2 illustrates the differences between traditional database management skills and AI-based database skills.

Table 2.2: Summary of traditional database skills vs AI-based database skills

Tasks	***Traditional database management skills***	***AI-based database management skills***
Database administration	Structured Query Language (SQL) – Expertise in manual tuning and configuration	Expertise in AI and ML principles and operations to automate all tasks effectively (Chandan 2021).
Query optimisation	Manual searches using keyword indexes (Morg 2021).	Expertise in leveraging NLP and ML algorithms for advanced search functionalities (Gadde 2024).
Data preprocessing & data analysis	Data preprocessing skills (data cleaning, data by correcting errors, managing missing values, and removing duplicates). Strong analytical skills are crucial for effective data collection and interpretation to solve problems (Lande & Bhore 2024).	Expertise in training ML algorithms to optimise data cleaning processes by automatically identifying anomalies, imputing missing values, and rectifying inconsistencies, ensuring data accuracy and reliability (Lande & Bhore 2024).
Data security	Understanding key security protocols to shield databases from unauthorised entry, breaches, and risks (Yehuda 2020).	Skilled in training AI systems, including neural networks and DL models, to identify and address potential security risks, ensuring the protection of sensitive data (Abbasi et al. 2024).
Backup and recovery	Ability to manually secure data by copying it to physical storage options like tapes or on-site local mediums using dedicated backup software (Crocetti, Stephen & Bigelow 2023).	Integration of AI, ML, and neural networks for automated data backup and performance monitoring (Lande & Bhore 2024).

(Source: Researcher 2025)

Table 2.2 delineates the distinctions between traditional database management skills and those required for AI-based systems, thereby highlighting the skill gaps and defining the competencies essential for AI-driven database management. To maintain relevance in this evolving landscape, organisations should implement comprehensive training programmes and awareness initiatives targeted at their records management teams (Ramachandran, Srivastava, Panjwani, Kumar, Cheepurupalli & Mohan 2024). Records professionals must remain current with emerging industry trends and demonstrate a commitment to continuous professional development. Furthermore, organisations seeking to integrate AI technologies into records management and other operational domains must prioritise the training of practitioners in advanced database management techniques. Robust database systems are fundamental in establishing secure and efficient platforms for data preprocessing before AI model training, including techniques such as DL and neural networks (Flinders & Smalley 2024).

2.6.5 Ethical skills

The ethical considerations surrounding AI technologies are among the most pressing issues in contemporary discourse. This underscores the importance of ethical skills and competencies for records professionals in organisations that seek to implement AI. In the domain of records management, the integration of AI technologies can pose significant ethical issues, including concerns over privacy, accountability, algorithmic bias, the digital divide, and disparities in access and opportunities (Mooradian 2019; Gulati 2023). Records management is vital for safeguarding the rights of citizens and promoting transparency, accountability, and effective governance in organisations. Therefore, AI technologies should be developed and applied in ways that support the core objectives of records management. Ensuring ethical AI is crucial in this domain, as records management aims to preserve the authenticity and trustworthiness of each record, preventing unauthorised manipulation, deletion, or alteration (TransAccess 2023).

Li (2023) advocates that organisations should develop strategies and frameworks to ensure compliance with ethical AI principles and promote the ethical use of AI technologies. This encompasses creating AI systems that are fair, transparent, and secure, as well as fostering the skills and expertise needed to promote responsible and equitable use of AI technologies. In this study, four strategies are identified to support professionals across diverse organisations, including records management practitioners, in improving their knowledge and competencies concerning the ethical application of AI.

Figure 2.6 presents a framework of four strategies to assist records professionals in improving their understanding and skills related to the ethical use of AI.

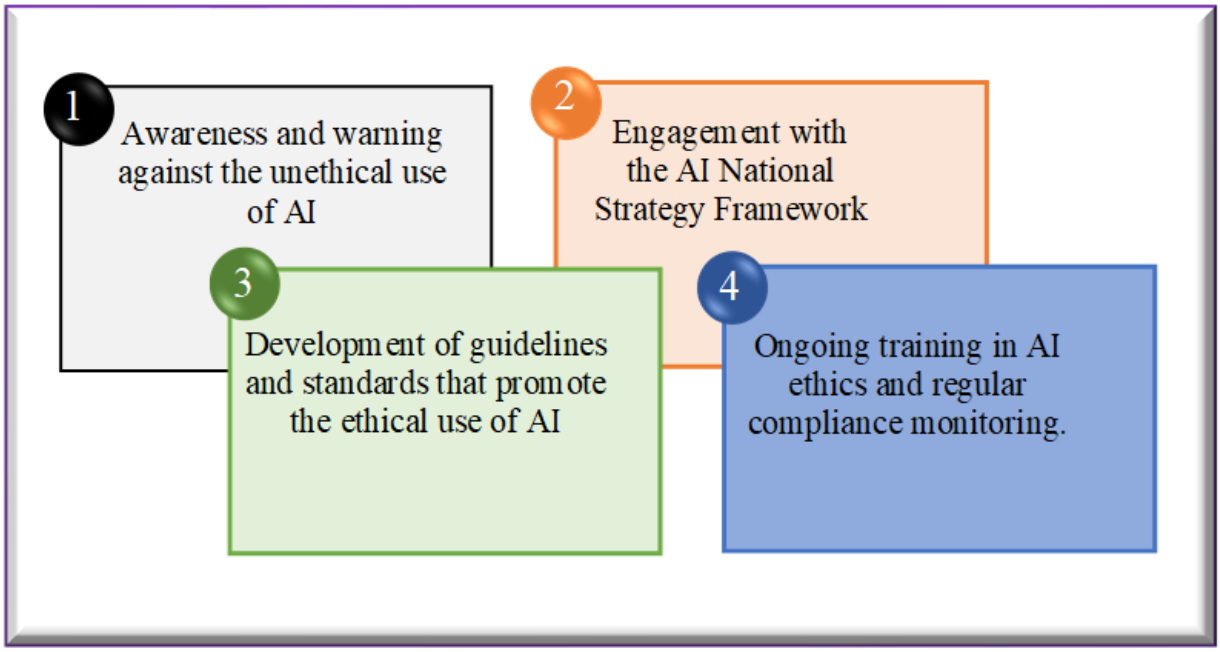


Figure 2.5*:* Framework for developing AI ethical skills

(Source: Researcher 2025)

2.6.5.1 Awareness and warnings against unethical use of AI

Addressing the ethical concerns related to AI is vital during its development phase. Organisations looking to adopt AI technologies for records management should begin by involving key stakeholders such as algorithm developers, senior management, and industry experts to increase awareness about AI ethics and the dangers of unethical practices (Kieslich, Keller & Starke 2022). This initiative aims to ensure that all parties involved have a comprehensive understanding of ethical principles in AI, alongside its perceived benefits in records management. Furthermore, Osasona, Amoo, Atadoga, Abrahams, Farayola, and Ayinla (2024) highlight the importance of involving experts from diverse fields such as law, computer science, sociology, and ethics to fully comprehend the ethical dimensions of AI. This multidisciplinary approach offers a comprehensive view of the ethical implications of AI across technical, legal, and social aspects. Involving diverse stakeholders in this manner can help mitigate risks and ensure alignment among all parties involved (Douglas & Howard 2024).

2.6.5.2 Engagement with the AI national strategy framework

The recognition of the potential of AI to drive economic growth and enhance public services has prompted many developed countries to establish frameworks for the responsible development and use of AI technologies (Demaidi 2023). There is a critical need for national regulations that encourage the responsible utilisation of AI systems at the national level (Galindo, Perset & Sheeka 2021). Thus, organisations and records professionals are encouraged to understand their respective AI national strategies and the ethical principles governing the use of AI.

Nevertheless, the pace of AI strategy development varies globally. Nations such as India, Brazil, Mexico, the United States, and South Africa have crafted national AI strategies geared towards responsible AI use, but several countries remain in the nascent stages of this process (Zhang et al. 2021). The South African National AI Policy Framework (2024) highlights that for South Africa to realise the complete potential of AI, it is essential to address its ethical, social, and economic ramifications thoughtfully. The policy encourages equitable sharing of AI benefits while also ensuring effective management of risks associated with these AI technologies. Therefore, organisations looking to implement AI technologies in their records management systems should familiarise themselves with these guidelines. Doing so will ensure they adopt an ethical approach to AI, helping to develop AI-powered records management solutions that are responsible, trustworthy, and compliant with national standards.

2.6.5.3 Development of guidelines and standards that promote the ethical use of AI

Establishing AI ethical guidelines and standards is a vital approach to nurturing ethical practices in AI utilisation (Olatoye, Awonuga, Mhlongo, Ibeh, Elufioye & Ndubuisi 2024). Such guidelines and standards should clearly define ethical principles specific to AI applications in records management, emphasising core values such as privacy, transparency, fairness, and accountability (Sarkar & Sarkar 2024). Additionally, these guidelines and standards should not only hold organisations and records professionals accountable for ethical AI practices but also mandate AI developers to create algorithms that are free from discrimination and bias.

AI ethical guidelines and standards should clearly articulate responsibilities, as well as the enforcement structures and penalties for non-compliance (Yampolskiy 2024). Osasona et al. (2024) remark that establishing a clear chain of responsibility is crucial for ensuring accountability in the development and deployment of AI systems. This is particularly pertinent

because of the lack of accountability associated with AI, which has raised concerns regarding the assignment of responsibility for unethical behaviour exhibited by these systems. By creating clear guidelines and standards that assign accountability to records professionals, organisations can ensure that ethical standards are upheld and that there are repercussions for negligence or malfeasance. This will enable the enforcement of ethical standards and provide consequences for negligence or malicious behaviour. Furthermore, AI ethics guidelines and standards can effectively fill the void in guidance and uncertainty regarding AI ethical practice, providing practitioners with clear directives for the ethical use of AI.

AI ethics guidelines and standards should prioritise the protection of human dignity and rights, while also promoting justice, equity, and fairness. Furthermore, these principles must ensure that AI systems used in records management are dependable, allowing their deployment to be certified as safe and robust (Leslie, 2019; Adams, Leslie, Myles & Moraes 2024). Such reliability is essential for fostering user trust and encouraging broader acceptance of AI technologies.

2.6.5.4 Ongoing training in AI ethics and regular compliance monitoring

Acquiring the skills required for the ethical application of AI in records management is a continuous process that depends on ongoing professional development and training. According to Leonard (2024), regular training in AI ethics is essential to promote responsible use of the technology. Bar-Gil, Ron, and Czerniak (2024) indicate that employees equipped with the right knowledge and skills are better positioned to recognise and address ethical dilemmas. This underscores the necessity for organisations to provide comprehensive training and guidance on the ethical use of AI for their records practitioners. Furthermore, Bankins and Formosa (2023) argue that ongoing training in AI ethics can foster a culture of responsible AI utilisation, thereby mitigating risks associated with data privacy breaches and ethical conflicts. Collectively, these insights suggest that continuous training is crucial to ensure the ethical deployment of AI in records management. Hecks (2024) and Bankins and Formosa (2023) identify four critical areas that necessitate extensive training to promote the ethical use of AI in organisations. The four critical areas are outlined in Table 2.3 below:

Table 2.3: Key areas requiring training for ethical AI use

Area of training	Description

Privacy and data protection	Training initiatives must underscore the significance of safeguarding user data and adhering to privacy regulations when engaging with AI systems. This indicates that records management practitioners should receive training on information privacy and data security measures when engaging with AI technologies.
Risk assessment	Professionals should be equipped with training to identify potential ethical risks associated with AI applications. This encompasses the use of interactive simulations aimed at detecting risks, as well as formulating strategies to effectively address these challenges. Engaging in this training can enhance the abilities of records practitioners to recognise and address ethical concerns that may emerge during the implementation and operation of AI systems.
Bias awareness and prevention	Professionals are required to acquire skills in recognising and mitigating biases present in AI models. This includes familiarisation with techniques for bias detection and the implementation of continuous audits of AI systems to ensure fairness. Such training will enable records practitioners to comprehend AI systems, such as neural networks renowned for anomaly detection in data, as well as other relevant techniques.
AI ethics guidelines and standards	Ongoing training on established AI ethical guidelines and standards is essential. Such training enables employees to comprehend the relevance of these guidelines to their operational roles, thereby ensuring that the deployment of AI aligns with both organisational values and legal standards. Therefore, organisations seeking to utilise AI for improved recordkeeping should integrate AI ethics guidelines and standards into their strategic management processes to promote responsible and ethical AI use.

(Source: Researcher 2025)

To ethically utilise AI technologies, records practitioners must first have a thorough understanding of and ability to work with AI systems such as ML, DL, NLP, and cobotics. This necessitates comprehensive training in AI models employed within records management activities, as well as in collaboration with robotic systems (Oladokun et al. 2024). Additionally, practitioners must comprehend the training processes of AI models and be acquainted with data processing methodologies; such knowledge can empower them to engage with these technologies ethically. According to Leonard (2024), these training programmes should extend

beyond records management specialists to include algorithm developers and policymakers, ensuring a comprehensive approach to effectively address ethical concerns. Furthermore, organisations should not only provide initial training but also implement follow-up measures to maintain ongoing compliance. Mahajan (2024) stresses that upholding ethical AI practices requires a deeper understanding of AI technologies, complemented by ongoing education and compliance monitoring.

2.7 AI INFRASTRUCTURE FOR MANAGING RECORDS EFFECTIVELY

AI infrastructure is defined as the interconnected hardware and software components that facilitate the efficient development and deployment of AI (Raza 2024). According to Flinders and Smalley (2024), AI models necessitate specialised infrastructure due to the substantial computational power required to operate them. As a result, the successful usage of AI technologies in managing records hinges on a robust AI infrastructure that allows intricate algorithms to perform seamlessly (Cole 2023; Nucci 2024). A study by Felemban et al. (2024) further highlights that a considerable proportion of employees were unable to identify existing AI infrastructure within their organisations, primarily due to its absence. AI infrastructure acts as the critical backbone necessary for the implementation of AI models. Its absence could impede the development and integration of AI applications in records management, potentially making such processes unviable.

2.7.1 AI hardware infrastructure for managing records

AI hardware infrastructure consists of the physical components and equipment that serve as the foundation for computer systems, enabling the effective performance of AI tasks (Cloudian 2024). The AI hardware infrastructure for efficient management of records with AI technologies consists of high-performance computing (HPC) and collaborative robots (cobots).

2.7.1.1 High-performance computing

The deployment of AI systems to manage records mandates the use of HPC hardware featuring specialised processors like graphics processing units (GPUs) and tensor processing units (TPUs) (Raza 2024; Zhao 2024). These processors are engineered to effectively process complex algorithms and large-scale datasets. Wohlfarth (2024) points out that standard central processing units (CPUs) are not optimised for synchronous computing, which is crucial for performing specialised operations such as ML and DL. GPUs and TPUs significantly enhance training speed and facilitate rapid data processing while prioritising performance efficiency

(Bigelow 2024; Pykes 2024). These computational units are crucial for refining algorithms to achieve effective records management and operational efficiency.

2.7.1.2 Artificial intelligence-powered cobotic machines

Cobotic machines are specifically designed to collaborate with humans in a shared workspace, aiding with tasks while prioritising safety and efficiency (Pizoń, Cioch, Kański & García 2022). Cobots serve as the fundamental building blocks for the solutions presented within the framework of the 5IR. Moreover, the integration of AI with cobotic machines significantly enhances their operational efficiency. In records management, the AI-powered cobotic machines are capable of executing repetitive tasks such as sorting, removing staples, and arranging records before digitisation (Calitz, Poisat & Cullen 2017). Furthermore, ML algorithms can equip cobotic machines with the ability to digitise records with significant precision and to seamlessly transfer the digitised records to predetermined storage systems (Filipsson 2024).

2.7.2 AI software infrastructure

AI software infrastructure refers to the underlying software components and systems that provide the necessary foundation for application development, deployment, and operation of AI models (Longbottom & Bigelow 2024). Software infrastructure encompasses various components, including networking infrastructure, data processing and storage, AI models and algorithms, and storage infrastructure.

2.7.2.1 Networking infrastructure

AI applications thrive on effective communication, which needs to be both strong and stable. Therefore, prioritising the setup of high-bandwidth and low-latency networks is crucial in building a dependable AI infrastructure (Raza 2024). Storrar (2021) argues that organisations must modernise their networks and foster high-performance connections to achieve optimal productivity outcomes through AI. The robust networking infrastructure enhances the transmission of data across diverse storage systems and locations (Leaseweb Insights 2019). High-capacity networks enable AI-driven cobotic machines to efficiently transfer digitised and classified data to cloud storage environments. Moreover, it provides the necessary foundation for DL algorithms to detect anomalies in the datasets and enables neural networks to manage the identification of records that are due for disposal (Nucci 2024). This underscores the critical importance of stable and robust network connectivity; without it, the efficacy and precision of

AI-based records management processes would be compromised, potentially resulting in operational inefficiencies and delays.

2.7.2.2 Data processing storage

The efficacy of AI applications is contingent upon substantial training on large-scale datasets. According to Longbottom and Bigelow (2024), organisations seeking to leverage AI technologies must invest in scalable data storage systems, such as databases and data warehouses, to efficiently store the significant datasets essential for the training of AI models. These data storage systems require specialised data management tools to clean data and transform disorganised information into structured formats usable by AI algorithms (Flinders & Smalley 2024; Hovsepyan 2022). This accentuates the critical importance for records professionals to have the requisite data management skills that enable the efficient handling and preparation of data, thereby facilitating the capacity of AI algorithms to learn and execute records management tasks (Nucci 2023).

2.7.2.3 AI models and algorithms

AI models are complex computer programs designed to analyse data, discover patterns, and make predictions or judgements without human interaction (Craig, Laskowski & Tucci 2024). AI models capable of performing records management functions encompass ML, DL, NLP, neural networks, and search engines powered by AI. The functionality of these models in performing records management functions is fundamentally based on algorithms, which are systematic mathematical procedures that delineate their operational mechanisms (Mardiati et al. 2023). Through algorithms, AI models are capable of executing records management tasks across the entire lifecycle, from creation to disposal (Baluja 2024).

(a) ML algorithms

ML algorithms excel in decision-making processes and predictive analytics, significantly enhancing efficiency and automation in records management (Mardiati et al. 2023). ML algorithms facilitate rapid and comprehensive classification of records, which is crucial for the effective management of records and retrieval (Triantafyllou, Chrysanthopoulos, Stoyannidis & Tsolakidis 2023). Moreover, ML algorithms are essential in identifying and eliminating duplicate or unnecessary records within data collections, ensuring data integrity and relevance (Pothuri 2024).

(b) NLP algorithms

NLP algorithms act as a conduit between human communication and machine understanding, allowing computers to analyse, process, and produce relevant texts (Stathum 2024; Triantafyllou et al. 2023). AI models such as chatbots and virtual assistants are powered by NLP algorithms to improve record retrieval and provide a more conversational and intuitive understanding of user queries (Pothuri 2024). Mardiati et al. (2023) indicate that the benefits of NLP algorithms extend beyond basic question-answering; they enhance user engagement by offering immediate replies and foreseeing user needs based on previous interactions. The integration of NLP algorithms in records management leads to increased user satisfaction and improves the efficiency of the records retrieval process.

(c) DL and neural network algorithms

DL is a special subset of ML that uses neural networks to process and learn from large data sets (Baluja 2024). According to Barla (2023), DL algorithms are extremely efficient for complex and large datasets. They can be used for facial recognition and to detect patterns in structured and unstructured data. Through DL algorithms, organisations can develop advanced data protection mechanisms for their records. These algorithms can detect anomalies and flag suspicious access patterns or unauthorised attempts to interact with sensitive information, thereby safeguarding confidential data (Rolan et al. 2019). Furthermore, neural network algorithms are particularly adept at isolating crucial data from irrelevant information (Barla 2023). Through their pattern-matching abilities, neural network algorithms can effectively identify records slated for disposal based on established retention schedules (Lepak 2022).

(d) Automated classification algorithm

Auto-classification is an automated technique whereby document contents are systematically examined and labelled based on predefined criteria, such as exemplars, keywords, and organisational classification schemas (Brokensha, Kotzé & Senekal 2023). According to Modiba, Ngulube, and Marutha (2022), this process employs algorithms that classify records according to a predefined set of rules, typically derived from specific keywords or expressions within the text. Modiba (2025) asserts that auto-classification enhances organisational capacity by enabling efficient understanding of large, unstructured datasets, thereby facilitating rapid and accurate categorisation. This innovation has revolutionised records management. Unlike manual classification, which is often laborious and slow, auto-classification offers a faster, resource-efficient alternative, making the task of indexing more streamlined and scalable. Modern automated classification systems commonly leverage techniques such as NLP and ML

to effectively identify linguistic nuances and contextual information, thereby achieving more accurate and sophisticated categorisation than traditional keyword-based methods (Brokensha et al. 2023).

(e) AI-powered search engines

AI has fundamentally transformed the process of records retrieval. AI-empowered search engines can learn from user data and facilitate the automatic generation of accurate and relevant search results (Rolan et al. 2019). By leveraging AI technologies such as NLP and DL, computers can detect patterns in language and uncover relationships among words to better understand user needs (Ziakis & Vlachopoulou 2024; Stewart 2024). This development enables the swift retrieval of essential records for business operations and effectively addresses the key challenge of record retrieval in records management.

2.7.2.4 Storage infrastructure

Storage capacity constitutes a fundamental component of AI infrastructure. Given the prodigious volumes of data produced by AI applications, it is imperative to implement high-performance storage mechanisms capable of addressing quantities and types of AI-generated data (Tan 2024). Cloud-based storage, distinguished by its inherent flexibility and scalability, can effectively manage large-scale datasets and complex databases (Odun-Ayo, Ajayi, Akanle & Ahuja 2017). Adshead (2024) remarks that cloud-based storage provides a viable platform for running AI algorithms and facilitating real-time analysis and processing of large datasets. This implies that organisations aiming to utilise AI technologies for records management should invest in cloud storage solutions to ensure seamless data retention and accessibility.

AI-powered cloud storage not only supports data preservation but also facilitates remote access and the sharing of data, all while ensuring robust privacy and security measures (Susnjara & Smalley 2024). These features support core records management principles, enabling quick, secure access and real-time AI applications like conversational agents that effectively handle user inquiries (Susnjara & Smalley 2024; Vohra 2024). Furthermore, security protocols for cloud storage powered by AI encompass audit trails, sophisticated encryption techniques, and strict access controls (Odun-Ayo et al. 2017). This enhances the security of records and enables organisations to monitor any potential tampering with those records. Furthermore, AI-powered cloud infrastructures offer robust solutions for mitigating system failure risks through automated backups, disaster recovery strategies, and data restoration procedures, thereby ensuring a reliable records management process (Mohandas 2020).

Nevertheless, obstacles such as latency and bandwidth constraints may pose significant threats to the efficacy of real-time AI applications like chatbots and virtual assistants (Vohra 2024). It is essential to choose robust network infrastructures that provide high bandwidth and low latency when utilising cloud-based storage solutions for record keeping.

2.8 RECORDS MANAGEMENT ACTIVITIES THAT CAN BE DISCHARGED BY AI TECHNOLOGIES

Records management activities involve various processes such as the creation, classification, storage, retrieval, maintenance, security, and disposal of records. Effective records management is contingent upon the meticulous oversight of records throughout each of these phases (Landau 2022; Mosweu & Rakemane 2020). The proper records management system plays a crucial role in improving the efficiency of operations, streamlining workflows, enhancing data security, and promoting transparency and accountability (Kirvan 2023; Maina 2022). The advent of AI is transforming how organisations govern their records. AI has the potential to optimise all records management practices (Liu, Mazumder, Robertson & Grigsby 2020; Ivins 2023).

2.8.1 Record creation

Record creation is the first phase of the records lifecycle and refers to the process of producing documents or electronic files that capture essential information for an organisation (Mureebe & Lwanga 2023). According to Bakare et al. (2016), organisational records are created or received as a natural by-product of conducting business operations. AI-driven record creation may occur via digitalisation through intelligent cobotic machines and software tools such as OCR (Ivins 2023; Modiba 2025). In addition, generative AI technologies, such as ChatGPT, Meta AI, and Midjourney, can also generate new records autonomously. According to Abba (2023), these AI-powered technologies significantly minimise human error and enhance the speed at which records can be generated. This advancement further streamlines the access and dissemination of information (Ivins 2023).

2.8.2 Record classification

Record classification refers to the arrangement of documents that promotes the effective retrieval of information (Mokhtar & Yusof 2017). ML, a subset of AI, has emerged as a leading technology in classification because it uses statistical methodologies that allow computers to extract insights from datasets (Reis et al. 2020).

The conventional manual classification process involves employees sorting, labelling, and organising records according to predefined guidelines. This method is often time-consuming and prone to inconsistencies and human mistakes. In contrast, ML algorithms have made significant strides over traditional methods by efficiently and accurately classifying records in alignment with a structured organisational file plan or operational framework (Sisinna 2022). ML algorithms can be adeptly trained to classify records in a timely and precise manner, saving time and improving accuracy. In addition, ML algorithms can facilitate the automatic transfer of records to cloud-based storage solutions.

2.8.3 Records storage, maintenance, and security

Records storage is a secure repository where organisations systematically retain records following their creation (Malak 2023). Many organisations are grappling with the issue of record storage in the era of big data. The rapid rise in the number of records created each day complicates their ability to store and securely manage the continuously growing amounts of data (Tintswalo et al. 2022). Improper storage of records can jeopardise their safety and security, rendering retrieval difficult or impossible. Additionally, this can result in non-compliance with legal and regulatory requirements (Iron Mountain 2025).

AI-enhanced storage, especially the cloud, provides expansive capacity to store records, which are always readily accessible to users over the internet. Intelligent cloud storage features various applications that support the maintenance, security, and access control for data protection (Ayo, Akanle, Ajayi & Ahuja 2017). Through the implementation of digital rights management (DRM), organisations can secure sensitive records by controlling access, usage, and distribution rights, preventing unauthorised sharing or duplication of records (Roach 2024). Additionally, cloud-based storage solutions provide data backup automation (DBA), which ensures that data is backed up automatically and securely (Hassan, Shehzad, Habib, Aftab, Ahmad, Kuleev & Mazzara 2022). Moreover, intelligent cloud solutions include data loss recovery solutions, which enable organisations to recover data that has been lost or accidentally erased (Hassan et al. 2022).

Maintaining the security of records is a vital element of records management practices that has a direct effect on the lifespan of a record (Kirvan 2023). Adequate records management includes safeguarding records' integrity and safety (Iron Mountain 2023). As the demand for robust data security measures rises, AI technologies have emerged as a powerful ally in the protection of records from an array of physical and digital threats (Osagie & Oladokun 2024).

AI cloud storage systems incorporate vital security measures, such as smart encryption that safeguards the confidentiality and integrity of records. Blockchain technology, with its inherent immutability that prevents data modification or deletion without network consensus, has established itself as the optimal solution for securing records (Francis 2024). Another AI technology that demonstrates significant proficiency in security is facial recognition technology (Hamid, Yousuf, & Chowhan 2023). This technology utilises DL algorithms and computer vision techniques to enable computers and various devices to identify, validate, or confirm the identities of individuals by analysing their facial characteristics (Adjabi, Abdeldjalil, Benzaoui & Ahmed 2020). Face recognition technology can substantially enhance the security protocols for records. Moreover, cloud-based storage solutions have the potential to enhance digital preservation by ensuring the integrity and verifiability over extended periods (Mosweu, Luthuli & Mosweu 2019). In the cloud, records can be protected from corruption and unauthorised alterations, enable authorised users to access the records as needed, and support the long-term sustainability and accessibility of digital records (Houghton 2016). This implies that AI-based storage systems have the potential to overcome storage capacity limitations within organisations and enhance the management and safeguarding of records.

2.8.4 Record retrieval

Record retrieval is the process of efficiently retrieving relevant information from large collections (Sajid 2024). To support effective decision-making, organisations must be able to retrieve records promptly. The prevalence of AI-based search algorithms has enhanced the efficiency and speed of records retrieval within a database (Sisinna 2022). AI-based search engines utilise ML algorithms and NLP algorithms to effectively grasp and respond to user inquiries. ML algorithms are capable of analysing large volumes of data to identify patterns and make real-time adjustments that enhance search engines (Roof 2024). NLP algorithms improve the interpretation of queries by enabling systems to understand not only the literal meanings of words but also their contextual implications within the given text (Deshmukh 2024). Examples of AI search engines encompass generative AI applications, such as chatbots, virtual assistants, conversational bots, and Perplexity.ai. By analysing the context associated with a user's inquiry, these AI-based search engines yield search results that are precise and aligned with the user's questions (Shahzad, Khan & Iqbal 2024).

Traditional search engines rely on keyword matching, which often struggles with natural language complexities and is limited by physical constraints and manual input (Duhan, Singhal,

Sharma, Neeraj & Arti 2024). In contrast, AI-driven search engines like chatbots and virtual assistants offer direct conversational responses and customised interactions based on user data and conversation history (Kerner 2024). This differentiates them from traditional Google search engines, for example, which provide relevant information through links to sources.

Furthermore, traditional search engines can be quite cumbersome and labour-intensive. For instance, searching through overcrowded physical records can be a slow and arduous process. In contrast, AI-based search engines can significantly streamline this process, making it less laborious. With AI-powered search engines, users can locate records within a shorter timeframe and with less manual effort (Fasola 2023). However, reliance on AI-based search engines also carries certain risks and limitations. One of the most significant concerns is the potential for generating misleading or inaccurate information, including nonsensical or even harmful content (Pham, Pham & Duong 2024). Furthermore, the data used to train these AI algorithms may be flawed or biased, resulting in skewed or unreliable search results (Deshmukh 2024). This means that organisations utilising AI-based search engines, such as chatbots and virtual assistants, because intelligence record retrieval should promote the responsible use of these tools to prevent ethical challenges.

2.8.5 Record disposal

Record disposal is the process of appropriately eliminating records that have reached the end of their retention period (Malak 2023). Manual disposal is dependent on human involvement, making it susceptible to errors, inconsistencies, and delays when it comes to identifying records that need to be destroyed. On the other hand, advancements in AI technology, especially neural networks, are significantly improving the safe and efficient disposal of records.

Neutral networks are the subset of ML, that can accurately ascertain which records are due for disposal per retention schedules (Sisinna 2022; Reis et al. 2020). These networks can either flag records for deletion or directly execute the deletion process. Alternatively, remote wiping solutions (RWS) are well-established methods for securely deleting records stored in cloud environments, and they can be employed to eliminate records identified for safe disposal (Juan 2024). Intelligent disposal can significantly handle the repetitive tasks associated with disposal, allowing practitioners to concentrate on other responsibilities like decision-making and problem-solving. Table 2.5 outlines records management activities that AI technologies can perform.

Table 2.4: Records management activities that can be discharged by AI technologies

RM activities	AI tools and techniques	Impact and improvements
Record creation	▪ Intelligent cobotic machines ▪ OCR ▪ Generative AI	Fast and accurate digitalisation (Ivins 2023; Modiba 2025). Resolution of physical space constraints. Enhanced record generation using technologies like ChatGPT, Meta AI, and Midjourney (Abba 2023).
Record classification	▪ ML algorithms (Automated classification)	Rapid and accurate classification (Reis et al. 2020; Sisinna 2022).
Record storage	▪ Cloud-based storage ▪ DRM, DBA and data loss recovery solutions ▪ Digital preservation	Unlimited storage for records (Ayo et al. 2017). Proper maintenance of records, security and protection of data (Roach 2024). Automated data backup to prevent data loss and recovery of lost records (Hassan et al. 2022). Continual safeguarding of records to ensure their continued accessibility, usability, and authenticity over an extended period (Matolib 2025).
Records retrieval	▪ AI-based search algorithms ▪ Natural NLP	Enhanced and timely records retrieval (Shahzad et al. 2024). Real-time interpretation and responses to user inquiries through conversational agents such as chatbots and virtual assistants (Abba 2023; Crown Records Management 2023).

Record security	▪ Smart encryptions ▪ Blockchain technology ▪ DL algorithms and computer vision	Enhanced protection against unauthorised access and loss. Maintenance of data integrity over time (Francis 2024). Real-time identification and verification of individuals accessing records through facial recognition technology (Hamid et al. 2023).
Record disposal	▪ Neutral networks ▪ RWS	Automated Disposal of Records (Sisinna 2022; Reis et al. 2020; Juan 2024).

(Source: Researcher 2025)

2.9 SUMMARY OF THE CHAPTER

This chapter focused on the literature review related to the use of AI in records management. It addressed several key themes, including the importance and purpose of the literature review, the steps involved in reviewing literature, the referencing of sources, and the mapping of research literature. The chapter further discussed the legislative and policy framework for records management, user perception towards the use of AI, the skills necessary for managing records using AI, the infrastructure needed for effective records management, and the records management activities that can be performed by AI technologies. The next chapter covers the research methodology of the study.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

The previous chapter reviewed the literature concerning records management and AI. This chapter addresses the research design and methodology applied in researching this topic. According to McCombes (2021), research design operates as a conceptual plan that guides a study. Research methodology, on the other hand, is an ordered process that promotes the efficient solving of research questions and provides direction for conducting research in an orderly manner (Chivanga & Monyai 2021).

The methodology and design of the research provide a structured approach for acquiring results that are consistent with the research objectives (Jilcha 2019). They are integral to the effective resolution of research problems. Kapoor, Mahamuni, Bhowmick, and Qureshi (2022) opine that the various elements of a comprehensive study design should be harmoniously aligned, ensuring overall consistency among its components. According to Chivanga and Monyai (2021), the research methodology employed in social science studies involves a systematic exploration of specific events, occurrences, or phenomena within the social contexts of individuals deemed significant by researchers.

As illustrated in Figure 3.1, this study was grounded in the pragmatism paradigm, characterised by ontological pluralism and an epistemological stance rooted in pragmatism (Yong, Husin & Kamarudin 2021). The study adopted a mixed methods research (MMR) approach, aimed at synthesising the strengths of quantitative and qualitative research to effectively address the identified problem (Kapoor et al. 2022). The researcher employed a convergent parallel design to gather both qualitative and quantitative data, recognising the significance of each dataset in effectively addressing the research questions (Roomaney & Coetzee 2018). This approach involved a parallel sampling method, which facilitated the collection of data from multiple sources. The methods of data collection included questionnaires, semi-structured interviews, and document reviews, aimed at providing a comprehensive exploration of the research question (Jacobs & Cornelius 2022). Figure 3.1 illustrates the methodology and design of this study.

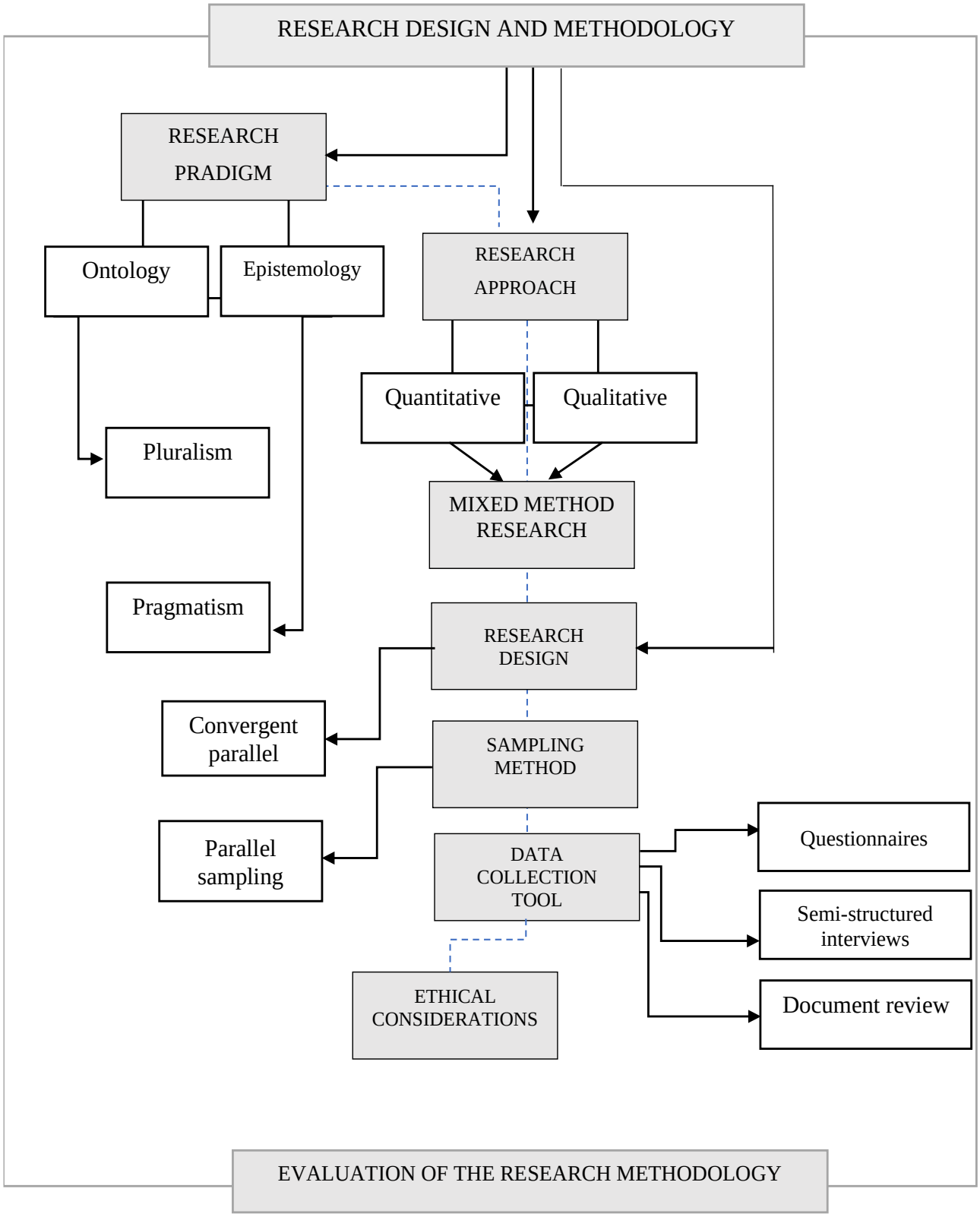


Figure 3.1: Research design and methodology

(Source: Researcher 2025)

3.2 RESEARCH PARADIGMS

Research paradigms are the underpinning views and beliefs that influence the direction of research studies (Ulz 2023). Kankam (2019) describes the research paradigm as a "mental window" through which researchers view the world. Quinlan et al. (2015) view paradigms as the "philosophical framework" that is the foundation for all research. Consequently, Brown and Dueñas (2019) perceive paradigms as an underlying assumption or worldview that shapes one's understanding of how things work.

Various scholars concur that paradigms encompass beliefs concerning the basis of existence (ontology), the way knowledge is acquired (epistemology), and how research should be done (methodology) (Yong, Husin & Kamarudin 2021; Rehman & Alharthi 2016; Kivunja & Kuyini 2016). However, Ulz (2023) states that scholars are now emphasising the significance of incorporating ethics or axiology into research paradigms. This reflects a growing recognition among researchers of the vital function of ethical considerations in establishing the values and principles guiding research practices.

Creswell (2014) claims that the prevailing paradigms in the literature include postpositivism, transformative, pragmatism, and constructivism. Other scholars, such as Rehman and Alharthi (2016), Žukauskas, Vveinhardt, and Andriukaitienė (2018), Kankam (2019), and Dawadi, Shrestha, and Giri (2021), recognise positivism, interpretivism, critical realism, and pragmatism as the dominant research paradigms. Gemma (2018) emphasises positivism, interpretivism, and critical realism as the primary paradigms, while Quinlan et al. (2015) expanded the list to include feminism, hermeneutics, functionalism, and structuralism as frequently utilised paradigms in research. However, Ngulube (2020) simplifies the complex discussions into a simplified framework, focusing on just two key philosophical lenses: ontology and epistemology.

This study adopted a pragmatic perspective, which, as posited by Allemang, Sitter, and Dimitropoulos (2021), emphasises the pursuit of practical applications and the clarification of meaning through experiential exploration and discovery. The rationale for adopting pragmatism as the philosophy underpinning this study was rooted in the perspective put forth by Tran (2017), who posits that the pragmatism approach emphasises the importance of prioritising practical solutions rooted in empirical reality for effective problem-solving in research, rather than solely focusing on theoretical understandings of the issue. Therefore, by adopting pragmatism, this study attempted to offer solutions that are not only scientifically

sound but also empirically verified and feasible in record keeping. Moreover, pragmatism challenges the dichotomies of qualitative and quantitative worldviews, advocating for combining them to gain a comprehensive understanding of the research phenomenon (Williams 2019). Furthermore, the study's broad and diverse nature makes it impossible to apply singular worldviews, such as positivism, interpretivism, or critical realism. A pragmatic worldview is ideally suited to manage the complex factors and considerations involved in AI (Kelly & Cordeiro 2020).

3.1.1 Ontology

Rehman and Alharthi (2016) assert that the ontological perspective revolves around our fundamental understanding and perception of reality. Each scholar has unique views about the nature of reality, how it exists, and the extent to which it can be comprehended. According to Kivunja and Kuyini (2017), ontology is the philosophical discipline that excavates the underlying assumptions that shape our perceptions of what is real and meaningful in the world. Pasipamire and Masuku (2022) posit that pragmatism is characterised by a lack of allegiance to specific ontological and epistemological stances, thereby allowing for a nuanced and context-dependent exploration of reality. According to Aikin and Talisse (2016), pragmatists consider themselves pluralists, as they believe that reality is both singular and multiple, and they appreciate objective as well as subjective perspectives (Dawadi et al. 2021). Thus, following this notion, this study employed a pluralistic ontology. According to Turner (2012), ontological pluralism is a theoretical framework that recognises the existence of multiple modes or forms of reality. Hashemi and Hosseini (2023) further emphasise the importance of this approach in facilitating collaboration across disciplines by providing a shared framework for understanding and communicating complex ideas. Furthermore, the pluralist ontological approach was adopted, given that the researcher intended to integrate multiple research methods, data-gathering techniques, and analysis tools for accurate outcomes of the study (Pasipamire & Masuku 2022). Opting for a pragmatic paradigm made it possible for the researcher to acquire a greater grasp of the complex issues related to the usage of AI and its prospective impact on records management operations.

3.1.2 Epistemology

Epistemology is the systematic study of the origin, nature, and scope of knowledge (Kivunja & Kuyini 2017). According to Ngulube (2015), there are three principal epistemological perspectives commonly employed in research: pragmatism, positivism, and interpretivism.

Positivism is grounded in the conviction that knowledge must be based on empirical evidence and observable events. In contrast, interpretivism challenges this perspective by highlighting the subjective aspects of human experience and the significance of context in comprehending social phenomena (Sol & Heng 2022). On the other hand, pragmatism asserts that knowledge is not fixed; rather, it develops through our experiences and interactions with the environment (Turyahikayo 2021; Allemang et al. 2022). This study adopted a pragmatist epistemology. Pragmatism epistemological approach prioritises practical knowledge and highlights human experience as a primary source of knowledge (Allemang et al. 2022). This perspective enabled the researcher to effectively explore and understand individuals' views and opinions on AI (Roomaney & Coetzee 2018). Furthermore, in this study, pragmatism enabled a problem-solving approach that prioritised the identification and implementation of solutions to practical challenges related to AI in the GDE records management system (Allemang et al. 2022). Moreover, the adoption of pragmatism as an epistemological stance assisted in the identification of specific gaps in GDE's current records management practices through which AI technology can offer remediation.

3.2 RESEARCH APPROACH

Solanki (2022) defines a research approach as a combination of methodologies that guide the entire study process. In social research, research approaches are the methods and strategies used to resolve research questions and add to the corpus of knowledge in the social sciences (De Klerk, Barnard, De Klerk, Du Toit & Smit 2023). The three prevalent approaches to study employed in the social sciences are qualitative, quantitative, and MMR. Taherdoost (2022) opines that scholars utilise these approaches in various research studies to gain insights into different aspects of their topic. Quantitative research is predominantly characterised by a deductive approach, which evaluates hypotheses that are formulated based on established theories. The quantitative approach is particularly effective for studies that necessitate measurement and statistical analysis (Khanday & Khanam 2019). It employs structured instruments such as surveys or experiments to generate numerical data (Streefkerk 2020; Mohajan 2020). In contrast, qualitative research adopts an inductive approach, concentrating on the development of theories derived from observed phenomena. This approach is adept at investigating intricate issues where numerical data may fail to encapsulate the depth of human experiences (Khanday & Khanam 2019). Qualitative research utilises unstructured or semi-structured methods, including interviews and focus groups, to produce descriptive data (Bouchrika 2024; Asenahabi 2019). MMR is characterised by an abductive approach,

integrating both deductive and inductive reasoning. This makes it especially beneficial for research topics that necessitate the combination of quantitative data and contextual understanding (Dawadi et al. 2021). By synthesising these two methodologies, MMR enables a more thorough triangulation of data (Sharma, Bidari, Neupane & Sapkota 2023; Roomaney & Coetzee 2018). Figure 3.2 presents a summarised overview of the various research approaches.

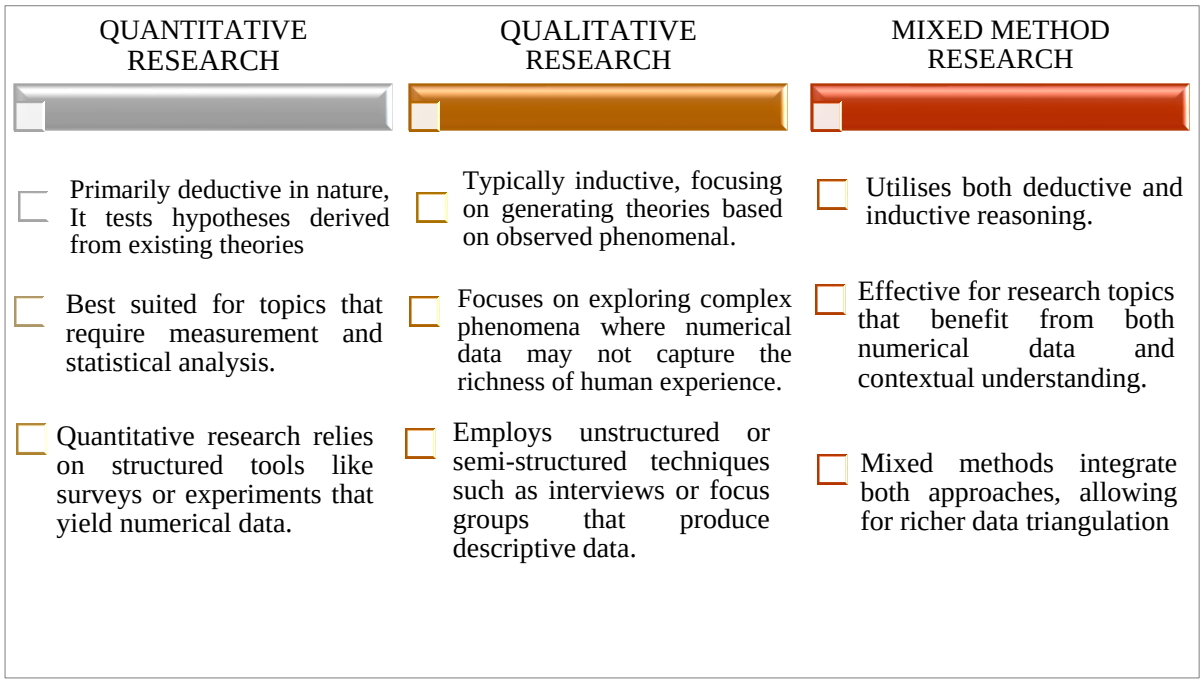


Figure 3.2*:* Research approaches in scientific research

(Source: Researcher 2025)

In this study, MMR was employed to investigate the application of AI to enhance records management practices at the GDE. This study followed an MMR approach as the researcher intended to blend qualitative and quantitative methods to enrich the scope and rigour of the study (Kamper 2022; Taheri & Okumus 2024).

3.2.1 Mixed methods research

MMR is an approach that integrates both qualitative and quantitative research techniques within a single investigation (Kelle, Kühberger & Bernhard 2019). By employing MMR, researchers can triangulate their findings, enhancing the validity and reliability of their conclusions (Kothari 2004; Leavy 2017). Dawadi et al. (2021) posit that the MMR approach is particularly valuable in studies where both qualitative and quantitative datasets are considered equally essential for addressing the research questions. MMR is often regarded as one of the

most effective research strategies for expanding and reinforcing the conclusions of a study (Schoonenboom & Johnson 2017). According to Phaladi (2022), MMR enables researchers to gather a wider range of data and conduct a more comprehensive analysis of their findings. However, Ngulube (2022) opines that there is no perfect approach to research, as each method has its own set of advantages and disadvantages. While MMR can address research questions that single methodologies cannot, challenges such as energy, time, and funds can hinder its implementation (Hafsa 2019; Ngulube & Ngulube 2015). Nevertheless, notwithstanding these challenges, Marutha and Dikotla (2022) emphasise the potential benefits of employing MMR, particularly in sectors such as records management and archiving, which are currently experiencing transformation as a result of technological developments.

Furthermore, AI is interdisciplinary, bridging various domains such as computer science, engineering, data science, statistics, and mathematics. As a result, effectively implementing AI in records management is complex and requires a comprehensive research approach, such as MMR. MMR is particularly well-suited for this context as it merges both qualitative and quantitative methods to deliver an in-depth understanding of intricate issues (Taheri & Okumus 2024). This dual focus ensures a holistic understanding of how AI can transform records management. Therefore, the researcher used MMR to effectively address the complexities that AI introduces in records management, ensuring a holistic consideration of both the technical and human factors.

In addition, the use of MMR allowed the researcher to analyse the study problem from multiple perspectives and methodological lenses, thereby enriching the findings (Dawadi et al. 2021). Moreover, Marutha and Modiba (2022) underscore the efficacy of MMR as a suitable approach for investigating research problems concerning the integration of AI in records management. Thus, this study opted for MMR to examine the implementation of AI to enhance records management activities at the GDE.

3.3 RESEARCH DESIGN

Romanchuk (2023) defines research design as a framework that details the approaches and techniques used to collect and analyse data to yield consistent and trustworthy outcomes. According to Khanday and Khanam (2019), research design serves as a framework that guides the processes of data gathering, processing, and interpretation, ensuring the study is conducted systematically and reliably. Akhtar (2016) points out that research designs are essential as they provide the foundational structure that unifies all elements of a research project.

The selection of a research design should be predominantly guided by the research approach adopted in the study (Khanday & Khanam 2019; Egunjobi 2022). Given that this study opted for an MMR approach, the emphasis will be on MMR research designs. The MMR designs are strategic frameworks that integrate both quantitative and qualitative research components to address complex research questions (Schoonenboom & Johnson 2017). According to George (2021), MMR designs differ depending on the study objectives, the time frame for gathering data, and the focus placed on different types of data.

The MMR encompasses various kinds of designs, including convergent parallel design, embedded design, sequential exploratory design, multi-phase design and explanatory sequential design (Creswell & Plano Clark 2018; Ngulube 2022; Damyanov 2023; Mutsagondo 2022). In an explanatory sequential design, quantitative data precedes qualitative data. The latter serves to provide further elucidation of the quantitative findings (Damyanov 2023). Conversely, a sequential exploratory design typically unfolds in a specific order, with qualitative inquiry preceding quantitative methods (Ngulube 2020). However, in a convergent parallel design, data collection occurs concurrently for both quantitative and qualitative methods, with separate analyses conducted for each, ultimately leading to an integration of the results (George 2021). The embedded design synergises qualitative and quantitative approaches by embedding qualitative insights into a broader quantitative framework, increasing the broadness of the results (Damyanov 2023). In this study, a convergent parallel design was adopted to enable the collection and analysis of both qualitative and quantitative data, and subsequently, juxtapose the findings to derive comprehensive insights and arrive at more coherent conclusions (Mutsagondo 2022).

3.3.1 Convergence parallel design

A convergent parallel design is an MMR design that involves the simultaneous collection and analysis of both quantitative and qualitative data (Asenahabi 2019; Granikov, Hong & Pluye 2022). In a convergent parallel design, researchers gather both quantitative and qualitative data simultaneously and analyse each type independently. After completing both analyses, researchers compare the findings to form overall conclusions (George 2021; Asenahabi 2019). Granikov et al. (2022), along with Ngulube (2022), concur that researchers frequently select the convergent design as a means of acquiring diverse and complementary data on a specific topic. In this study, the convergent parallel design allowed the researcher to focus on each data strand individually until the analysis was fully completed, as both data types were essential for

addressing the research question (Roomaney & Coetzee 2018). Dawadi et al. (2021) highlight that the simultaneous nature of this design eliminates potential interference between qualitative and quantitative datasets, differentiating it from sequential approaches. As a result, the researcher chose a convergence parallel design to maintain analytical integrity while allowing for integration during the interpretation stage. Moreover, integrating data at various levels helped the researcher reveal intricate patterns or relationships that might remain hidden when using only a single method (Younas, Fàbregues & Creswell 2023; Cresswell & Cresswell 2018). Ultimately, using a convergent design aided the researcher in producing more detailed and meaningful results, which significantly contributed to the advancement of knowledge in archives and records management.

3.4 POPULATION OF THE STUDY

According to Shukla (2020) and Majid (2018), the population is the group of people or organisations a researcher aims to examine and gather information from. Casteel and Bridier (2021) assert that the population serves as the primary focal point of the investigation and demarcates the limits of the study. Moreover, Majid (2018) and Ahmad et al. (2023) suggest that a well-defined population simplifies determining an appropriate sample. The population of this study consisted of records practitioners in charge of managing records at the registry offices within the 15 district offices. The researcher anticipated that these experts, involved in records management within the GDE, would provide critical insights into the topic, thereby enriching the quality and impact of the research. The population comprised a deputy director [1], an assistant director [1], chief registry clerks [20], and [80] senior registry clerks who work directly with GDE records, as well as [20] IT technicians responsible for technical issues.

3.4.1 Sample size

A sample is a representative subset of a larger population and holds significance only when it represents the entire population (Kaur 2017). Conducting research on the full population is often unfeasible due to constraints such as limited resources, time restrictions, access issues, or the intrinsic properties of the population itself (Nanjundeswaraswamy & Divakar 2021). Determining an appropriate sample size involves selecting an adequate number of observations to ensure that the sample reliably reflects the population. Ahmed (2024) suggests that various methods can be employed to identify an appropriate sample size from the target population based on the requirements of the research.

The sample size for this study was determined using Yamane's formula, developed by Taro Yamane in 1967.

Yamen's formula:

$$n = \frac{N}{1 + Ne^2}$$

In this formula:

n = sample size

N = population size

e = margin of error (precision level)

This formula, as noted by Uakarn, Chaokromthong, and Sintao (2021), is extensively recognised in survey research for its efficacy in estimating an optimal sample size that balances statistical accuracy with logistical considerations. The rationale for employing this formula lies in its systematic and statistically valid approach to determining an appropriate sample size, thereby enhancing the validity and reliability of the survey results (Ahmed 2024).

Yamen's formula was employed to determine the required sample size of survey participants, specifically senior registry clerks and technicians, for quantitative data gathering. In selecting the sample size, a confidence level of 95% with a 0.05 margin of error was used to ensure the reliability of the findings (Ahmed 2024).

Sample size for senior registry clerks and IT technicians

Population details: Senior registry clerks: 80 and IT technicians: 20

Total population N = 80+20 = 100

Sample size calculation: $n = \frac{N}{1+Ne^2} = n = \frac{100}{1+100 \times (0.05)^2}$

$$n = \frac{100}{1+100 \times 0.0025}$$

$$n = \frac{100}{1+0.25}$$

$$n = \frac{100}{1.25}$$

$$n = 80$$

Utilising Yamane's formula for a population of 100 results in a calculated sample size of 80, thereby ensuring adequate representativeness while avoiding excessive sampling (Yamane 1967). The selection of 80 individuals conforms to established methodological standards, providing a statistically valid sample that attains a 95% confidence level with a 5% margin of error (Krejcie & Morgan 1970; Anwar, Mishra & Verma 2023). This sample size aligns with conventional benchmarks in scientific inquiry, effectively balancing statistical precision with logistical considerations.

Sample size for deputy director, assistant director and chief registry clerks

Selecting the appropriate sample size for data collection in qualitative research is often a challenging aspect of the study. Hennink and Kaiser (2022) point out that this difficulty stems from the lack of clear guidelines and established formulas for determining sample sizes in qualitative research. Vasileiou, Barnett, Thorpe, and Young (2018) remark that the commonly used approach in qualitative studies is saturation. In this study, saturation was employed as the guiding principle for determining the sample size. The initial sample consisted of 20 participants, including one deputy director, one assistant director, and 18 chief registry clerks. Data collection through interviews continued until no new information or insights were obtained, and the data began to repeat, signalling that further collection would be unnecessary, thus confirming that an adequate sample size had been reached (Mocănașu 2020; Vasileiou et al. 2018). This sample size enabled the researcher to achieve a comprehensive and in-depth understanding within the context of the study, an objective that is typically unattainable when employing larger samples (Subedi 2021). Table 3.1 depicts the population of this study.

Table 3.1: Population and the sample size of the study

Research participants (GDE RM practitioners)	**Population**	**Sample size**
Deputy director	[01]	[01]
Assistant director	[01]	[01]
Chief registry clerks	[20]	[18]
Senior registry clerks	[80]	[70]
IT technicians	[20]	[10]

	TOTAL	**[120]**	**[100]**

(Source: Researcher 2025)

3.5 SAMPLING METHOD

Sampling is an essential step in research methodology that implicates selecting a portion to represent the entire population (Kothari 2004; Radhakrishnan 2014). Due to the impracticality and prohibitive costs of conducting a comprehensive survey of the entire population, the primary objective of sampling is to gather a sample of only a certain number of components or instances drawn from a larger, heterogeneous cohort (Bhardwaj 2019; Mujere 2016). Two distinct paradigms in sampling are non-probability sampling and probability sampling, each encompassing various sub-techniques (Taherdoost 2016a). Probability sampling is used in quantitative research where each participant has a comparable chance of being sampled. In contrast, non-probability sampling is utilised in qualitative research, where study subjects are recruited based on certain requirements or convenience factors, rather than randomly (Rahman, Tabash, Salamzadeh, Abduli & Rahaman 2022).

In MMR studies, the selection of sampling techniques must be purposeful and systematic for qualitative data and quantitative data (Onwuegbuzie & Collins 2007). This necessitates the incorporation of non-probability and probability sampling methods within the same study design (Suresh & Srinivasan 2017). Moreover, scholars like Kaur (2017) and Radhakrishnan (2014) stress that the choice of sampling method in MMR should be driven by the objectives of the study, the questions of the study, as well as the desired level of depth of investigation. In short, the sampling technique should be adjusted to the particular study setting and goals, thereby ensuring a robust and meaningful analysis.

According to Onwuegbuzie and Collins (2007), when undertaking an MMR study, it is essential to consider the sampling methods of the qualitative and quantitative phases. There are various sampling methods in MMR, including identical sampling, parallel sampling, multi-level sampling and nested sampling. Parallel sampling involves the concurrent collection of data through multiple methods, thereby facilitating the comparison and contrast of findings (Creswell & Cresswell 2018; Onwuegbuzie & Collins 2007). Identical sampling, on the other hand, utilises the same sample population across multiple methods to enable direct comparisons between the results (Onwuegbuzie & Collins 2007). Nested sampling involves selecting a subgroup for further analysis using a distinct method, whereas multi-level sampling gathers data at various levels to offer in-depth knowledge of the research problem (Schoonenboom &

Johnson, 2017; Ngulube 2022). This study adopted a parallel sampling method, as the researcher sought to gather quantitative as well as qualitative data to investigate the usage of AI to augment records management at the GDE.

3.5.1 Parallel sampling

Parallel sampling is a technique wherein data are gathered concurrently, utilising multiple methods like interviews, surveys, observations, and so on. This method assists researchers in acquiring a more thorough picture of the subject by juxtaposing data drawn using different techniques (Onwuegbuzie & Collins 2007; Parez 2023). In parallel sampling, multiple streams of data are collected simultaneously, incorporating quantitative and qualitative methods to investigate the topic and provide a more comprehensive understanding (Schoonenboom & Johnson 2017). By integrating qualitative and quantitative approaches, parallel sampling assists researchers to gain a broader knowledge of a topic of study by uncovering patterns and relationships that may be obscured by a single methodological perspective (Mujere 2016; Onwuegbuzie & Collins 2007).

This study opted for a parallel sampling method, as the researcher intended to gather quantitative and qualitative data sets concurrently, but independently. The researcher undertook in-depth interviews to acquire qualitative data and administered surveys to collect quantitative data (Schoonenboom & Johnson 2017). Both data sets were analysed simultaneously, yet separately. The rationale for this was rooted in the researcher's desire to synergistically merge the strengths of quantitative and qualitative data to create a deeper understanding of the subject (Sharma et al. 2023). Furthermore, combining qualitative and quantitative data from various sources assisted the researcher in generating comprehensive and reliable research conclusions, thereby improving the study's validity (Ngulube 2022).

3.6 DATA COLLECTION TOOLS

Data collection tools are means by which data are gathered from different sources, encompassing the methods, techniques, and instruments employed to collect information (Bhandari 2020). Data collection is the process of gathering data to acquire insight into and knowledge about a specific research topic (Taherdoost 2021). Pandey and Pandey (2015) state that tools used to collect information can vary in their complexity, interpretation, design, and administration. Each tool is designed for collecting specific types of information. In MMR, data collection involves accumulating information from multiple sources using quantitative and qualitative methods (Haryanto 2021; Guest & Fleming 2015). Therefore, this study combined

various data collection methods, such as surveys, in-depth interviews, and document reviews, to investigate the integration of AI into records management at the GDE. The utilisation of multiple methodologies, also known as triangulation, enabled the researcher to discover trends and patterns that would not have been discernible through a single approach (Sharma et al. 2023).

3.6.1 Questionnaire

A questionnaire is a deliberate and structured set of questions distributed to a representative sample of the population to gather the desired data (Quinlan et al. 2015; Kabir 2016). According to Pandey and Pandey (2015), a questionnaire is a pre-structured tool designed to obtain answers to particular questions, allowing for data collection in a self-administered manner. Quinlan et al. (2015) note that questionnaire methods fall under the positivist framework, employing a deductive approach that produces numerical data. In this study, questionnaires were used to gather statistical data from chief registry clerks and IT technicians. This approach enabled the researcher to analyse a substantial sample size, which is particularly beneficial given the large population of GDE senior registry clerks and IT technicians (Ahuja & Upadhyay 2022). Additionally, the questionnaires facilitated the collection of standardised data and allowed participants to respond anonymously, which significantly improved the reliability and accuracy of the results by reducing potential bias (Mazhar, Anjum, Anwar & Khan 2021; Ahuja & Upadhyay 2022). Moreover, the standardised questions facilitated simpler comparison and analysis of the responses (Kabir 2016).

3.6.2 Interviews

Interviews are a valuable data-gathering approach through which researchers orally communicate with participants to obtain information about their experiences, views, and mindsets (Sukmawati 2023; Mazhar et al. 2022). The purpose of interviews is to gather qualitative data that can provide insight into individuals' thoughts, feelings, and behaviours (Ahuja & Upadhyay 2022). According to Monday (2020), for an interview to be conducted effectively, a researcher should possess the following skills and competencies:

- Proficient listening skills
- A non-judgemental attitude
- Strong memory retention
- The capability to think quickly and adaptively

Leavy (2023) and Sukmawati (2023) remark that qualitative research often employs various types of interview techniques, including semi-structured, structured, and unstructured interviews. Structured interviews adhere to a predetermined script, while semi-structured interviews allow for guided questions while also enabling open-ended discussions and follow-ups. Unstructured interviews involve a free-flowing conversation with no predetermined questions (Leavy 2023; Paradis, O'Brien, Nimmon, Bandiera & Martimianakis 2016). This study utilised semi-structured interviews with one deputy director, one assistant director and 10 chief registry clerks in charge of records management at the GDE. The justification for this methodology was threefold. First, the use of semi-structured interviews enabled a comprehensive exploration of the subject matter, thereby allowing the researcher to cultivate a more nuanced comprehension of the participants' thoughts, emotions, and experiences (Munir 2017). Second, the subjective perspectives provided by the participants' narratives contributed to a rich and detailed understanding of their experiences and attitudes (George 2021). Lastly, semi-structured interviews produced profound insights into the potential applications of AI in enhancing records management practices at the GDE.

3.6.3 Document analysis

Dalglish, Khalid, and McMahon (2020) assert that document analysis is a crucial research methodology that enables researchers to systematically evaluate and interpret both printed and digital documents. This approach is particularly valuable for understanding the context and content of various texts, facilitating deeper insights into their implications and significance. Morgan (2022) highlights that document analysis techniques can be effectively employed to trace the evolution of different types of policies over time and across various regions. The researcher utilised document analysis to examine the legal and policy framework governing records management at the GDE.

In this study, both physical and electronic documents were reviewed to:

- verify whether the GDE meets the standards set by NARSSA for proper records management
- identify whether there are existing GDE policies and whether they address all necessary components of effective records management as outlined by NARSSA
- identify potential gaps or deficiencies in the existing legislation and policies
- assess the adequacy of the legal and policy framework to support the implementation of disruptive technologies like AI.

Document analysis provided insights into the legal and regulatory framework governing the operations of the GDE records management and evaluated compliance with established standards (Cardno 2018). By reviewing these documents, organisations such as the GDE can adapt their policies and procedures to meet the evolving demands and challenges brought about by technological advancements (Büchter, Weise & Pieper 2020). Furthermore, document analysis was chosen as a supplementary method for data collection to strengthen the study's robustness through a multi-method triangulation approach (Morgan 2022).

3.7 DATA ANALYSIS

According to Taherdoost (2020), data analysis entails the conversion of collected information into meaningful insights. Ibrahim (2015) defines data analysis as a comprehensive and systematic process that employs computational and analytical methods to extract relevant details from data. The absence of data analysis renders the entire process, including data collection, ineffective (Dawit 2020). Consequently, Phaladi (2022) and Creswell and Plano Clark (2018) assert that data analysis in MMR projects necessitates the application of distinct analytical methods for qualitative and quantitative data separately. Following this notion, this study employed qualitative analysis techniques for the qualitative data and quantitative analysis procedures for the quantitative data.

3.7.1 Quantitative data analysis

Quantitative data analysis is a structured process for evaluating, understanding, and capturing conclusions from numerical data (Eteng 2022). In this investigation, numerical data were gathered through the use of questionnaires. The collected responses were systematically processed and organised for analysis utilising Microsoft Excel 365 and subsequently subjected to descriptive statistical analysis. The researcher utilised percentages and data distribution tables to effectively summarise and illustrate the occurrence and patterns of variables in the dataset.

As noted by Wolniak (2023), descriptive analysis encompasses the processes of data collection, cleansing, and summarisation from multiple sources. Utilising this approach allowed the researcher to produce a clear and concise summary of the dataset, thereby supporting informed decision-making (Wolniak 2023). This method proved particularly effective in ensuring data accuracy, minimising potential errors, and enhancing the credibility of the findings. The results were subsequently presented through graphical and tabular representations within Excel to enhance interpretability and provide a clear understanding of the data.

3.7.2 Qualitative data analysis

Busetto, Wick, and Gumbinger (2020) describe qualitative data analysis as a comprehensive and interpretative exploration of non-numerical information, including texts, images, and audio recordings. In this study, semi-structured interviews and document reviews were employed to gather qualitative data. The researcher employed thematic analysis, which involves categorising and coding data to uncover prevalent trends and patterns (Bryda & Costa 2023). The research adhered to six steps outlined by Braun and Clarke (2006) to systematically analyse qualitative data. These stages functioned to ensure a rigorous and comprehensive examination of the data, thereby improving the rigour of the study and enriching the depth of the findings (Naeem, Ozuem, Howell & Ranfagni 2023).

3.8 VALIDITY AND RELIABILITY

Ganesha and Aithal (2022) argue that reliability and validity are fundamental metrics for evaluating the quality of research. In research, these concepts are crucial, as they pertain to how accurately a measurement tool represents the theoretical concept under investigation and how consistently different evaluations of the same construct yield similar results across various researchers and contexts (Haq 2015; Middleton 2019). Jiaoa and Sang (2023) emphasise that confirming the research tool is a crucial process for ensuring both the validity and reliability of the data collected.

3.8.1 Validity

The concept of validity refers to the degree to which a study effectively captures the phenomenon or constructs it seeks to measure or evaluate (Kubai 2019; Mela, Dumbari & Ali 2023). Taherdoost (2016b) explains that validity is understood as the extent to which the data collected accurately and effectively reflect the theoretical framework of the research, ensuring that it encapsulates the conceptual boundaries of the study. This indicates that a measurement tool is considered valid when it successfully measures the specific construct intended (Pandey & Pandey 2015; Mela, Dumbari & Ali 2023). If the instruments used are not valid, the study will yield misleading findings and erroneous conclusions (Alamina, Ogbu, Wapaimi, & Jacob 2022). In the context of this study, the use of invalid instruments can mislead the integration of AI in records management, leading to inaccurate interpretations and misconceptions about AI technologies.

To improve the validity of this research, the investigator ensured construct validity by creating questionnaires, interviews, and a document analysis checklist that precisely assessed only the usage of AI in records management. This approach avoided gathering data on irrelevant constructs or variables (Jansen 2023). Consequently, the content of the questionnaires, interviews, and checklists was solely focused on the application of AI to enhance record management practices at the GDE. Furthermore, to establish content validity, the researcher took great care in crafting questionnaires, interviews, and checklists that thoroughly encompass all relevant elements of the research topic, thus ensuring both accuracy and reliability (Ganesha & Aithal 2022). The researcher also ensured that the data collection tools, including interviews, surveys, and checklists, were free from errors and ambiguity, ensuring that they effectively gathered the intended information.

3.8.2 Reliability

Reliability pertains to the consistency and stability of results produced by a data collection method, allowing researchers to have confidence in the quality of data gathered through repeated applications over a long period (Kandiero 2022). In essence, reliability ensures that the outcomes generated by the tool are stable and trustworthy and that the instrument will yield the same results when used in comparable conditions (Ganesha & Aithal 2022). This suggests that data collection tools are considered reliable when the results they yield are consistent and unchanged over time, no matter how often they are administered to the same person or group (Kandiero 2022). Andersson, Boateng, and Abos (2024) opine that unreliable results significantly undermine the credibility and trustworthiness of the outcomes of the study, which, in turn, adversely affects the overall quality of the research and its practical applications. This implies that the deployment of AI in records management may be negatively impacted if the findings are unreliable, potentially leading to misguided decision-making and ineffective implementation of AI technologies.

Therefore, to assess the reliability of the findings of this study, the researcher carried out a pilot test with a small sample using interviews and surveys. This preliminary study helped the researcher detect and correct any minor mistakes or inconsistencies that could affect the reliability of the research. As highlighted by Kabir (2016), conducting a pilot test can reveal possible problems related to the wording of questions, their arrangement, comprehension, and how respondents react. This preliminary examination aimed to reduce mistakes and biases while enhancing the study's result reliability (Kandiero 2022). Additionally, the researcher

employed clear language and intentionally avoided technical jargon in crafting the questionnaires and interview prompts, ensuring that the questions were understandable to those not directly involved with records.

3.9 RESEARCH RIGOUR

Cypress (2017) defines rigour in research as the accuracy and dependability that are essential for producing reliable results. In social science, the validity of results is intricately tied to their authenticity, quality, and veracity. To uphold the rigour of this investigation, the researcher employed the trustworthiness criteria established by Lincoln and Guba. This framework comprises four essential dimensions: transferability, confirmability, credibility, and dependability, which collectively guide the methodological execution of the study and substantiate its trustworthiness. Forero et al. (2018) refer to these dimensions as the "four-dimension criteria". Enworo (2023) and Nowell, Norris, White, and Moules (2017) reference contemporary criteria for trustworthiness that have emerged, including triangulation, reflexivity, and the application of technological software. Nonetheless, they agree that the foundational work of Lincoln and Guba continues to exert significant influence. In this investigation, the researcher employed the original criteria, detailing all strategies implemented to ensure rigour by following the four-dimensional criteria articulated by Lincoln and Guba 1985).

Credibility refers to how much trust and validation research results receive from participants and stakeholders (Johnson, Donna & Chauvin 2021). This study established credibility by employing suitable research methods and ensuring transparency during data collection and analysis. Additionally, the researcher applied triangulation, combining various data sources to confirm findings through consistent trends (Williams & Kimmons 2022; Stahl & King 2020).

The transferability of a study hinges on detailed contextual information, enabling readers to assess the relevance of the findings to their situations (Johnson et al. 2021). To enhance transferability, the study included a comprehensive explanation of its methodology, sample characteristics, contextual factors, and limitations. This aimed to assist readers in assessing the applicability of the results across different contexts or populations (Roberto et al. 2018).

The dependability of the study is rooted in its steadfast consistency and thoroughness. This is accomplished by clearly documenting the research methods and keeping an audit trail to facilitate easy replication (Maher et al. 2018). The researcher provided a thorough account of the methodologies and procedures utilised, allowing readers to evaluate whether appropriate

research practices were adhered to and enabling other scholars to replicate the study in the future (Johnson et al. 2021).

Confirmability refers to how well a study's findings are substantiated by evidence that can be examined or validated by other researchers (Roberto et al. 2018). Furthermore, the researcher presented a detailed and clear explanation of the research process, encompassing data collection, analysis, and interpretation. This transparency allows fellow scholars to either corroborate or challenge the study's conclusions (Williams & Kimmons 2022).

3.10 ETHICAL CONSIDERATIONS

Ethical considerations in research are a set of guidelines that ensure that research practices are conducted responsibly, morally, and with a focus on participant protection (Bhandari 2021). Denison (2023) notes that these guidelines are crucial for safeguarding participants' rights and well-being, while also ensuring that the results produced by researchers are accurate and trustworthy. Additionally, Drolet, Derouin, Leblanc, Ruest, and Jones (2023) point out that ethical dilemmas and integrity issues, such as conflicts of interest, data falsification, violation of participants' rights, and plagiarism, can undermine the credibility of research and result in negative repercussions.

In this study, the researcher demonstrated integrity and honesty by avoiding fabrication and plagiarism, ensuring all sources were appropriately credited, and providing transparency in the research methodology by clearly outlining each step and its rationale (Denison 2023). Furthermore, the researcher set aside personal biases to conduct the study objectively, refraining from allowing her own opinions or cultural viewpoints to influence the research (George 2023). When presenting the findings, the researcher made a deliberate effort to ensure confidentiality by omitting individual identifiers and rather focused on broader trends and overall conclusions (Mirza, Bellalem & Mirza 2023). Moreover, the integrity of the research was upheld by accurately reporting all data and outcomes without fabrication or exaggeration (Drolet et al. 2023). The researcher obtained approval to conduct the study at GDE before submitting the ethical clearance application. Prior to commencing data gathering, the researcher requested ethical clearance approval through the supervisor at the university, guaranteeing conformity with university guidelines and protocol.

During the data collection phase, participants were treated with dignity and respect, regardless of their age, sex, race, religion, political beliefs, lifestyle, or any other significant differences from the researchers (Mirza et al. 2023). Prior to the commencement of data collection, the

researcher provided a brief overview of the study and its methodologies and emphasised that participation was voluntary (George 2023). The tools utilised for data collection included consent forms that offered clear and comprehensive information about the study, enabling participants to make informed decisions without any pressure (Denison 2023). The researcher ensured that these tools were free from ambiguity to facilitate accurate results. Furthermore, the research upheld transparency by clearly communicating how the data would be utilised and who would have access to it (University of South Africa Policy on Research Ethics 2013). Furthermore, confidentiality and anonymity were prioritised to protect personal identifying information; this meant that such information was either not collected or securely stored when necessary. Participants' data were not linked to their identities, thus preserving their privacy (George 2023). Additionally, contact details for both the researcher and their supervisor were included in the data collection tools, should participants have any queries.

3.11 SUMMARY OF THE CHAPTER

This chapter outlined the research methodology employed in the study. It details the various phases and functions undertaken throughout the research process. In this chapter, the researcher selected and discussed the research paradigm, research method, research approach, population of the study, sampling procedures, data gathering methods, and data analysis of the research study. Additionally, the chapter addressed issues of validity, reliability, research rigour and ethical considerations. The following chapter focuses on the presentation of the findings of the study.

CHAPTER 4: PRESENTATION OF THE RESEARCH RESULTS AND ANALYSIS OF FINDINGS

4.1 INTRODUCTION

The previous chapter expounded on the research methodology employed in this study. This included a thorough discussion of the philosophical assumptions informing this study, the chosen research approach and design, data collection techniques, data analysis methods, the rigour of the study, and the ethical considerations adhered to throughout the research process. Following the detailed exposition of the research methodology outlined in the preceding chapter, this chapter proceeds with the analysis of data and the presentation of the findings. According to Dawit (2020), data analysis is the process of transforming raw data into meaningful insights and ideas, which can be interpreted through descriptive or numerical techniques. Bhatia (2017) further clarifies that it involves systematic scrutiny of the collected data to extract key conclusions that can be used to address a problem. This indicates that, without proper analysis, data remains insignificant and cannot be transformed into actionable information. This section aims to discuss the data analysis process and the presentation of the findings of the study. It also outlines the data collection methods employed and the strategies used to analyse and present the data.

4.2 DATA ANALYSIS

The process of data analysis commences once all relevant data has been gathered. This stage involves transforming disorganised and extensive data into a clear and structured format that enhances decision-making (Islam 2020). In alignment with the research approach of this study, which was an MMR approach, a mixed analysis method was employed. According to Onwuegbuzie and Combs (2011), the term “mixed analysis” refers to the process of analysing data through both quantitative and qualitative methods. Therefore, this study incorporated both quantitative statistical techniques and qualitative thematic analyses, enabling a comprehensive interpretation of the data that considers both numerical patterns and contextual details. Furthermore, mixed analysis can involve analysing data either simultaneously or sequentially, with qualitative analysis occurring before or after quantitative analysis (Creswell & Creswell 2018). In this study, data were analysed concurrently, as a convergent parallel design was adopted. Accordingly, quantitative data were analysed statistically, while qualitative data underwent thematic analysis, with both sets analysed independently but interpreted collectively to identify relationships and corroborate findings. This integration facilitated the exploration

of relationships between datasets and enhanced validation of findings, leveraging the strengths of each approach to deepen the understanding of the research problem (Creswell & Inoue 2024).

Creswell and Creswell (2018) state that a study is considered MMR when quantitative and qualitative data are merged or integrated during analysis to provide a richer and more comprehensive understanding of the research topic. It is not just about collecting both types of data, but about actively combining them to deepen the insights gained. Informed by this perspective, the researcher ensured alignment between the datasets, whereby the quantitative data provided statistical evidence, and the qualitative data contributed detailed contextual insights related to the same research objective, thereby strengthening the findings of the study.

Furthermore, Islam (2020) emphasises that credible researchers reliably disclose comprehensive details about their data collection procedures, including the tools employed and the analytical techniques applied. This transparency allows readers to understand how the researcher arrived at their conclusions. In accordance with this principle, for qualitative data collection, the researcher utilised several instruments, including semi-structured interviews, survey questionnaires, and document analysis. The targeted participants for interviews were management staff, specifically the deputy director (1) and assistant director (1), as well as the 18 chief registry clerks**.** However, due to scheduling conflicts and the unforeseen unavailability of 6 participants, the final sample consisted of 12 participants.

Some interviews were audio-recorded using voice recorders, while others were documented in field journals. The recordings and written notes were subsequently compared and transcribed. The collected data were then analysed thematically, aligned with the following objectives of the study as described in Chapter 1:

- To analyse legislative and policy frameworks regulating AI to enhance records management practice at the GDE in South Africa.
- To establish the perception of records management practitioners regarding the utilisation of AI for managing records at the GDE in South Africa.
- To assess the skills required for records management practitioners to manage records using AI to enhance records management practice at the GDE in South Africa.
- To assess the infrastructure readiness to manage records using AI at the GDE.
- To identify the records management activities AI technologies can perform at the GDE in South Africa.

Widely recognised in qualitative research, thematic analysis is most often linked to Braun and Clarke (2006), who describe it as a "method for identifying, analysing, and reporting patterns (themes) within data." Researchers in qualitative fields commonly utilise this approach to systematically detect and interpret recurring themes within large qualitative or narrative datasets. For this study, thematic analysis was chosen to thoroughly explore the viewpoints and experiences of the participants.

Naeem et al. (2023) stress that the credibility and trustworthiness of the results rely on a systematic approach to thematic analysis, which involves meticulously recording each step involved. This highlights the significance of transparency in outlining the specific stages involved in concluding analysis. In line with this, the researcher adhered to Braun and Clarke's six-phase approach to thematic analysis, with the steps outlined below:

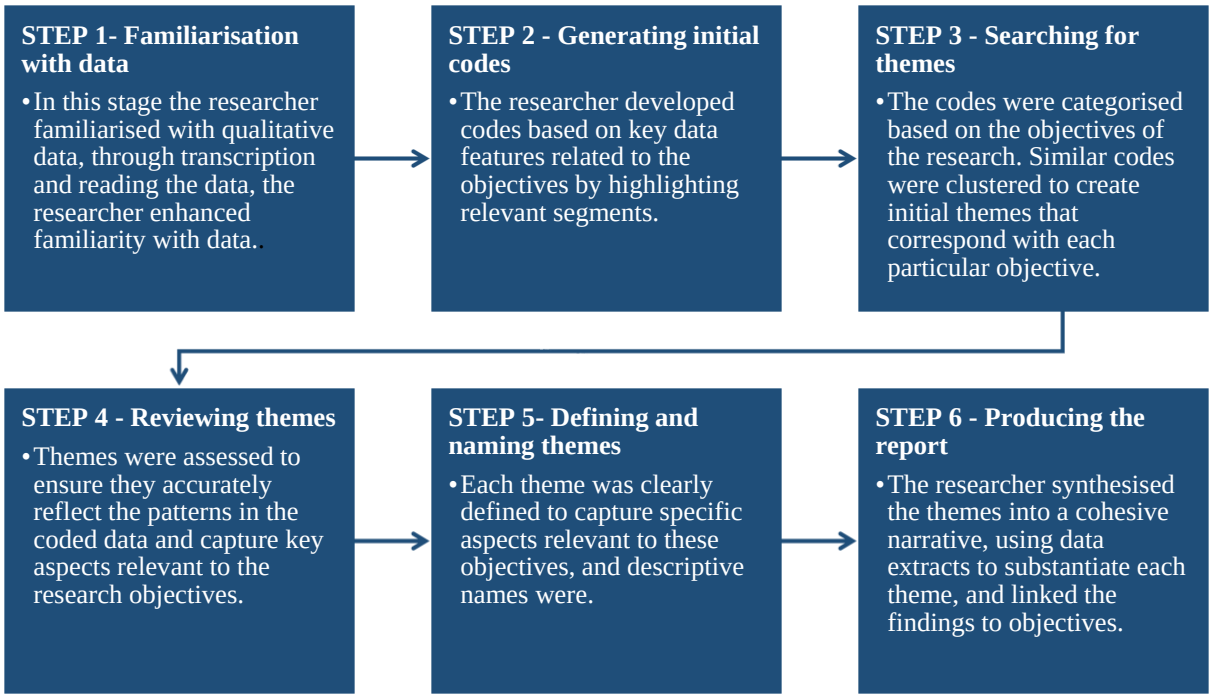


Figure 4.1: Six steps of Braun and Clarke's thematic analysis

(Source: Braun & Clarke 2006)

Furthermore, for quantitative data, senior registry clerks and IT technicians were surveyed. Anonymous questionnaires were distributed via a Microsoft link and in hard copy. The sample size comprised 80 respondents, including 70 senior registry clerks and 10 IT technicians, chosen to enable generalisation of the findings.

Data were analysed descriptively using Microsoft Excel 360, wherein summary measures such as percentages, averages, and ratios pertinent to the research objectives were calculated (Kanade 2023). As Kumar (2023) highlights, Excel provides an easy-to-use interface, comprehensive calculation functions, and integrated tools like pivot tables and charts that streamline data organisation, cleaning, and visualisation. The researcher found it to be a common and accessible platform for data summarisation and description, as well as both convenient and highly appropriate for the statistical evaluation in this study.

Through the document analysis tool, key legislative and policy documents concerning records management at the GDE were assessed. This analysis aimed to review the current legal and policy frameworks to ensure they facilitate effective records management, and to determine whether these frameworks support the adoption and implementation of AI technologies.

4.3 PRESENTATION OF THE FINDINGS

The presentation of the findings follows data analysis. Data presentation involves using various formats, such as text, tables, or graphical representations, to effectively illustrate the relationships between two or more data sets, thereby supporting informed decision-making (Adekaitan & Falana 2025). Effective data presentation enhances the depth, distinctiveness, and value of the research, making it more useful to the intended audience or the general public. According to In and Lee (2017), researchers can choose to present data either through text, tables, or graphical representations, depending on the nature of the data. In this study, data are presented using text for a concise overview of the results, tables for organised detail, and graphics to provide a clear and comprehensive understanding of the findings to the reader.

The findings of the study are presented in the same order as the questions in the survey questionnaire and the interview guide. For clarity, the individuals who were surveyed to collect quantitative data are identified as “respondents”, while those participating in the interviews are referred to as “participants”.

The findings from the quantitative data are presented first, followed by the qualitative results. As previously mentioned, the quantitative data were analysed using Microsoft Excel; therefore, the researcher presented data through tables, pie charts, and figures to provide visual representations of the analysed information. The qualitative findings, obtained from semi-structured interviews, are presented afterwards to offer more detailed insights that complement the numerical data. All findings are described in narrative form, and the responses of the

participants are quoted verbatim to accurately represent their perspectives. These direct quotations serve as key evidence supporting the conclusions of the study.

4.4 DESCRIPTION OF RESEARCH RESPONDENTS AND PARTICIPANTS

The participants involved in this study included employees from the GDE working in the registry offices, responsible for managing records. For the interviews, the researcher targeted management personnel such as the deputy director and assistant director based at the head office, as well as 10 chief registry clerks who led records management in district offices. This was done to obtain in-depth data and perspectives from management levels.

Furthermore, the respondent pool included senior registry clerks and IT technicians. Senior registry clerks are tasked with executing records management activities throughout the records lifecycle, and they possess both procedural knowledge and practical experience with the relevant systems. Although IT technicians are not directly involved in records management processes, their role is critical in maintaining the technological infrastructure that underpins effective records management. Given that the focus of this study pertains to the adoption and utilisation of a novel technological system, the inclusion of IT technicians was deemed essential to comprehensively understand the technological considerations involved.

Of the 70 questionnaires sent to the senior registry clerks, 59 were completed and returned, while 11 were not returned. All 10 questionnaires sent to the IT technicians were returned. Therefore, the total number of respondents in this study was 69.

4.5 PERSONAL INFORMATION

This section outlines the demographic details of the respondents and participants involved in this study. As previously mentioned, a total of 69 respondents and 12 participants contributed their perspectives and experiences concerning the use of AI to enhance records management practices at the GDE. Both the respondents and participants included males and females employed by the GDE.

4.5.1 Respondents per age group

This section presents an analysis of the age distribution among the respondents in the study. Within the 20–30-year age group, there were 10 respondents; within the 31–40-year age group, there were 46 respondents. The 41-50-year age group comprised 7 respondents, while the 51-

65-year age group included 6 respondents. Figure 4.2 visually illustrates the distribution of respondents across these age categories.

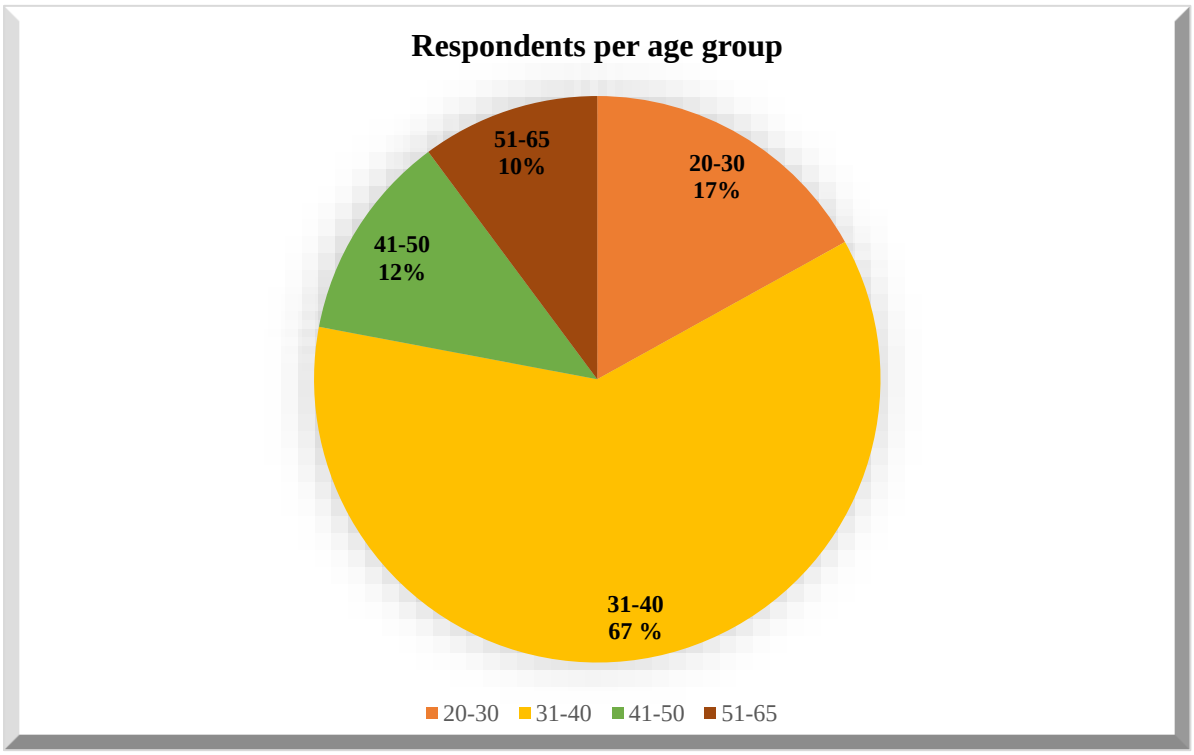


Figure 4.2: Respondents per age group

(Source: Research 2025)

Interviews were held with 12 participants. Regarding their age groups, seven participants indicated they were between 40 and 50 years old, while the remaining five participants reported being between 51 and 65 years old.

4.5.2 Respondents per gender

This section presents the respondents categorised by gender. According to the findings, the study included 21 males and 48 females. Figure 4.3 summarises the respondent distribution based on gender.

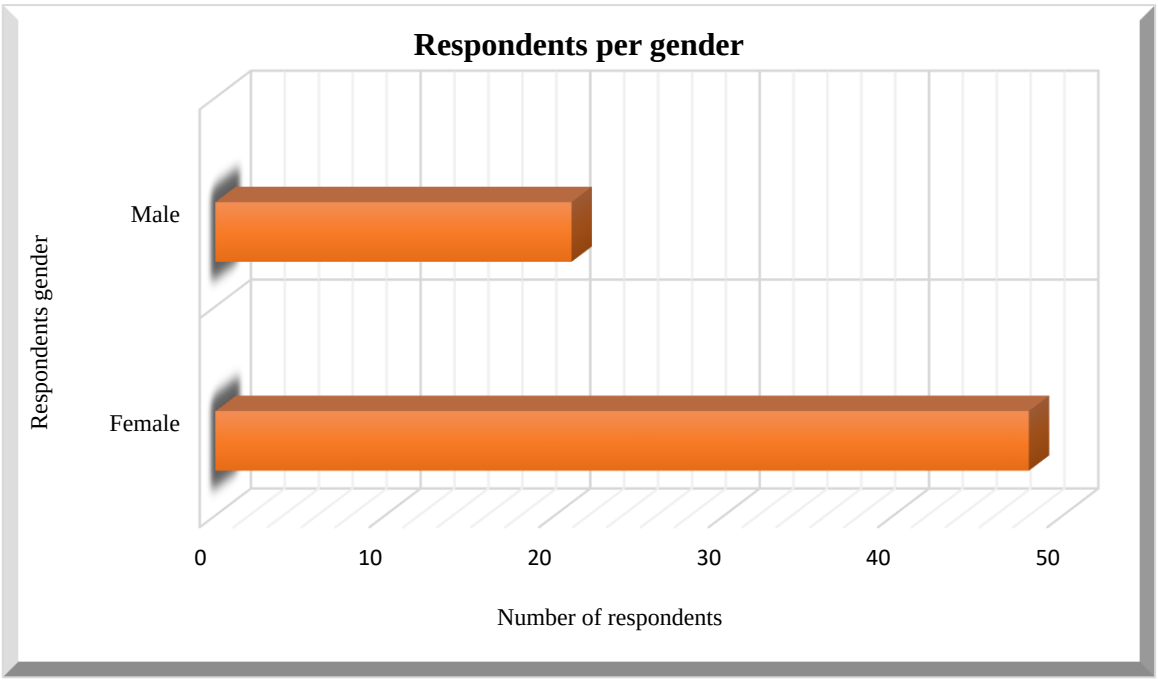


Figure 4.3: Respondents per gender

(Source: Researcher 2025)

Additionally, among the 12 individuals who participated in the interviews, seven identified as female, while 5 identified as male.

4.5.3 Respondents per job title

This section provides an overview of the respondents categorised by their job titles, aimed at examining their roles and responsibilities within the GDE records management department. The findings revealed that 59 senior registry clerks and 10 IT technicians constitute the respondents included in this study. Figure 4.4 visually depicts the distribution of respondents by job title.

Interviews were conducted with 12 participants. The following were their responses:

> **Participant 1** stated that, *"I am a deputy director."*
>
> **Participant 2** stated that, *"I am an ASD."*
>
> **Participants 3-12** stated that they were chief registry clerks.

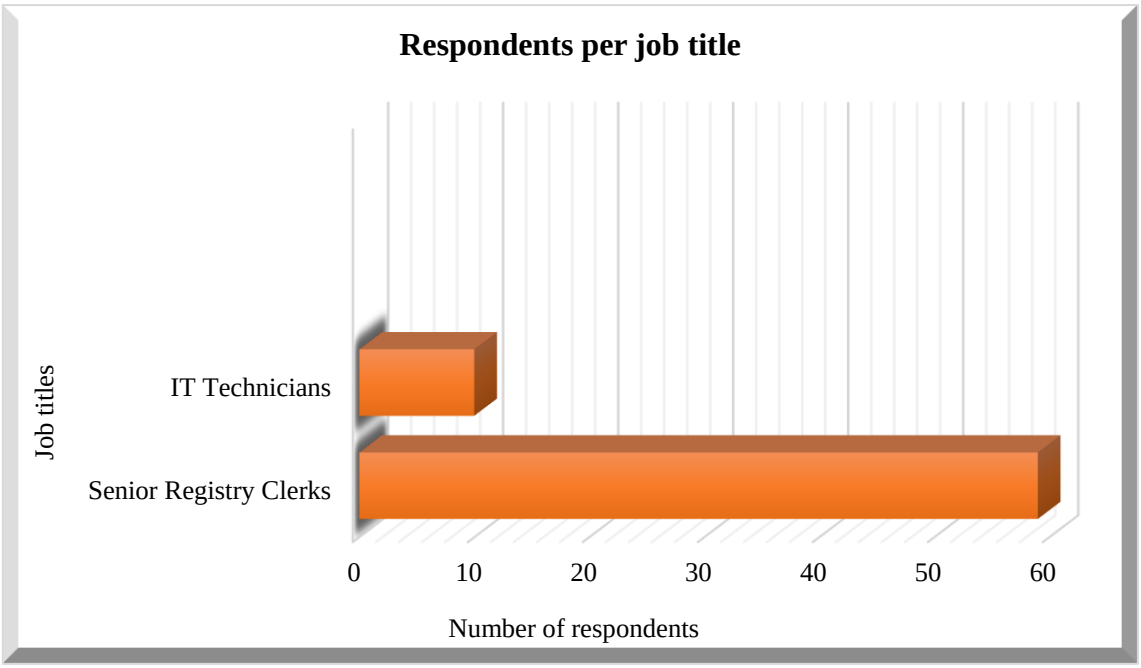


Figure 4.4: Respondents per job title

(Source: Researcher 2025)

4.5.4 Respondents per qualification

The researcher solicited information regarding the educational backgrounds of the respondents to assess their readiness for integrating AI into records management. The results revealed that among the respondents, 5 respondents possessed a Grade 12 certificate, 47 held diplomas, and 17 had attained bachelor's degrees. No respondents reported holding master's or doctoral degrees. Figure 4.5 presents the findings of respondents per qualification.

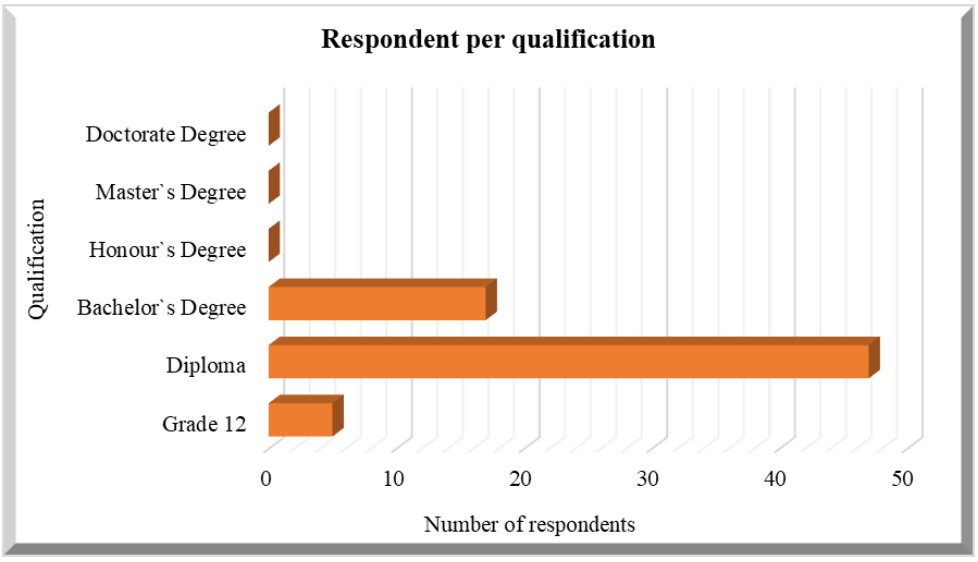


Figure 4.5: Respondents for qualification

(Source: Researcher 2025)

Additionally, interviews were conducted with 12 participants. The responses indicated that seven participants reported holding diplomas, four participants had bachelor's degrees, and one participant had an honours degree.

4.6. LEGISLATIVE AND POLICY FRAMEWORKS REGULATING AI TO ENHANCE RECORDS MANAGEMENT PRACTICE AT THE GDE IN SOUTH AFRICA

The first objective of this study was to analyse the legal and policy frameworks governing AI to enhance records management practices at the GDE. This objective sought to assess whether the GDE had established AI legislation and policy frameworks to promote the ethical and responsible use of AI technologies.

4.6.1 Legal framework governing records management at the GDE

Initially, respondents were asked whether there is a legislative framework that governs records management at the GDE. All 69 respondents acknowledged the existence of a legal framework governing records management within the GDE.

Consequently, a follow-up open-ended question was posed, requesting respondents to identify the specific legislative framework governing records management at the GDE. A list of relevant South African legislation pertaining to records management was provided for selection. The responses were as follows: among the 69 respondents, 20 (28.99%) respondents indicated that the Constitution of the Republic of South Africa is among the applicable legislative frameworks; 59 (85.51%) respondents identified the National Archives and Records Service of South Africa Act; 55 (79.71%) respondents cited the Protection of Personal Information Act; 59 (85.51%) respondents selected the PAIA; and 20 (28.99%) respondents selected the ECTA as legislation followed in records management at the GDE. Figure 4.6 presents the responses regarding the legislation framework governing records management at the GDE.

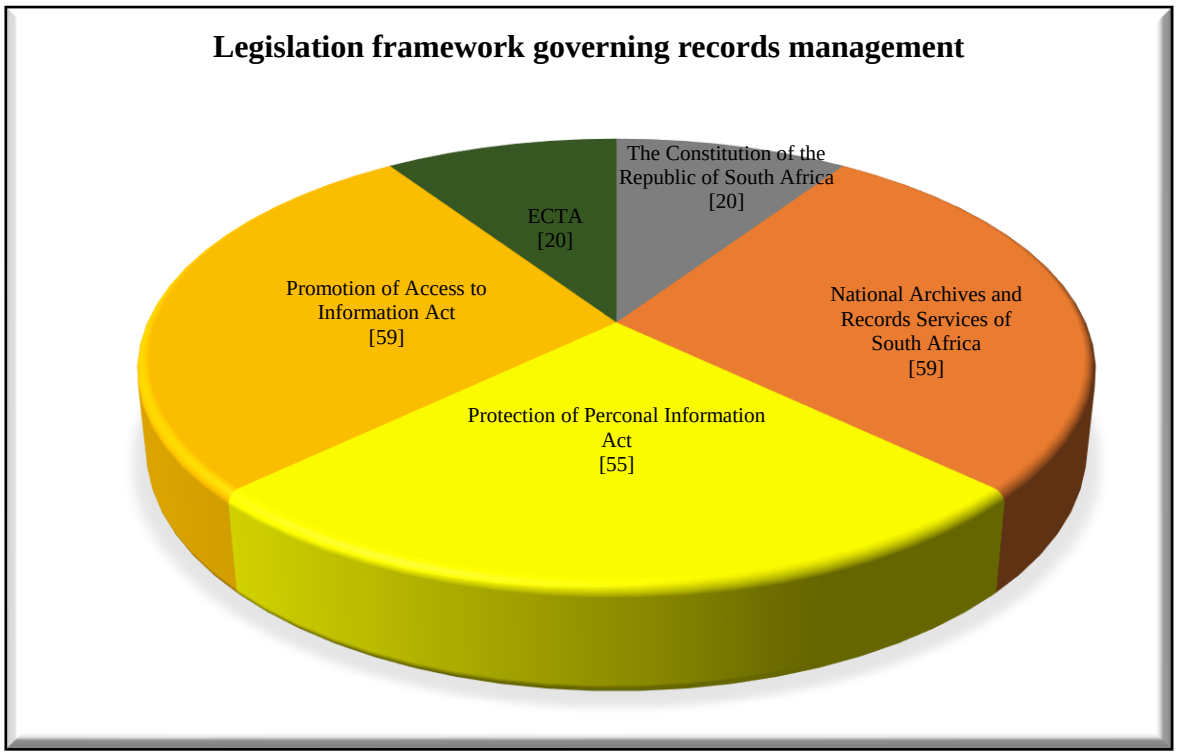


Figure 4.6*:* Legislation framework governing records management at the GDE

(Source: Researcher 2025)

During the interviews, participants were also asked whether there is a legislative framework that governs records management at the GDE, and to provide a brief elaboration on that legislative framework. The findings were as follows:

> **Participant** 1 stated that, *"The legislation we adhere to includes NARSSA and the POPI Act"*.
>
> **Participant 2** stated that, *"Yes, we are using NARSSA, POPIA, and MISS".*
>
> **Participant 4** stated that, "*Yes, we have a legislative framework for records management, which includes NARSSA, the POPI Act to safeguard personal information, and PAIA"*.
>
> **Participant 6** stated that, "*Yes, we utilise NARSSA and POPIA; there are other applicable laws, which I can verify on my computer"*.
>
> **Participant 10** stated that, "Yes, we have a legislative framework, we follow legislation such as NARSSA and our records management policy".

Participants 3, 5, 7, 8, 9, and 11 only mentioned the NARSSA. When asked whether that was the sole legislative framework, they responded that numerous others exist. However, they were unable to specify them during the interview and intended to consult their records for clarification.

4.6.2 Compliance with the legislative framework

Compliance with the legislative framework for records management is a mandate imposed by NARSSA on all government bodies that maintain records. Respondents were asked closed-ended questions to determine whether they adhered to the relevant legislation in their records management practices. As depicted in Figure 4.7, 57 (82.61%) respondents reported following the legislation during the records creation stage, all 69 (100%) respondents confirmed compliance when classifying records, 66 (95.65%) respondents indicated adherence during records storage, 59 (85.51%) respondents indicated compliance during records maintenance, 40 (57.97%) selected compliance during records security, 62 (89.86%) reported compliance when retrieving records, and 60 (86.96%) selected that they comply when disposing of records.

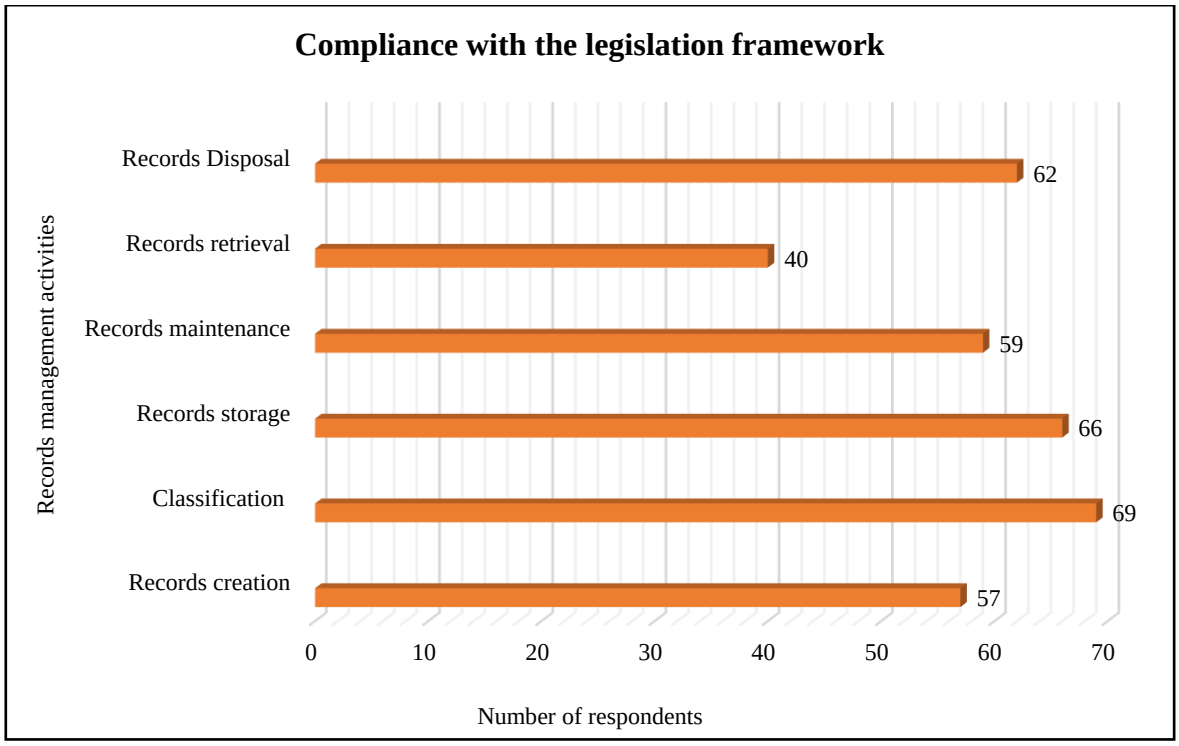


Figure 4.7*:* Compliance with the legislation framework

(Source: Researcher 2025)

During the interview, participants were asked similar questions about their compliance with legislation when managing records. The responses were as follows:

Participants 1 to 12 affirmed, *"We always follow the legislation when managing records".*

However, among them, **Participant 7** provided additional insight by stating:

"*We adhere to the legislation, but it can be difficult at times due to limited resources. For instance, we do not have enough space to store all records, and some are kept in boxes, which raises security concerns".*

4.6.3 Existence of AI legislation

AI legislation consists of laws or regulations aimed at regulating the creation, use, and application of AI technologies to ensure they are used ethically to benefit society and prevent harm. The questionnaire included closed-ended questions asking respondents whether AI legislation exists at the GDE. One (1.45%) respondent affirmed the existence of AI legislation, 12 (17.39%) respondents stated that no such legislation exists, and 56 (81.16%) respondents indicated that they were unsure. Figure 4.8 delineated the responses regarding the existence of AI legislation at the GDE.

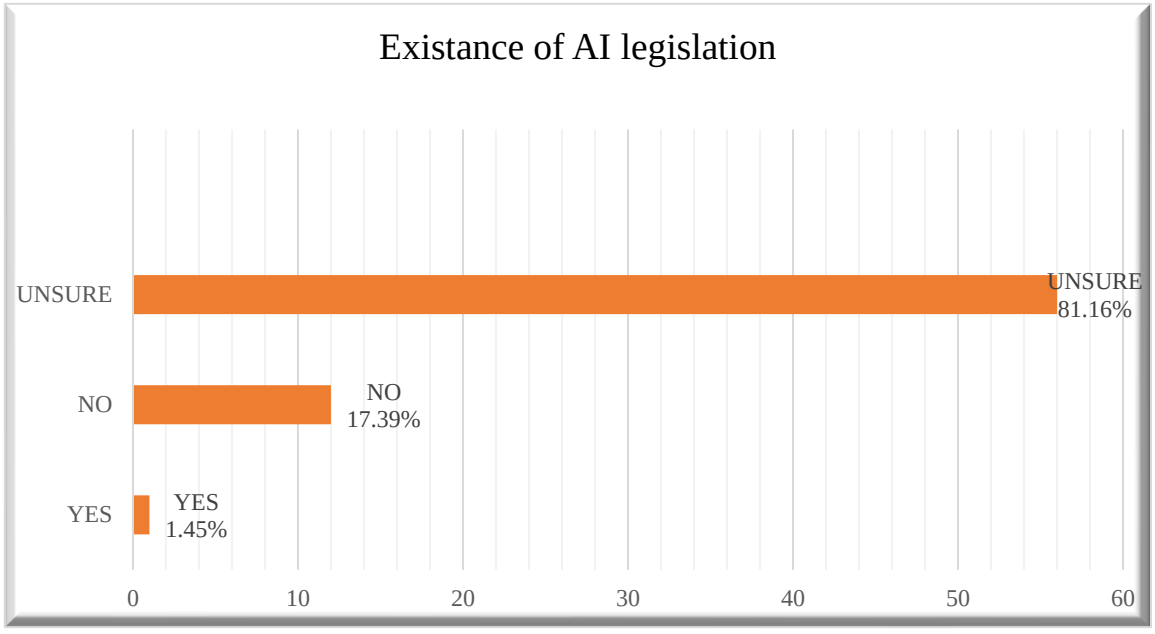


Figure 4.8: Existence of AI legislation at the GDE

(Source: Researcher 2025)

Using open-ended questions in the questionnaire, a follow-up question was posed to explore whether the existing AI legislation could effectively support the adoption, deployment, and responsible use of AI in records management within the GDE.

Except for Respondent 3, **Respondents 1 to 69** indicated that no existing legislation pertaining to AI was in place within the GDE. Only Respondent 3 asserted the presence of AI legislation at the GDE. Accordingly, their response was as follows:

> **Respondent 3** stated, *"No, to address records management effectively, the legislation should include provisions on transparency, data privacy, and risk management to ensure ethical record handling".*

Through an open-ended question, respondents who reported the absence of AI legislation were asked what actions could be taken to establish such legislation at the GDE.

> **Respondent 3** stated, *"The department must create AI legislation".*
>
> **Respondent 18** stated, *"Legislation must be created, and there should be training and lessons for all IT support technicians to implement AI legislation".*
>
> **Respondent 25** stated, *"The legislation should be developed alongside curriculum focus areas, especially in coding and robotics, rather than creating separate AI-specific laws based solely on records management".*
>
> **Respondent 40** stated, *"Since AI is now used for accessing and searching information, I believe it can be utilised to improve our systems, so AI legislation must be established".*
>
> **Respondent 50** stated, *"What needs to be done is to involve senior public sector officials to assist in establishing the AI legislation".*

Respondents **1 to 17, 19 to 24, 26 to 39, 41 to 49, and 51 to 69** indicated that they were unsure about what actions should be taken, while some simply responded with n/a.

Likewise, interview participants were asked whether there was existing AI legislation at the GDE. All 12 participants stated that they were unsure whether there was AI legislation at the GDE. Consequently, the researcher asked what actions they believed should be taken to establish AI legislation at the GDE. The responses were as follows:

> **Participant 1** stated, *"I think that AI legislation needs to be developed because we are now in the 5IR, and technology is advancing".*
>
> **Participant 4** stated, *"The legislation we are using should also include regulations for AI usage".*

Participant 7 stated, *"Top management should develop AI legislation for us".*

Participant 8 expressed, *"I don't think we can afford to use AI now, so creating AI legislation would be unnecessary".*

Participant 9 stated, *"If AI legislation can ensure data security when using AI, then I believe it's important, but it should be drafted by the appropriate people because we cannot take that responsibility ourselves".*

Participant 11 stated, *"I don't think it's something we should stress about, the department doesn't have money to get technology such as AI now".*

Participant 12 said, *"Officials in higher offices must be responsible for creating AI legislation".*

Participants 2, 3, 5, 6, and 10 stated that they did not know what actions should be taken to ensure the creation of AI legislation at the GDE.

4.6.4 Policy framework governing records management at the GDE

Using the closed-ended question in the questionnaire, respondents were asked whether there was a records management policy governing records management at the GDE. All 69 respondents indicated that there was a records management policy governing records management at the GDE.

Following this, respondents were asked to identify the policy framework that guides records management at the GDE. A list of relevant policies related to records management was provided for them to choose from. The responses were as follows: out of 69 respondents, 59 (85.51%) indicated that the MISS is followed when managing records; 44 (63.77%) mentioned that the records management policy manual is adhered to; all 69 (100%) confirmed that the GDE-approved records management policy is followed; and finally, 55 (79.71%) stated that the managing electronic records in governmental bodies: policy, principles, and requirements is also implemented when managing records at the GDE. Figure 4.9 depicts the findings of the policy framework followed when managing records at the GDE.

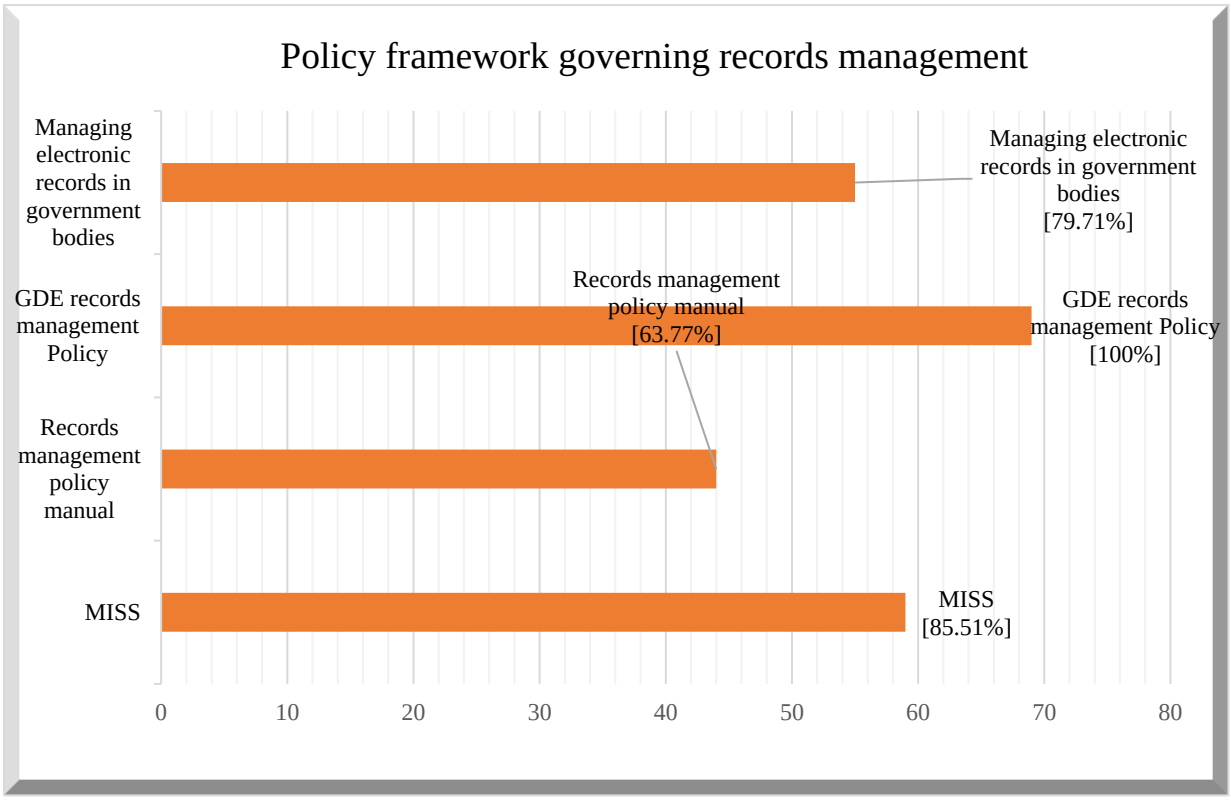


Figure 4.9: Policy framework governing records management at the GDE

(Source: Researcher 2025)

During the interviews, participants were also asked whether there was a policy framework that governed records management within the GDE. All 12 participants responded affirmatively, indicating that such a policy framework did indeed exist at the GDE. Furthermore, the researcher requested the participants to briefly specify which policy framework they followed when managing records at the GDE. The responses were as follows:

> **Participant 1** stated, *"We use the records management policy and MISS".*
>
> **Participant 2** stated, *"We have a records management policy that we use when managing records".*
>
> **Participant 6** stated, *"Our policies are on the GDE intranet, it's the records management policy and MISS".*

Participants 3, 4, 5, 7, 8, 9, 10, 11, and 12 only referred to the GDE records management policy. Some of them also mentioned NARSSA; however, the researcher clarified that there is a difference between legislation and policy.

The document analysis report confirmed that the GDE holds an approved records management policy, with a copy of the MISS accessible on the GDE intranet under policies. This policy framework covers aspects such as the creation, security, maintenance, access, and disposal of records. The policies emphasise the proper management of electronic records to ensure their reliability. However, these policies do not explicitly provide guidance on the adoption or use of AI technologies in records management.

4.6.5 Compliance with the policy framework

The existence of the records management policy is pointless if records practitioners do not follow it. Therefore, respondents were asked closed-ended questions to assess whether they comply with the policy framework in their daily records management activities. As shown in Figure 4.10, 52 (75.36%) respondents reported following the policy during the records creation process, 59 (85.51%) confirmed compliance when classifying records, 55 (79.71%) indicated adherence during records storage, 50 (72.46%) during records maintenance, 55 (79.71%) indicated compliance during records security, 55 (79.71%) reported compliance when retrieving records, and 59 (85.51%) selected compliance when disposing of records.



Figure 4.10: Compliance with the policy framework

(Source: Researcher 2025)

The interview participants were also asked whether they complied with the policy framework when conducting records management activities. Participants 1 to 12 stated that they complied with the policies during their records management tasks. They explained that their activities were conducted in accordance with both the GDE records management policy and MISS. No participant provided a different insight or indicated non-compliance in response to this question.

4.6.6 Existence of AI policy

AI policy is simply the guidelines that oversee the ethical, responsible, and lawful development, deployment, and use of AI technologies. The survey questionnaire incorporated closed-ended questions inquiring whether there is an AI policy at the GDE. Respondents were provided with three response options: *Yes, No,* or *Unsure*. Among 69 respondents, 1 (1.45%) confirmed the existence of an AI policy, 15 (21.74%) respondents reported that no such policy is in place, and 53 (76.81%) expressed uncertainty about its existence. Figure 4.11 illustrates the distribution of responses concerning the presence of an AI policy at the GDE.

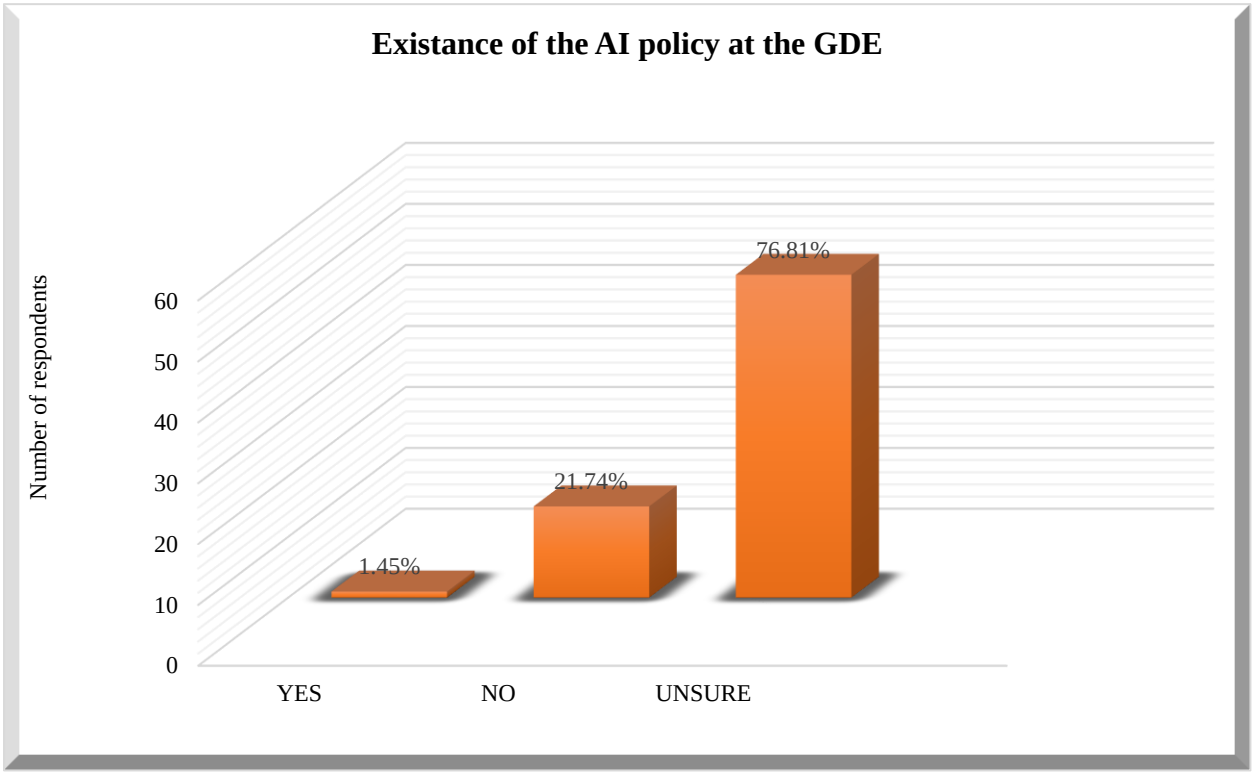


Figure 4.11*:* Existence of the AI policy at the GDE

(Source: Researcher 2025)

An open-ended question was presented to respondents who confirmed that the GDE did have an AI policy. The question asked whether the current AI policy could be effectively implemented for the adoption, deployment, and responsible use of AI in record management at GDE.

> **Respondent 5** stated, "*It can, and as we embrace modern technology, people can be gradually introduced to it in the work environment".*

Furthermore, an open-ended question was posed to the respondents, who indicated that the GDE did not have an AI policy at the time. The question addressed what measures they believed should be taken to establish an AI policy at the GDE. Their responses were as follows:

> **Respondent 4** stated that, *"The AI policy should be implemented, and users should receive training on how to effectively apply it".*
>
> **Respondent 7** stated that, *"An AI policy must be developed, clearly outlining the goals, objectives, and scope. This framework can be informed by existing national policies…."*
>
> **Respondent 10** stated that, *"I believe an AI policy needs to be introduced so that we can collaborate effectively with other countries and departments that are already utilising AI. Given that AI is the way forward nowadays, whatever you're looking for, AI can assist with that. For example, WhatsApp (Meta) also employs AI…."*
>
> **Respondent 11** stated that, *"The department must take steps to develop an AI policy for us".*
>
> **Respondent 17** stated that, "*We must be trained on how to develop an AI policy".*
>
> **Respondent 18** stated that, "*I don't think we need an AI policy".*
>
> **Respondents 20, 26, 38, 45, 49, and 50** indicated that an AI policy should be established.
>
> **Respondents 19, 30, 60, and 65** indicated that they were not sure about what actions should be taken to ensure that there is an AI policy at the GDE.

The responses from the remaining respondents were inconsistent with the question and lacked coherence.

The interview participants were also asked whether there was an existing AI policy at the GDE. All 12 participants indicated that they were unaware of any such policy. For each participant,

the researcher asked about their views on what should be done to ensure the development of an AI policy at the GDE.

Participant 1 stated that, *"There is no need for an AI policy to be created since AI will not be used anytime soon".*

Participant 2 stated that, *"GDE policymakers must create an AI policy".*

Participant 3 stated that, *"I don't think it is up to us to decide what must be done; management must take those actions".*

Participant 5 stated that, *"To incorporate AI in records management, an AI policy must be created".*

Participant 6 stated that, *"We don't need an AI policy since AI can take our jobs"*.

Participant 10 commented that, *"We must be trained on how AI works first before engaging in AI policy."*

Participants 4, 7, 11, and 12 indicated that they were unsure about what steps should be taken to establish an AI policy at the GDE.

4.7 USER PERCEPTION REGARDING AI

User perception is crucial when implementing new technology. Before introducing technologies like AI into records management systems, it is essential to understand the perspectives of records practitioners regarding these AI systems. This understanding helps organisations avoid investing in systems that employees may not use effectively. In this section, a series of questions aimed at gathering insights and opinions from GDE records practitioners about AI were posed.

4.7.1 Familiarity with AI

Initially, the respondents were asked a closed-ended question in the questionnaire to determine whether they were familiar with "artificial intelligence". As illustrated in Figure 4.12, 52 (75.36%) respondents stated that they were familiar with AI, while 17 (24.64%) respondents indicated that they were not familiar with it. Figure 4.9 depicts the findings regarding the familiarity of respondents with AI.

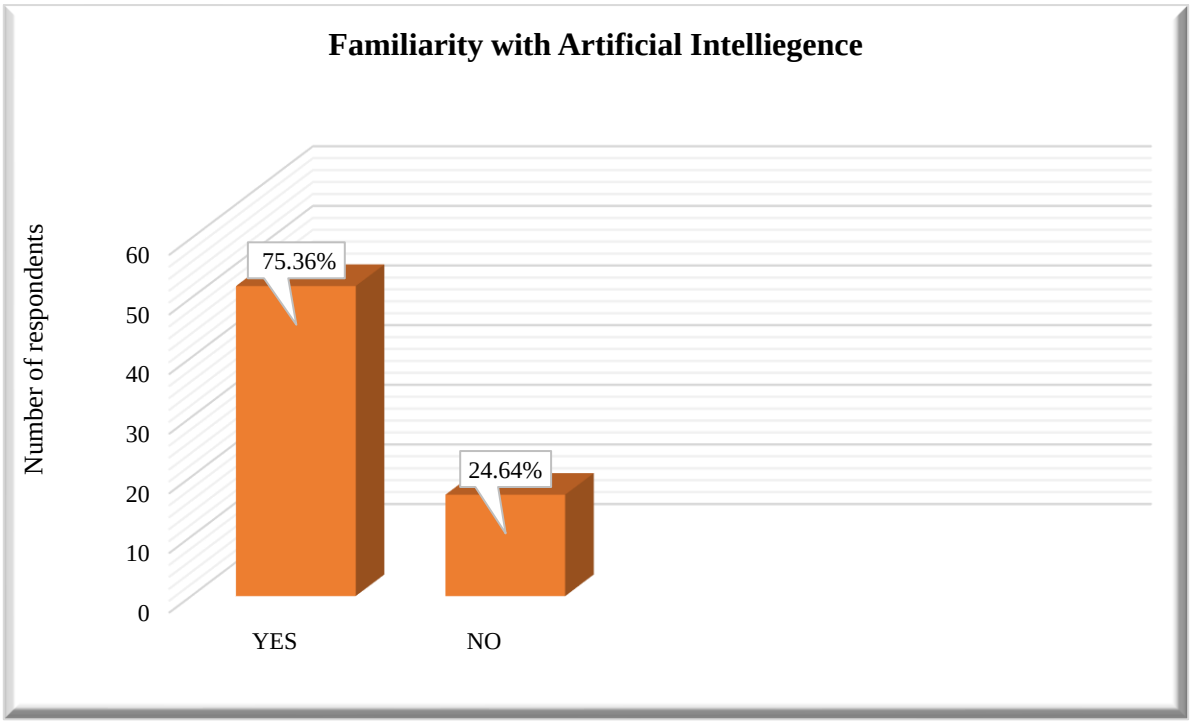


Figure 4.12: Familiarity with AI

(Source: Researcher 2025)

The respondents were asked a follow-up, closed-ended question to evaluate their understanding of AI. Several definitions were provided for selection. The results indicated that 60 respondents (87.0%) identified AI as involving the creation of machines capable of mimicking HI to perform tasks traditionally associated with humans. Conversely, 10 respondents (14.5%) selected the option indicating that AI refers to robotic machines. Only one respondent (1.4%) chose the definition, suggesting that AI pertains to the World Wide Web. Additionally, 50 respondents (72.5%) associated AI with machines that can predict the future, while 17 respondents (24.6%) expressed uncertainty regarding the definition of AI. The responses are summarised in Table 4.1.

Table 4.1: Respondents' views on what AI is

Definitions	No. of respondents	
AI involves creating machines that can mimic HI to carry out tasks traditionally	60	87.0%
AI **refers to robotic machines**	10	14.5%
AI **refers to the World Wide Web**	1	1.4%

AI **refers to machines that can predict the future**	50	72.5%
I don't know what AI **is**	17	24.6%

(Source: Researcher 2025)

During interviews, participants were asked whether they were familiar with AI and to briefly describe their understanding of it. Their responses were as follows:

Participant 1 stated that, "*I am familiar with AI, it's ChatGPT and Meta that can provide all the answers you need".*

Participant 2 stated that, *"I know about it, but I don't know how to define it. I believe it involves using machines like robots".*

Participant 4 stated that, "*AI is the future, machines that can take over our jobs".*

Participant 5 stated that, *"Yes, AI is everywhere now; it's in our phones and almost everything around us".*

Participant 7 stated that, "*Yes, I know AI refers to robots that can perform many tasks".*

Participant 10 stated that, *"Yes, I've heard of AI; it's a new technology that has come about".*

Participant 11 stated that, *"Yes, I know AI, but I think AI is a dangerous technology that could replace us".*

Participant 12 stated that, *"Yes, AI involves machines that can do anything, but we can't fully trust these machines".*

Participants 3 and 6 indicated that they did not know what AI is.

4.7.2 Application of AI in records management

To align with the purpose of this study, respondents were asked whether they were familiar with the use of AI technologies in the field of records management. The findings revealed that all 69 respondents stated that they were not familiar with the use of AI in records management.

A subsequent question was posed in the questionnaire, presenting three options to assess whether respondents were interested in learning about the application of AI in records management. The findings revealed that 57 (82.61%) respondents were open to learning,

provided that proper training is available. On the other hand, 12 (17.39%) respondents expressed uncertainty about their willingness. Figure 4.13 depicts the responses regarding the willingness of respondents to learn about using AI in records management.

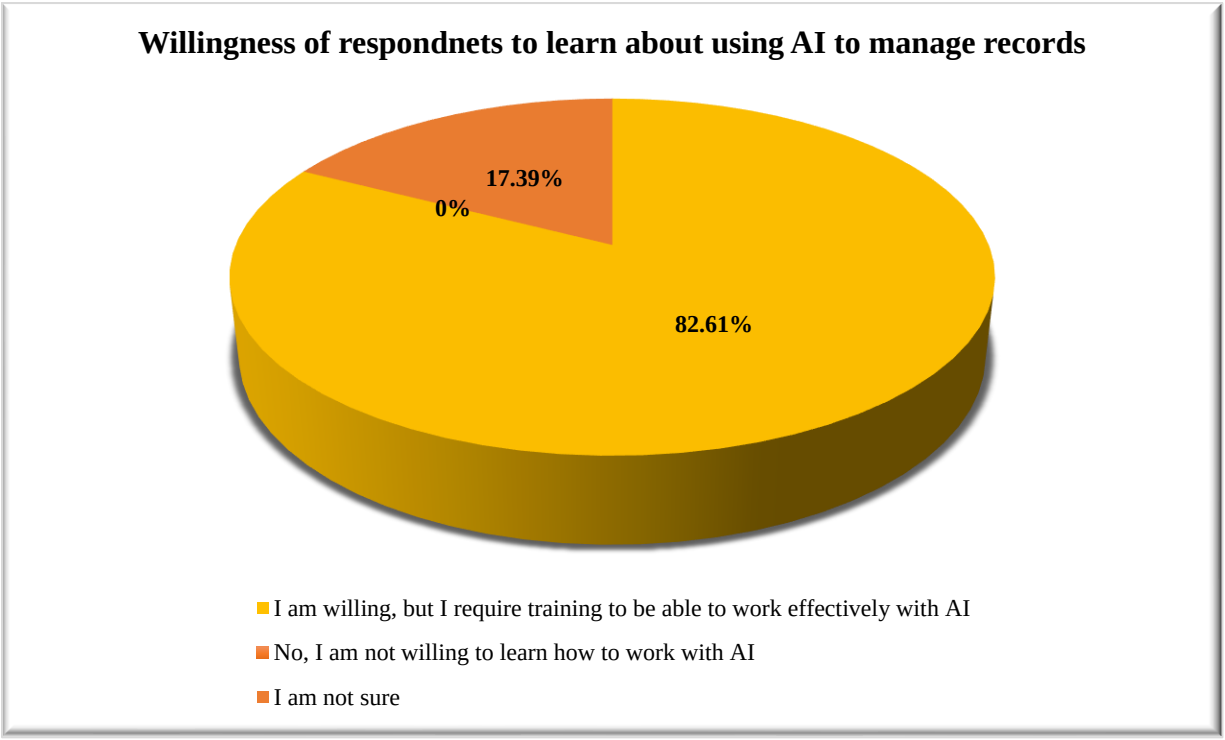


Figure 4.13: Respondents willing to learn about using AI to manage records
(Source: Researcher 2025)

Likewise, interview participants were asked whether they were familiar with the use of AI in records management and to provide a brief explanation. All 12 participants stated that they were not familiar with AI applications in the records management field.

The researcher then followed up by asking what measures could be implemented to enhance participants' familiarity with AI in records management. The responses were as follows:

> **Participant 3** stated that, "*We should receive training on how to use AI to manage records".*
>
> **Participant 11** stated that, *"Nothing should be done because if AI can manage records, there will no longer be a need for us".*
>
> **Participants 1, 2, 4, 5, 6, 7, 8, 9, 10, and 12** agreed that the best approach would be to attend workshops.

4.7.3 Perceptions of records practitioners regarding the usage of AI in records management

Respondents were asked a closed-ended question about their perceptions of AI in records management. Several options were provided for them to choose from, and the responses were as follows: 16 respondents (23.2%) agreed with the statement that AI can effectively manage GDE records; four respondents (5.8%) selected the statement that AI is a dangerous technology that cannot be trusted; 21 respondents (30.4%) preferred the option that AI could enhance their job performance; and one respondent (1.4%) chose the statement that AI is a difficult technology to learn and use. Table 4.2 presents a summary of the findings.

Table 4.2: Perceptions of records management practitioners regarding the use of AI in records management

User perceptions regarding AI for managing records	No. of respondents	
AI can manage GDE records effectively	16	23.2%
AI is a dangerous technology that cannot be trusted	4	5.8%
AI can enhance my job performance	21	30.4%
AI is a difficult technology to use and cannot be easily learned	1	1.4%

(Source: Researcher 2025)

The interview participants were also asked a similar question regarding their personal opinions on the use of AI technologies for record management. The researcher requested each participant to briefly explain their perspective. Their responses were as follows:

> **Participant 1** stated, *"I believe AI can help us manage records effectively and enhance our job performance"*.
>
> **Participant 3** stated that, "*Since we are in the Fourth Industrial Revolution, AI is the most suitable technology to assist us".*
>
> **Participant 4** stated that, "*With AI, there are safety issues, such as records stored in the cloud being vulnerable to hacking and personal files being lost"*.

Participant 5 stated that, "*I don't think machines are the best option for managing records".*

Participant 6 stated that, *"AI is useful, but I don't trust it entirely".*

Participant 7 stated that, "*Personally, I don't think it's good to rely on technologies like AI when managing records".*

Participant 12 stated that, "*I believe AI can help eliminate paper records, and everything could be digital, especially now, when space for storing records is a challenge".*

Participants 2, 8, 9, 10 and 11 believed that AI has the potential to replace human roles in record management.

4.8 SKILLS REQUIRED FOR RECORDS MANAGEMENT PRACTITIONERS TO MANAGE RECORDS USING AI TECHNOLOGIES

Effective utilisation of AI requires records management professionals to possess a diverse skill set, including digital/computer literacy, AI expertise, data management capabilities, database management skills, and a strong understanding of ethics related to AI usage. Without these skills, integrating AI technologies into records management systems would be impossible. To evaluate the skills necessary for records management practitioners to manage records using AI, GDE records management practitioners were asked a series of questions in a questionnaire.

4.8.1 Skills possessed by records management practitioners at the GDE

The respondents were asked a closed-ended question in the questionnaire to identify the technological skills they possess. Several options were provided, along with a space for respondents to mention any other digital skills not included in the questionnaire. The responses were as follows: five respondents indicated possessing AI skills; all 69 (100%) respondents indicated that they had computer literacy skills; 24 (34.78%) respondents indicated they had data management skills; 20 (28.99%) respondents indicated they possessed database management skills; and 5 (7.25%) respondents stated they possessed AI ethical skills. Figure 4.14 illustrates the responses regarding the skills possessed by the respondents.

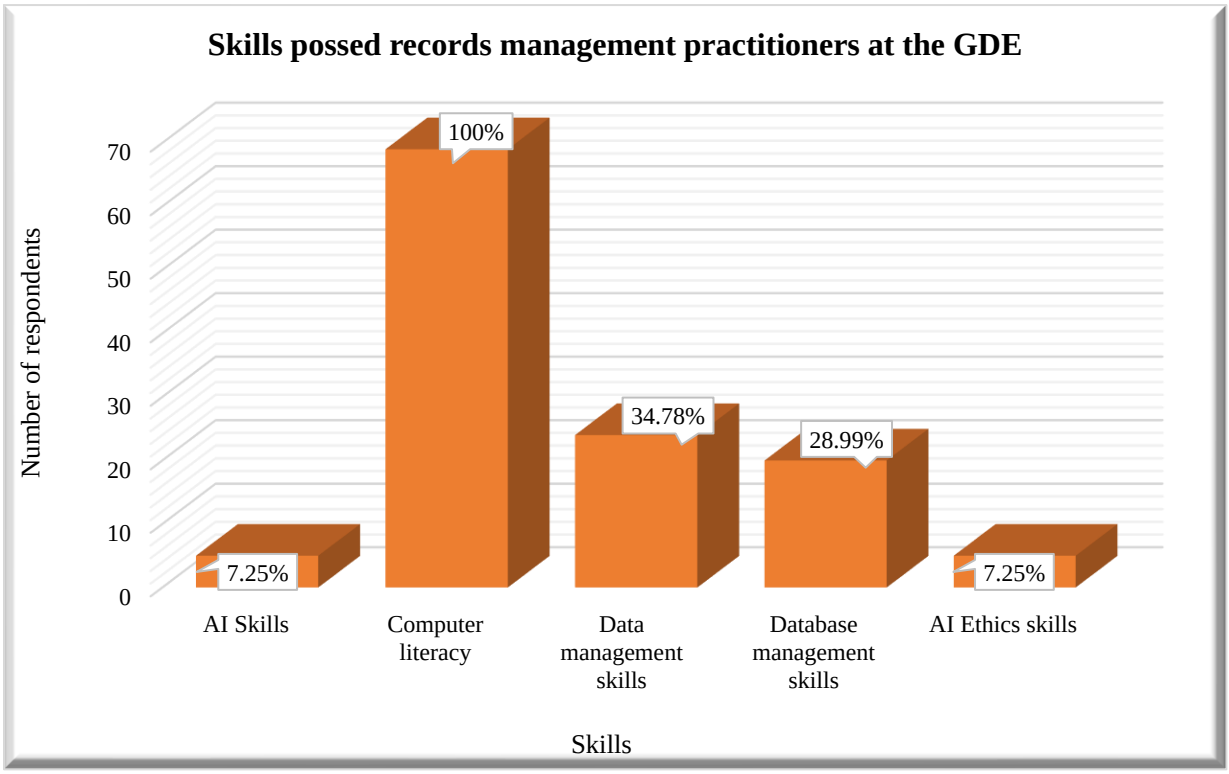


Figure 4.14*:* Skills possessed by GDE records management practitioners

(Source: Researcher 2025)

The interview participants were also asked whether they possessed the skills to effectively manage records using AI technologies. The researcher also requested each participant to share all the digital skills they had. The responses were as follows:

> **Participant 1** stated that, "*I don't have AI skills, I have never used it before. However, I can work with a computer to write emails, use Microsoft Teams for meetings, and SharePoint, which is a database we use to track records".*
>
> **Participant 2** stated that, *"The skills I possess are computer skills, I don't have other advanced digital skills".*
>
> **Participant 3** stated that, *"I don't know the skills required to manage records with AI. I do have computer skills, I use the computer every day".*
>
> **Participant 4** stated that, "*The skills that I possess include how to work with a computer. I work with a computer when carrying out my duties, especially when tracking the records on the SharePoint".*

Participant 5 stated that, *"The skills that I possess are computer skills, database management skills, and internet information searching"*.

Participant 6 stated that, *"The skills I have are computer skills, I work with computers every day, such as Outlook, Microsoft, Access and Excel".*

Participant 7 stated that, *"The skills I possess include computer skills, such as creating documents on Microsoft, attending meetings using Teams, and using Excel for spreadsheets".*

Participant 8 stated that, *"Computer skills, including Microsoft Office, Access, and Outlook. I use it every day when working"*

Participant 9 stated that, *"I am proficient in working with computers, especially when writing reports, attending Teams meetings, and creating PowerPoint presentations".*

Participant 10 stated that, *"I can work with a computer, but I do not currently have the skills necessary for managing records with AI. I believe we still need training on advanced technologies like AI because times have changed".*

Participant 11 stated that, *"I would say my main skill is computer literacy since we use computers for our work every day. I do not possess AI skills and other skills that are necessary to manage records with AI".*

Participant 12 stated that, *"I do not have advanced digital skills like AI. I have computer skills since I work with it daily when attending Teams meetings, tracking records using SharePoint, sending and receiving emails using Outlook".*

4.8.2 Proficiency of records practitioners in digital skills

In this section, the researcher requested respondents to specify their proficiency level in each skill by choosing the response that most accurately reflects their competence based on the skills they identified. The respondents rated themselves using the categories "very good," "good," "poor," and "very poor". The results revealed that 5 respondents reported possessing AI skills; of these, 3 rated their proficiency as "very good," while two rated themselves as "good." Concerning computer skills, 69 participants affirmed their competency, with 62 rating their skills as "very good" and seven as "good." Regarding data management skills, 24 respondents indicated possession of such skills, with 10 rating themselves as "very good" and 23 as "good." In terms of database management skills, 20 respondents acknowledged possessing these skills,

five respondents rating themselves as “very good” and 15 as “good”. Lastly, 5 respondents indicated possessing AI skills; among them, three respondents rated themselves as “very good”, and two rated themselves “good”.

Table 4.3 provides a comprehensive overview of the ratings of the respondents’ proficiency in skills required to manage records with AI.

Table 4.3: Ratings of respondents' proficiency in skills to use AI

Skills	No. of respondents	Very good	Good	Very poor	Poor
AI skills	5	3	2	-	-
Computer skills	59	62	7	-	-
Data management skills	24	10	14	-	-
Database management skills	20	5	15	-	-
AI ethics	15	3	2	-	-

(Source: Researcher 2025)

A follow-up question was posed, building upon the previous responses. Respondents were presented with a closed-ended question in the questionnaire, aimed at gathering their perspectives on potential strategies for enhancing their skills and knowledge in utilising AI for records management. The researcher provided a predefined set of options for respondents to select from. The results revealed that 57 (82.61%) respondents endorsed participation in training programmes, approximately 52 (75.36%) selected workshops and seminars, while 55(79.71%) indicated that enrolling in specialised online courses and certification programmes would be advantageous. Figure 4.15 presents the distribution of the respondents’ responses concerning the proposed strategies to equip records practitioners with the necessary skills to utilise AI in records management effectively.

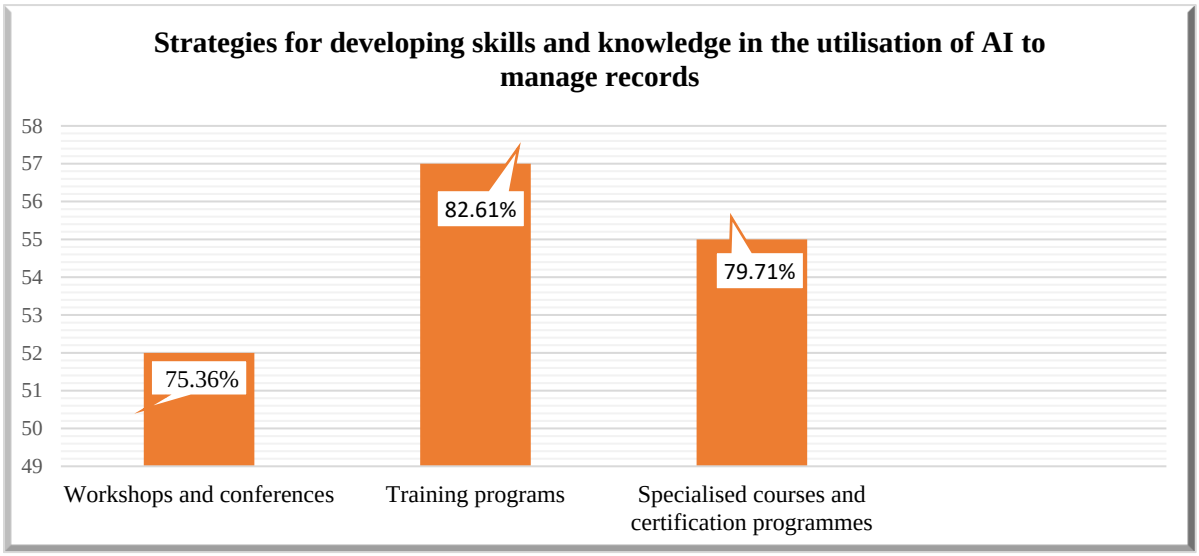


Figure 4.15*:* Strategies for developing skills and knowledge to manage records with AI
(Source: Researcher 2025)

During the interview, participants were also asked to rate their proficiency levels in the skills they have identified. The responses of the participants were as follows:

> **Participant 1** stated, "*I would rate myself as very good because I frequently work with computers, performing tasks such as report writing, sending and receiving emails, and tracking records on SharePoint".*
>
> **Participant 2** stated, *"When it comes to working with computers, I would rate myself as very good in all programmes".*
>
> **Participant 3** stated, *"I would rate myself as very good".*
>
> **Participant 4** stated, *"Regarding the skills I have identified, I can say that I am very good at computer programs such as Outlook, Microsoft Access, and Excel. I am proficient, but I still need training in AI skills and other advanced digital skills, as we are in the era of 5IR".*
>
> **Participant 5** stated, *"I am highly skilled in working with computers and SharePoint".*
>
> **Participant 6** stated, *"Regarding the skills I identified, I would rate myself as very good. I am proficient in working with computers".*
>
> **Participant 7** stated, *"If I were to rate myself on the skills I have identified, I would say that I am very good at all of them".*

Participant 8 stated, *"The skills I have identified, I am very good at all of them".*

Participant 9 stated, *"I am proficient in working with computers, especially when writing reports, attending Teams meetings, and creating PowerPoint presentations".*

Participant 10 stated, *"I am very good at working with the computer, I can carry out my duties without any struggles, but like I said, I still need more training on technologies such as AI since it looks like it is the future of our work".*

Participant 11 stated, *"On the computer, I am good, but if there are training sessions we can attend, I am willing to be part of them".*

Participant 12 stated, *"I can say that I am very good, maybe because I am always using the computer when I am working".*

The interview participants were subsequently asked a follow-up question aimed at exploring their perceptions of effective strategies for developing their skills and knowledge in the utilisation of AI for records management. This question sought to identify what they considered potential methods and approaches that could enhance their proficiency in applying AI technologies within the context of records management practices. The responses were as follows:

Participant 1 stated, *"I think training and workshops can help us develop the skills to manage records with AI".*

Participant 4 stated that *"We can only be able to use AI if we are provided with proper training and workshops on it".*

Participant 5 stated that "*We must attend workshops on how to use AI in records management activities".*

Participant 6 indicated that *"I think that the whole records management staff must be trained and bursaries to enrol in institutions that offer such courses must be provided by the department".*

Participant 7 stated, *"I think the best way is to be trained on how to use AI. The department must arrange training for us".*

Participant 8 stated, *"We need training, workshops, and funds to attend conferences related to AI".*

Participant 10 stated, *"I think the best strategy is for our department to arrange training that will enhance our knowledge".*

Participant 11 stated, *"Training and partnering with other organisations that are already using AI".*

The remaining participants, specifically **Participants 2, 3, 9 and 12**, only indicated that the provision of training is essential.

4.9 INFRASTRUCTURE READINESS FOR MANAGING RECORDS WITH AI

The implementation of AI technologies in records management necessitates specialised software and hardware infrastructure to ensure their effective operation. Without appropriate infrastructure, it would be impossible for AI technologies to function efficiently. To evaluate the readiness of AI infrastructure at the GDE, records practitioners were asked a series of questions through a questionnaire.

4.9.1 Familiarity with AI infrastructure

The respondents were asked a closed-ended question whether they were familiar with AI infrastructure. The responses were as follows: nine respondents indicated that they were familiar with AI infrastructure, while 59 respondents stated that they were not familiar with it, and one respondent did not provide an answer, leaving the space blank.

A follow-up question was included in the questionnaire, directed at respondents who indicated familiarity with AI infrastructure. A list of AI infrastructure components was provided for respondents to select those with which they were familiar. The results showed that all nine respondents were familiar with HPC and networking infrastructure. Additionally, five respondents acknowledged familiarity with ML techniques, while none knew about NLP. Furthermore, all nine demonstrated knowledge of cloud computing, but none were familiar with cobotic machines. Seven respondents were familiar with data processing and storage, four with DL, and none with neural networks. Figure 4.16 illustrates the familiarity of respondents with AI infrastructure.

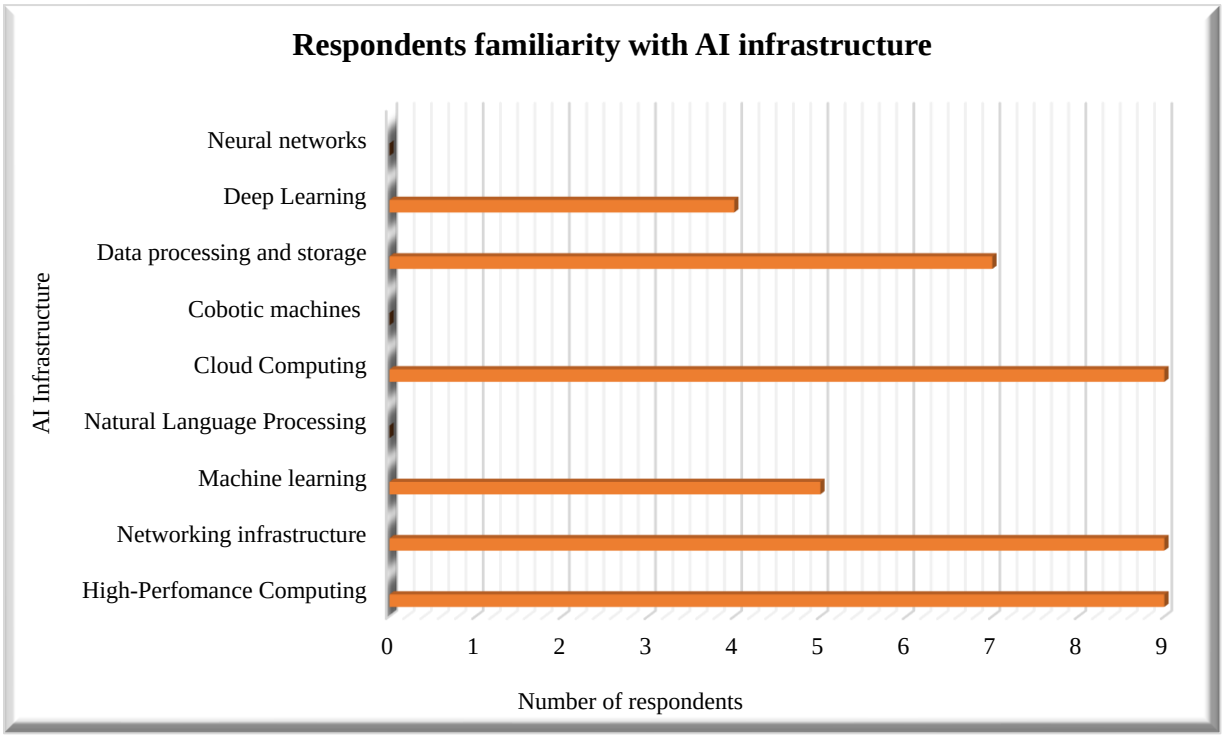


Figure 4.16*:* Respondents' familiarity with AI infrastructure

(Source: Researcher 2025)

During interview sessions, participants were also asked about their familiarity with the concept of AI infrastructure.

Participants 1 to -12 indicated that they were not familiar with AI infrastructure.

For respondents who indicated that they were not familiar with AI infrastructure, the researcher posed an additional question to determine what measures they believe should be taken to familiarise them with AI infrastructure. The researcher provided several strategies for them to choose from. Their responses were as follows: 59 respondents indicated that comprehensive training on AI would be the most effective strategy, 50 suggested that the introduction of workshops related to AI would be most beneficial; 40 believed that seminars and conferences focused on AI could be useful, and 57 also indicated that short learning programmes on AI in records management could serve as a viable solution. Figure 4.17 depicts respondents' views regarding strategies to familiarise them with AI infrastructure.

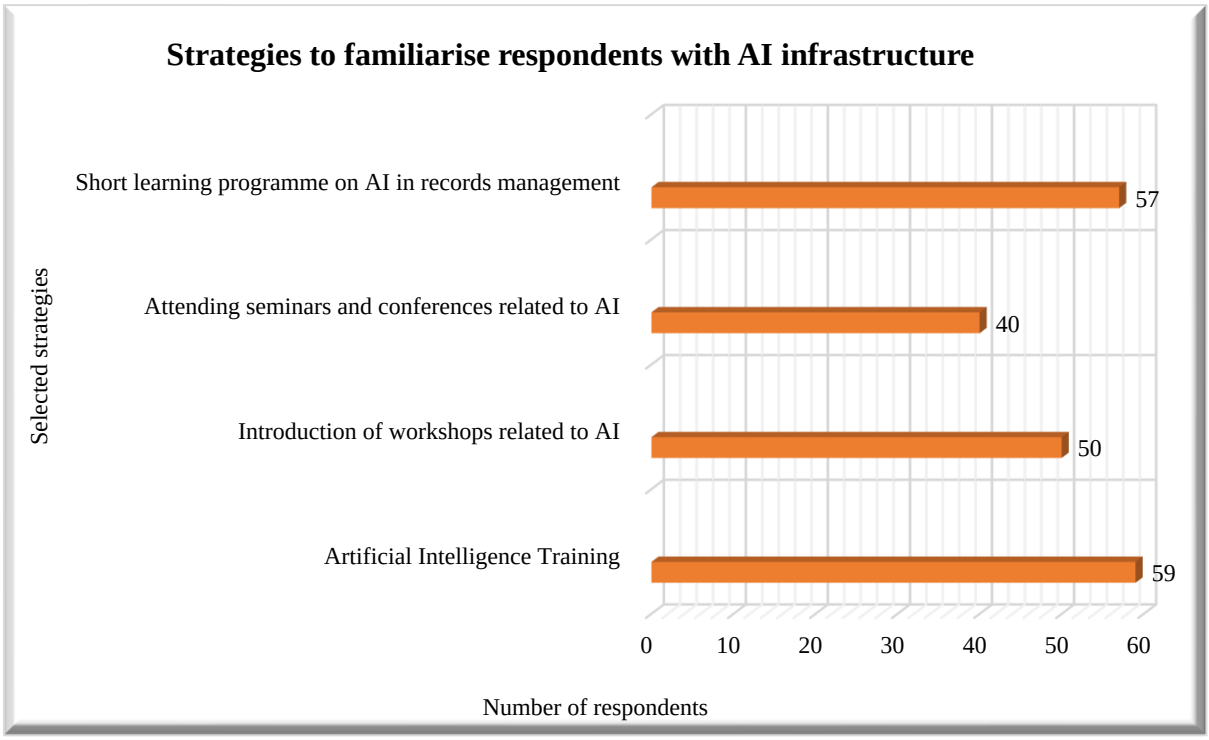


Figure 4.17*:* Strategies to familiarise respondents with AI infrastructure

(Source: Researcher 2025)

Therefore, since all participants indicated unfamiliarity with AI infrastructure, the subsequent question, asking them to identify any AI infrastructure components they recognised, was omitted. Instead, a follow-up question was asked, inquiring about the measures they believed should be taken to familiarise themselves with AI infrastructure components to effectively manage records. The responses were as follows:

> **Participants 3, 5, 8, 10, and 11** only emphasised the training on AI infrastructure.
>
> **Participants 1, 2, 4, 6, 7, and 12** advocated for attending workshops and conferences focused on AI infrastructure.
>
> **Participant 9** offered a different viewpoint, stating that *"Training and workshops alone are not sufficient, there should be live demonstrations of AI infrastructure in action and how it manages records, as we have never seen anything like that before".*

4.10 RECORDS MANAGEMENT ACTIVITIES THAT CAN BE CARRIED OUT BY AI TECHNOLOGIES

AI has emerged as a transformative technology that is increasingly adopted in various industries. Its sophisticated and cutting-edge models have made it a major focus of discussion

among academics and professionals alike. In the field of records management, researchers have identified specific areas where AI can greatly boost efficiency and effectiveness.

4.10.1 Managing records with AI technologies

In the survey, respondents were presented with a closed-ended question asking whether they believed AI technologies are capable of managing records at the GDE with a high level of effectiveness and efficiency. The distribution of responses was as follows: 15 (21.74%) respondents affirmed with a "Yes", five (7.25%) respondents stated "No", and 49 (71.01%) respondents indicated that they were unsure. Figure 4.18 illustrates the views of the respondents regarding managing records with AI technologies.

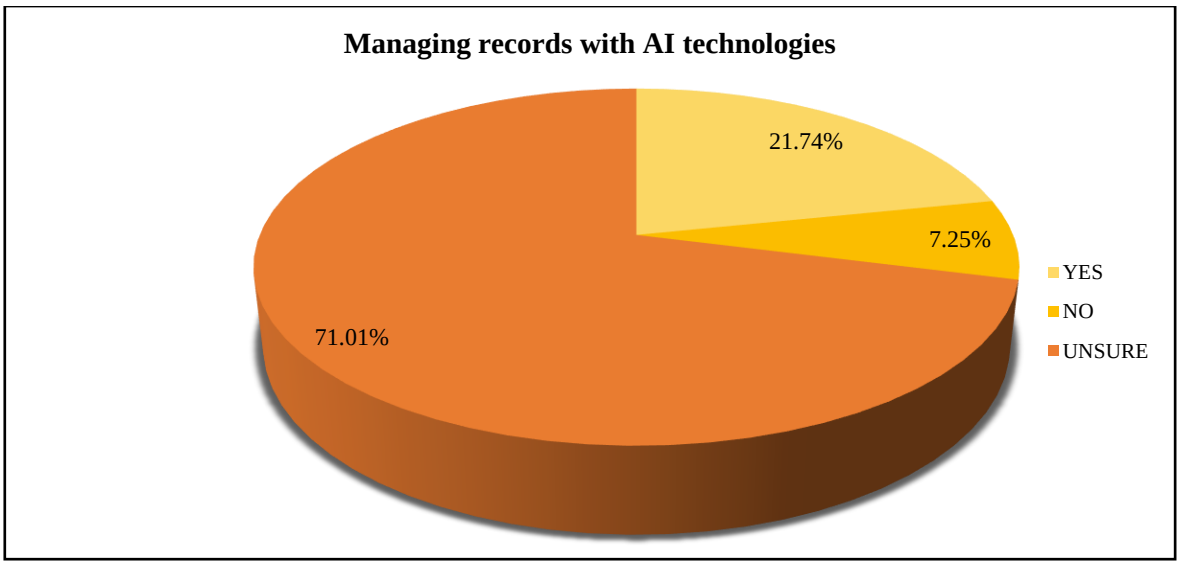


Figure 4.18*:* Respondents' views on managing records with AI

(Source: Researcher 2025)

For the respondents who indicated "Yes", a follow-up question was administered, presenting a list of records management activities from which to identify those activities they believed could be managed by AI. The responses are summarised as follows: all 15 respondents agreed that AI can be applied to records creation, 10 indicated that AI technologies can be utilised for records classification, all 15 concurred that AI can be employed in records storage, 11 respondents identified records maintenance and security as suitable for AI management, all 15 respondents affirmed that AI can be used for records retrieval, and nine suggested that AI can be applied to records disposal. Figure 4:19 summarises the respondents' views regarding how records management activities can be discharged through AI technologies.

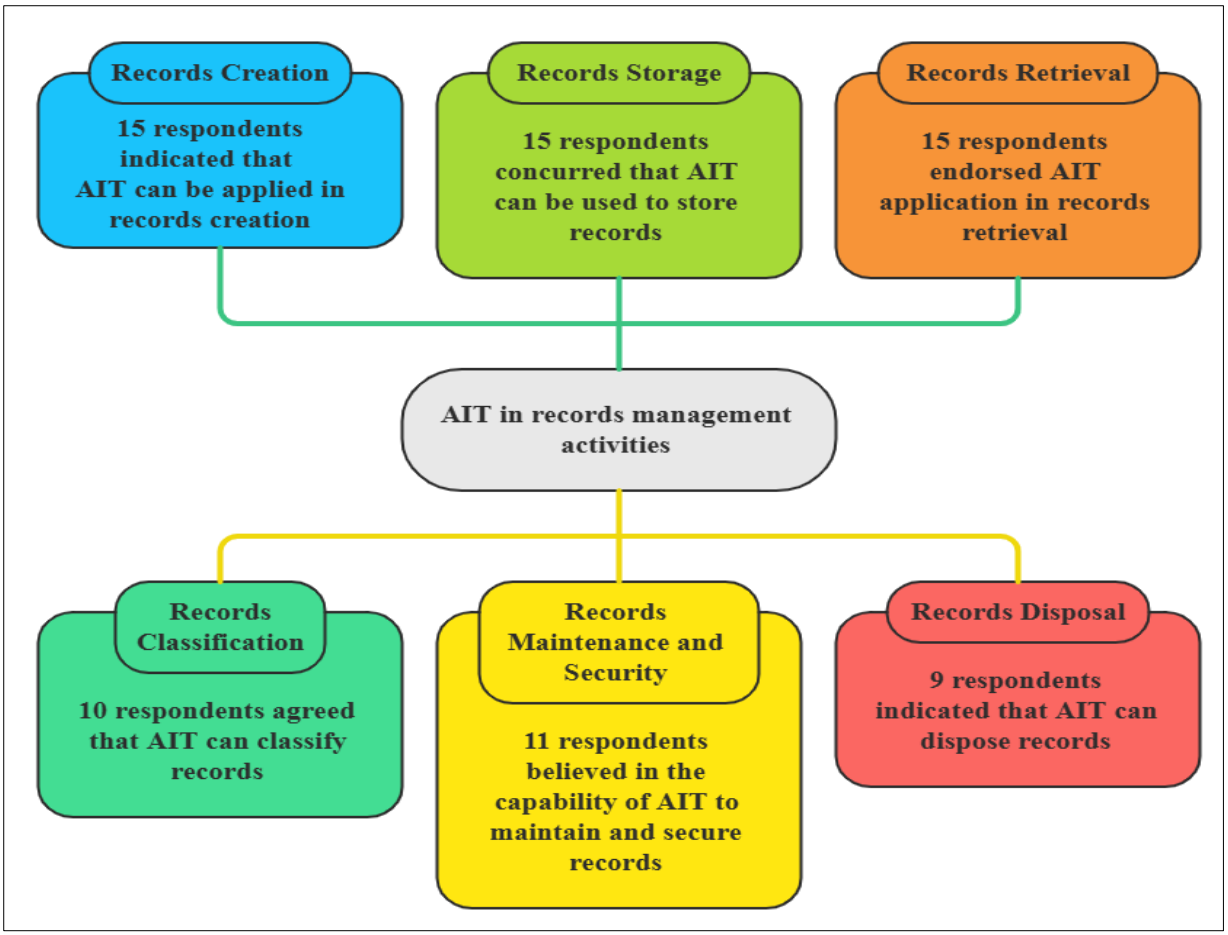


Figure 4.19*:* Respondents' views regarding records management activities that can be discharged by AI

(Source: Researcher 2025)

Consequently, the open-ended follow-up question was directed at respondents who indicated "No", meaning that they believed AI technologies cannot manage records effectively and efficiently. The objective was to elicit their reasons for believing that AI cannot fully execute all records management functions within the GDE. Their responses were as follows:

> **Respondent 16** stated that, *"Human oversight remains crucial in records management to ensure regulatory compliance and accommodate evolving business needs".*
>
> **Respondent 27** stated that, "*AI systems lack common sense and contextual understanding. They often struggle to grasp the nuances of human context, which can result in errors or misinterpretations in records management. For example, AI may not fully comprehend the significance of certain documents or the circumstances under which they were created".*

Respondent 31 stated, *"If AI were to manage records, what would happen to the rest of the workforce, specifically, those employed as record keepers? I don't think that would be a good thing".*

Respondent 50 stated, *"If AI can handle record management, it suggests that there may no longer be a need for human personnel in this role".*

Respondent 63 expressed scepticism, stating, *"I don't believe AI can be trusted with sensitive records".*

The question was not applicable to respondents who indicated that AI cannot manage records effectively and efficiently. This group included **Respondents 16, 27, 31, 50, and 63.**

Similarly, the question did not apply to respondents who expressed confidence that AI can manage GDE records effectively and efficiently. This group included **Respondent: 2, 10, 11, 14, 24, 26, 28, 34, 38, 45, 47, 53, 55, and 59.**

Finally, the question also did not apply to respondents who were uncertain about AI's ability to manage GDE records effectively and efficiently. This group consisted of **Respondents 1, 3, 4, 5, 6, 7, 8, 9, 12, 13, 15, 17, 18, 19, 20, 21, 22, 23, 25, 29, 30, 32, 33, 35, 36, 37, 39, 40, 41, 42, 43, 44, 46, 48, 49, 51, 52, 54, 56, 57, 58, 60, 61, 62, 64, 65, 67, 68 and 69.**

The interview participants were asked whether they believe AI can effectively and efficiently handle all records management activities. Their responses are summarised below:

Participant 1 stated, *"I am quite certain that AI has this capability, but there will always be challenges when dealing with sensitive records. For example, if AI technology makes an error, such as erasing a file, who will be responsible for that mistake? I have a lot of concerns when it comes to AI".*

Participant 2 remarked that, *"AI appears to be a promising technology and is already utilised in many areas, including on our phones. Nonetheless, if AI were to take over records management, it could result in job losses".*

Participant 5 expressed the view that, *"I believe AI is not yet capable of effectively managing records, as this field requires a human touch".*

Participant 6 noted that, *"While AI technologies such as cloud storage can be useful for record management, they pose significant risks, if they are compromised, all files could be corrupted or manipulated. I don't think that AI can manage records".*

Participant 7 stated, *"I honestly disagree with that notion. AI cannot manage records, robots can malfunction and make errors because, at the end of the day, those are still machines".*

Participant 8 stated, *"AI can perform some tasks, such as classification and retrieval of records. However, I don't think AI can handle all the tasks".*

Participant 9 stated, *"AI has many issues on its own. It can fabricate information that doesn't exist. What if this exposes records to such dangers? I don't believe AI can handle all record activities".*

Participant 10 stated, *"If AI could perform all records management tasks, it would lead to a high level of unemployment in our nation because there would be no need for human workers".*

Participants 3, 4, 11, and 12 merely mentioned that AI is incapable of handling records management tasks, without offering any supporting reasons or explanations when asked.

The subsequent question on the interview schedule was specifically designed for participants who expressed the belief that AI technologies can carry out records management activities. This question was for the participants to identify which records management activities they thought AI technologies could perform effectively. However, it was omitted for 10 participants, as their responses strongly contradicted the idea that AI technologies can handle records management functions. As a result, this question was directed to only two participants, namely Participants 1 and 8. Participant 1, despite voicing some concerns, agreed that AI can manage all records management tasks. Participant 8 commented on specific records management tasks, noting that not all tasks can be performed by AI. Therefore, the researcher posed a follow-up question to Participants 1 and 8 to discover which records management activities they believed AI technologies could effectively perform. The responses were as follows:

Participant 1 stated, *"I can say that AI technologies can be used in tasks such as classification, storage of records to reduce paper and create space, and retrieval of records. However, I am not sure about the disposal process, as I am not aware if AI can effectively handle it".*

Participant 8 stated, *"I believe AI can perform some tasks, such as classification and retrieval of records, but I don't think it can handle all tasks".*

Participants 2, 3, 4, 5, 6, 7, 9, 10, 11, and 12 contradicted the idea that AI is incapable of handling records management tasks.

4.11 SUMMARY OF THE CHAPTER

This chapter presented the findings of the study based on data collected through three methods: questionnaires, interviews, and document analysis. The quantitative data were analysed independently and displayed through tables, figures, and graphs. Meanwhile, the qualitative data were carefully analysed by quoting participants verbatim. All the data presented were aligned with the objectives outlined in Chapter 1. The next chapter provides an interpretation and discussion of these findings, supported by the literature review.

CHAPTER 5: INTERPRETATION AND DISCUSSION OF RESEARCH FINDINGS

5.1 INTRODUCTION

The previous chapter systematically analysed and presented the research findings in accordance with the objectives of the study. This chapter offers an interpretative discussion, aiming to derive meaningful insights from the findings by exploring the emerging themes and patterns identified within the data. The purpose of this chapter is to contextualise these insights within broader theoretical and practical frameworks, thereby delivering a thorough understanding of the phenomenon under investigation (Bavdekar 2015). The interpretation and discussion of data in this chapter is structured sequentially, corresponding to the order in which the results were initially presented and analysed in Chapter 4.

5.2 DISCUSSION AND INTERPRETATION OF FINDINGS

This section provides a comprehensive discussion and interpretation of the research outcomes. The discussion and interpretation were aligned with the specific objectives outlined in the study. The themes addressed herein were derived from the following research objectives:

- Legislative and policy frameworks regulating AI to enhance records management practice at the GDE in South Africa.
- Perception of records management practitioners regarding the utilisation of AI for managing records at the GDE in South Africa.
- Skills required for records management practitioners to manage records using AI to enhance records management practice at the GDE in South Africa.
- Infrastructure readiness to manage records using AI at the GDE.
- Records management activities that can be carried out by AI technologies.

5.2.1 Legislative and policy frameworks guiding records management at the GDE

This section interprets and discusses the findings related to the legislative and policy frameworks that govern records management within the GDE. The significance of legislation and policy in establishing effective records management cannot be overstated, as they form the essential foundation for implementing sound practices in this domain. The literature review in Chapter 2 highlights that a comprehensive legislative and policy environment functions as the fundamental backbone for the development of effective records management systems within organisational settings (Netshakhuma 2018; Marutha 2018).

5.2.1.1 Legislation framework governing records management at the GDE

All the respondents and participants acknowledged the existence of a legal framework governing records management within the GDE. These findings are positive given that legal and policy frameworks are essential for ensuring the appropriate creation, handling, and utilisation of records within organisations, as indicated by Kashaija and Ndumbaro (2020). However, when asked to specify the legislative frameworks, the majority of respondents and participants identified the NARSSA, POPIA, and PAIA as legislation governing records management. This prominence may be attributed to the fact that these pieces of legislation are among the most widely recognised within the field of records management. Additionally, it suggests a potential lack of awareness regarding the full spectrum of existing legislation within the GDE. This observation aligns with the findings of Motlhasedi (2024), who posits that, although legislative frameworks are in place within various organisations, there exists a significant knowledge gap among record-keeping professionals regarding these laws.

Notably, only a minority of respondents mentioned the ECTA, and none of the participants referenced this legislation, which could indicate that digital records management is not a focal area within the GDE. This issue aligns with extant literature, which consistently documents the management of digital records as a persistent challenge faced by the public sector (Shibambu & Marutha 2022; Matlala & Ncube 2024; Jacobs & Lemekoana 2022).

5.2.1.2 Compliance with the legislation framework

The majority of respondents and participants indicated that they adhered to the legislative framework when conducting records management activities. This may be because practitioners recognise the importance of complying with legal requirements in records management. According to Malatji and Marutha (2023), compliance with relevant records legislation is essential for maintaining high standards of recordkeeping. However, a minority of respondents indicated non-compliance with the legislation concerning record security. During interviews, one participant highlighted this issue, noting that maintaining appropriate security measures for records is occasionally challenging due to constrained resources. Most registry clerks in district offices operate within open-plan environments, which increases the vulnerability of records to tampering. Moreover, many records are stored on overcrowded shelves or within limited storage spaces, thereby elevating security risks. The participant emphasised that the insufficient space to securely store all records often results in some being kept in boxes, raising serious security concerns such as the potential for loss, theft, or damage. Existing literature

supports these observations, indicating that improper storage practices can significantly compromise the security and integrity of records. Such deficiencies may lead to non-compliance with legal and regulatory standards (Bakare et al. 2016; Schellnack-Kelly 2013).

5.2.1.3 Existence of AI legislation

The majority of respondents and participants expressed uncertainty regarding the existence of AI legislation within the GDE. This uncertainty may be attributed to the limited utilisation of AI technologies in the operational activities of the department, which potentially constrains awareness and comprehension of any relevant regulatory frameworks.

Only a minority of respondents indicated the existence of AI legislation at the GDE. Notably, this small group consisted primarily of IT technicians, which may explain their awareness of such legislation. However, when asked whether the current legislation can support the application of AI in records management, respondents generally felt that it is insufficient for effective deployment of AI in this context. They identified specific gaps, particularly regarding transparency, data privacy, and risk management. According to Bhagattjee (2024), responsible use of AI technologies requires clear guidelines concerning ethical considerations. This underscores the need to review and adapt existing legislation to ensure the responsible and ethical deployment of AI technologies within records management and beyond.

A minority of respondents and participants believed that no such legislation currently exists. However, when asked about necessary future actions, all respondents and participants unanimously emphasised the critical need to develop dedicated AI legislation to support the effective integration of AI within records management. This viewpoint is strongly supported by Kashaija and Ndumbaro (2020), who argue that the ethical deployment of AI technologies relies fundamentally on the establishment of a robust legal framework to ensure responsible and ethical practices.

5.2.1.4 Policy framework governing records management at the GDE

The findings of the study indicated that all respondents and participants acknowledged the existence of a policy governing records management at the GDE. This was a positive outcome, as policies are essential for guiding proper records handling. The absence of formal policies could jeopardise records management practices, potentially resulting in the mismanagement of records throughout their lifecycle (Malatji & Marutha 2023; Lakhno 2023). When asked to identify the specific policies guiding records management at the GDE, the majority of

participants mentioned the GDE Records Management Policy and the MISS. According to Lakhno (2023), policies play an instrumental role in organisations by regulating internal procedures related to records management. Therefore, this consistent referencing of both the internal GDE Records Management Policy and the MISS across qualitative and quantitative data sets indicates that these frameworks are well-established and exert substantial influence on records management practices within the GDE.

Only a minority of respondents mentioned other policies, such as the records management policy manual and Managing Electronic Records in Governmental Bodies. Notably, none of the interviewees explicitly recognised these policies. This discrepancy may be attributed to a lack of awareness regarding these additional policies. Supporting this notion, Motlhasedi (2024) notes that many practitioners frequently lack knowledge of the comprehensive range of policies and legislation relevant to records management within organisations. Furthermore, this situation may result from the absence or inadequate communication of such policies. Document analysis indicated that the GDE intranet contains only the approved records management policy and the MISS, which may explain why only a minority of respondents referenced the other policies.

5.2.1.5 Compliance with policy framework at the GDE

Regarding policy compliance, all respondents and participants demonstrated adherence to established policies when managing records. This compliance can be attributed to an awareness that strict adherence to policy frameworks and regulatory standards is vital for the effective management of public records, as posited by Kashaija and Ndumbaro (2020). Moreover, literature revealed that compliance with relevant records management legal regulations is a crucial strategy for maintaining rigorous recordkeeping standards (Malatji & Marutha 2023).

However, it is noteworthy that within the questionnaire, some respondents did not identify certain records management activities as compliant with policy when performed, whereas others indicated compliance with these same activities. These variations could be explained by personal differences in interpreting policy phrases, alongside unequal levels of awareness and understanding of the applicable procedural requirements.

5.2.1.6 Existence of AI policy

The majority of respondents and participants demonstrated uncertainty regarding the existence of an AI policy within the GDE. This uncertainty may be attributed to AI being an emerging

technology, coupled with a limited awareness among stakeholders, which makes it difficult to ascertain whether such a policy is in place. A minority of respondents, primarily IT technicians, indicated that no AI policy currently exists at the GDE. This perspective could be linked to their direct involvement with computer systems. However, these respondents also highlighted that the existing AI policy is insufficient in addressing issues related to privacy and secure record-keeping. This suggests that organisations intending to utilise AI for records management should develop comprehensive policies that explicitly incorporate ethical considerations for AI use (Chhatre & Singh 2024). Ensuring the responsible use of AI entails deploying the technology in an ethical and risk-aware manner, thereby promoting its trustworthy and accountable application (Hao et al. 2023).

Regarding potential measures to address this situation, the majority of respondents and participants expressed strong support for the development of AI policies. This consensus may stem from their awareness of ethical concerns such as privacy issues and the risks associated with AI technologies, as noted by Bhagattjee (2024).

However, a minority of participants opposed such policy formulation. Their resistance was primarily rooted in concerns over potential job displacement caused by AI technologies. Holzinger, Zatloukal and Müller (2025) highlight that employees often feel anxious about AI integration due to fears of job insecurity. This phenomenon is well-documented in existing literature, which indicates that many individuals view AI as a threat to their employment, posing a significant barrier to organisational adoption (Soulami et al. 2024).

5.2.2 User perception regarding AI

Before integrating AI technologies into records management systems, it is important to understand the perspectives of records practitioners concerning these AI tools. Modiba (2022b) stresses that practitioners must be assured that the use of AI can enhance their records management services. This assurance is critical in cultivating a positive attitude towards the system.

5.2.2.1 Familiarity with AI

The majority of respondents and participants indicated familiarity with AI. However, their conceptualisations varied when prompted to elaborate; some characterised AI as robots, others as machines capable of executing any task, and some specifically mentioned ChatGPT. This finding aligns with the assertions in existing literature, notably by Bewersdorff, Nerdel and

Zhai (2025), who contend that many individuals equate AI primarily with robots and physical machines. Nevertheless, they emphasise that AI encompasses a broader spectrum of technologies beyond tangible robots, including ML algorithms and NLP systems, which are solely software-based and lack physical embodiment.

Conversely, a minority of respondents and participants reported unfamiliarity with AI, a perspective that may be attributed to the technology's relatively recent emergence. This observation corroborates the findings of Olutimehin et al. (2024), who highlight that many individuals lack a comprehensive understanding of AI despite its pervasive influence across various sectors. This limited familiarity among some respondents and participants underscores the ongoing need for enhanced awareness and education regarding AI technologies.

5.2.2.1 Application of AI in records management

All respondents and participants reported a lack of familiarity with the use of AI technologies in records management. This limited knowledge is understandable, considering that AI represents a relatively new advancement within this domain. Yuan, Zhou, and Efremova (2023) support this observation, noting that many individuals remain unaware of AI's applications in records management due to its novelty in the field.

The majority of respondents and participants expressed their willingness to learn about the application of AI technologies in records management if suitable training opportunities are provided. This positive feedback underscores a pronounced interest among record practitioners in upskilling and remaining abreast of emerging technological trends. According to Yunita (2025), organisational success in AI adoption necessitates comprehensive preparations, including skills development, fostering mindset shifts, and overcoming resistance to change. However, a minority of respondents and participants showed less interest in learning about AI in records management. This might be because many people are afraid that the automation capabilities of AI might render the need for traditional records practitioners within the department obsolete (Yuan et al. 2023).

5.2.2.2 Perceptions of records practitioners regarding the usage of AI in records management

The majority of respondents and participants expressed negative perceptions regarding the use of AI in records management. Key concerns included the perception that AI is a dangerous and untrustworthy technology, primarily due to privacy issues. This lack of trust in AI technologies

may be associated with the limited transparency of its internal mechanisms. This perspective is supported by Leung (2023), who points out that people may mistrust AI technologies because of their "black box" nature. The black box nature refers to the lack of transparency in the decision-making processes of AI technologies. This opacity makes it difficult for people to understand how these systems arrive at their conclusions, which can undermine trust.

Additionally, some respondents and participants felt that AI is difficult to learn and operate, which is consistent with Grover et al. (2019), who report that certain users may reject AI because they perceive it as challenging to use. A major concern among respondents was the potential impact of AI on job security. Soulami et al. (2024) note that many individuals reject AI technologies due to fears of job displacement, which may explain the negative attitudes towards AI in records management. Furthermore, this scepticism may also account for why several participants explicitly expressed disbelief that machines can effectively manage records, although they did not provide detailed justifications for this view.

A minority of respondents and participants showed a positive perception. Among many things, they believed that AI could enhance their job performance, eliminate the use of paper and address the storage space challenges the department is facing. These findings demonstrated a strong perception among respondents and participants that AI can be a useful tool for effective records management. According to Köchling, Wehner, and Ruhle (2025), when AI is perceived as a tool that aids productivity and efficiency rather than a threat, the likelihood of its acceptance increases.

5.2.3 Skills required for records management practitioners to manage records using AI

According to the literature, skills are defined as the practical application of knowledge and competencies to achieve specific outcomes (Araz et al. 2023). Digital transformation within an organisation significantly influences employees' skill sets, necessitating continuous upskilling and reskilling to leverage new technologies effectively (Yunita 2025). Therefore, organisations seeking to successfully integrate AI technologies into their records management systems must ensure that their employees are equipped to adapt to these changes.

5.2.3.1 Skills possessed by records management practitioners at the GDE

All the respondents and participants indicated that they possessed computer skills. Their skills included the MS Office package, which includes Microsoft Teams for meetings. They also reported working with computers when performing their duties, especially for tracking records

on SharePoint. However, these skills are insufficient for GDE records practitioners to effectively work with AI technologies; there is a need to acquire more advanced digital skills. As stated by Zavodna, Ueberwimmer, and Frankus (2024), working with AI technologies requires upskilling and reskilling initiatives to ensure the successful integration of AI into records management systems.

Furthermore, the results revealed that the majority of respondents and participants did not have the necessary skills to manage records using AI technologies. These skills included AI skills, data management, database management, and ethics-related skills. This may be attributed to the observation made by Mosweu and Ngoepe (2019), who state that many records management practitioners lack the necessary skills to thrive in this advanced technology era. The minority of respondents who indicated having some required skills were mainly IT technicians, which explains why they seemed to possess these skills. This is likely because, as Wicht et al. (2021) suggest, individuals working in IT-related roles tend to demonstrate greater technological knowledge and abilities, which stems from their regular use of technology.

5.2.3.2 Proficiency of records practitioners in digital skills

The findings of the study revealed that all respondents and participants showed a strong confidence in working with computers. They demonstrated high proficiency in computer programmes and operations. These are positive results considering that computer literacy is a fundamental skill for confidently working with digital tools and AI systems, as highlighted by Audrin, Audrin and Salamin (2024).

Only a minority of respondents and participants reported proficiency in key competencies such as AI skills, data management, database management, and ethical skills. This may be because AI represents a novel technology, and many records practitioners lack familiarity with it, as noted by Nikou, De Reuver and Kanafi (2022). According to Sikhakhane (2025), the effective utilisation of AI technologies necessitates proficiency in AI-related skills among records management practitioners. This low level of expertise in AI-related skills can act as a barrier to adopting AI technologies, as outlined by Mullins (2024) and Mathenge (2024).

Collectively, these findings revealed a significant gap in AI-related skills among GDE records professionals. This deficiency is consistent with broader trends documented in the literature, which highlight a widespread shortage of the skills necessary for effectively utilising rapidly advancing AI technologies (Krauss 2025; Oladokun et al. 2024).

5.2.4 Infrastructure readiness for managing records with AI

The literature reviewed in Chapter 2 highlights that AI models require specialised infrastructure because of their high computational demands (Cole 2023; Nucci 2024). According to Modiba et al. (2022), AI infrastructure consists of the technologies that enable the automation of records management activities. Therefore, the successful implementation of AI in record management depends critically on having a robust AI infrastructure that can support the execution of complex algorithms efficiently.

5.2.4.1 Familiarity with AI infrastructure

The majority of respondents, including all participants, indicated that they were unfamiliar with AI infrastructure. This may be attributed to the lack of such infrastructure within the GDE. These findings align with the assertions of Felemban et al. (2024), who observed that a significant proportion of employees in organisations are unaware of AI infrastructure, primarily due to the absence of these systems within their workplaces.

A minority of respondents indicated that they were familiar with AI infrastructure. This familiarity may be attributed to their roles as IT technicians, which likely made them aware of specific components of AI infrastructure listed in the questionnaire. This is supported by Gunti (2024), who observed that IT technicians typically possess relevant knowledge and technical skills acquired through specialised training in the latest technological developments.

Furthermore, all respondents and participants indicated that comprehensive training in AI, including workshops, seminars, conferences, and short learning programmes focused on AI in records management, would be most effective in familiarising them with AI and its infrastructure. This aligns with the findings of Olutimehin et al. (2024), who assert that employee training in all facets of AI is essential for equipping staff with the necessary knowledge and skills to work effectively with AI technologies. Additionally, Jamil et al. (2025) argue that such training not only raises awareness of AI dynamics but also enhances employees' confidence in interacting with these technologies. However, during interviews, one participant highlighted that training and workshops alone are insufficient. In addition, live demonstrations of AI infrastructure in action, coupled with detailed explanations of how AI technologies manage records, are also necessary, especially since many employees have not previously observed such processes. This perspective is reinforced by Felemban et al. (2024), who contend that training and development should be ongoing rather than one-time events, continuing until employees are confident in utilising AI technologies comprehensively.

5.2.5 Records management activities that can be carried out by AI

Literature reviews in Chapter 2 indicate that records management encompasses several key activities, including the creation, classification, storage, retrieval, maintenance, security, and disposal of records. The success of records management relies on meticulous control throughout each of these phases (Landau 2022; Mosweu & Rakemane 2020). The emergence of AI technologies is transforming how organisations handle their records. AI has the potential to enhance every stage of the records lifecycle, making processes such as creation, storage, security, and retrieval more efficient and intelligent (Bakare et al. 2016; Liu et al. 2020).

5.2.5.1 Managing records using AI technologies

The majority of respondents and participants indicated they were unsure whether AI can manage records effectively and efficiently. This uncertainty may result from limited awareness and understanding of AI technologies, as highlighted by Salaheldin and Hussein (2025). Without adequate knowledge of AI, it is difficult to determine what it can or cannot accomplish. This lack of familiarity may also explain why some respondents left their answers blank or chose not to share their opinions.

Furthermore, a minority of respondents and participants disagreed with the idea that AI can perform records management tasks effectively and efficiently. Concerns such as the reliability of machines, potential malfunctions, and the impact on job security were commonly reported. According to Holzinger et al. (2025), such concerns are among the most frequent issues employees raise when discussing AI technologies. These factors likely contribute to scepticism among GDE records practitioners about relying on AI for records management.

Only a very small proportion of respondents and participants expressed strong agreement regarding the high effectiveness and efficiency of AI technologies in records management within the GDE. They indicated that AI has the capacity to perform all records management activities, thereby significantly improving records-keeping processes. These viewpoints correspond with the prevailing scholarly consensus documented in recent literature, which highlights AI as a valuable tool for enhancing records management practices (Modiba 2022a; Modiba 2025; Osagie & Oladokun 2024). However, among these, two participants also expressed concerns about potential errors, accountability issues, and security risks, particularly when handling sensitive data. These concerns align with findings by Kerschbaum and Dachs (2024), who argue that although AI technologies offer substantial benefits, ethical challenges

such as privacy breaches, job displacement, and diminished trust in AI technologies persist as major hurdles.

5.2.6 Summary of the chapter

This chapter offered readers a thorough and precise interpretation of the data from Chapter 4, analysing and discussing the study's results while relating them to the established literature in the field. The following chapter summarises the study, highlights the key findings, and provides recommendations. Additionally, the next chapter introduces a proposed framework for implementing AI in records management at the GDE.

CHAPTER 6: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

6.1 INTRODUCTION

The previous chapter provided the discussion and interpretation of the research results. This chapter offers a summary, draws conclusions, and presents recommendations derived from the main findings of the study. According to Zaid and Tsagem (2022), the summary, conclusions, and recommendations represent the final and most vital components of a research project. Moreover, this chapter addresses the limitations of the study and proposes potential directions for future research, informed by the findings. It also presents a framework for applying AI to enhance records management at the GDE.

6.2 SUMMARY FROM THE FINDINGS OF THE STUDY

According to Facundo (2023), a summary distils the key findings, providing a brief overview of the most important data from the results. This section presents a summary of the findings in relation to the objectives outlined in Chapter 1.

6.2.1 Legislative and policy frameworks regulating AI to enhance records management practice at the GDE

The first objective of this research was to evaluate the legislation and policy framework governing AI at the GDE. For the effective integration of AI technologies to enhance records management functions at the GDE, it is vital to have comprehensive laws and policies that ensure their ethical and responsible use. The key findings related to this initial objective are summarised below:

- The GDE has legislation and policies governing records management.
- Respondents and participants most frequently mentioned the Constitution, NARSSA, POPIA, and PAIA regarding specific legislation. Only a few respondents mentioned ECTA and none of the participants mentioned it during interviews.
- Respondents and participants mainly referred to the approved records management policy and MISS as the policy framework governing records management at the GDE.
- Respondents and participants indicated a high compliance rate with legislation and the policy framework governing records management.
- The GDE does not have AI legislation and an AI policy that adequately guides the adoption and deployment of AI technologies in records management.

6.2.2 Perception of records management practitioners regarding the utilisation of AI for managing records at the GDE

The second objective of the study was to assess the perception of records management practitioners regarding the utilisation of AI to manage records at the GDE. User perception plays a pivotal role in the adoption and effective utilisation of emerging technologies such as AI. In the absence of favourable attitudes and acceptance from GDE practitioners, the integration of AI may prove to be ultimately ineffective, as its successful deployment is contingent upon user endorsement and engagement. The summary of the findings in this objective is as follows:

- Respondents and participants demonstrated a lack of clear understanding of AI technologies; some described AI as machines, including those capable of predicting the future, or as the World Wide Web, while others referred to it as robots. Most were unable to define AI clearly and indicated they did not know what AI is.
- Respondents and participants lacked knowledge regarding the application of AI technologies in records management.
- Some respondents and participants expressed a willingness to learn more about how AI can be integrated into records management. However, others showed no interest in acquiring this knowledge.
- Regarding perceptions of GDE records management practitioners towards AI technologies some viewed AI as a beneficial tool capable of enhancing their work, while others regarded it as untrustworthy. Concerns about privacy and security were raised by several participants, and a large number of respondents and participants perceived AI as a potential threat that could take their jobs.

6.2.3 Skills required for records management practitioners to manage records using AI

The effective utilisation of AI in records management necessitates that GDE professionals possess a specific set of skills enabling them to work effectively with AI technologies. This third objective aimed to evaluate the skills of GDE records management practitioners to determine whether they were capable of working with AI technologies. The summary of the findings is as follows:

- All respondents and participants were computer-literate.
- GDE records practitioners lacked AI skills; only IT technicians possessed such skills.

- Very few respondents and participants had data management skills, database management expertise, or an understanding of AI ethics.
- Respondents and participants rated themselves highly in computer skills, indicating strong overall proficiency.

6.2.4 Infrastructure readiness to manage records using AI

The utilisation of AI technologies for enhanced records management at the GDE necessitated the establishment of dedicated infrastructure specifically designed for AI applications. The purpose of this objective was to evaluate the infrastructure's readiness to effectively support AI technologies in managing records at the GDE. The findings are summarised below:

- Very few respondents were familiar with AI infrastructure; none of the participants were familiar with it.
- Respondents identified AI infrastructure as including high computational power, cloud computing, network infrastructure, and data processing and storage.
- Suggested strategies to increase familiarity with AI infrastructure included providing AI training as the most effective approach, introducing AI-related workshops for practical exposure, attending seminars and conferences focused on AI and engagement in short learning programmes on AI specifically in records management.

6.2.5 Records management activities that can be carried out by AI

Studies have revealed that AI can greatly boost the efficiency and effectiveness of record keeping. The purpose of this objective was to discover whether GDE records practitioners believe AI is capable of managing GDE records and which records management activities they thought AI could effectively handle. The summary of the findings is as follows:

- There exists a divergence of opinions among respondents and participants: some asserted that AI can effectively manage records, and others held the view that AI is not suitable for this purpose.
- Participants who supported AI's capabilities suggested that it could be utilised in the following records management activities:
    - Creation of records
    - Classification of records
    - Storage of records
    - Maintenance and security of records

- Retrieval of records
- Disposal of records

- Respondents and participants who saw AI technologies as incapable of managing GDE records highlighted several reasons, which are listed below:
  - The necessity of human oversight in records management processes
  - AI systems are susceptible to errors
  - Potential threats to employment due to automation
  - Ambiguity regarding responsibility and accountability in case of errors
  - Concerns over data security, such as the risk of files being compromised in cloud storage environments

6.3 CONCLUSION OF THE STUDY FROM THE FINDINGS

This section presents the conclusions derived from the research objectives of this study. According to Zaid and Tsagem (2022), the conclusion section of a research paper highlights the main outcomes and significant insights gained from the research. Thus, the essential features and results of this study are presented in alignment with the study objectives.

6.3.1 Legislative and policy frameworks regulating AI to enhance records management practice at the GDE

This section provides the conclusion regarding the legislative and policy framework governing AI at the GDE. The legislation and policy framework form the backbone of records management, ensuring effective practices that offer numerous benefits to organisations. Similarly, the successful adoption and utilisation of AI technologies in GDE records management will require laws and regulations to guarantee that these technologies are used responsibly and ethically.

Currently, the GDE has an existing legislative and policy framework that supports the sound management of records. These legislative instruments guide all records management activities, from the creation and maintenance of records to their eventual disposal. Specifically, the legislation includes the NARSSA Act, POPIA, and PAIA. However, it is noteworthy that only a few respondents and participants indicated familiarity with ECTA, highlighting a general lack of understanding regarding the management of electronic records within the GDE.

Regarding adherence to legislative and policy frameworks, respondents and participants predominantly expressed strong agreement that they complied with relevant legal and

institutional policies when managing records. However, the researcher harboured reservations about the validity of these claims of full compliance. This concern was substantiated by observations that several respondents and participants were unable to cite specific legislative provisions from memory and indicated a need for further consultation to clarify applicable laws. Additionally, most participants and respondents were only familiar with the NARSSA Act and the GDE records management policy.

Furthermore, the existing legislation appears inadequate to fully support the effective adoption and deployment of AI technologies in records management.

The policy framework within the GDE comprises the GDE-approved records management policy, as well as MISS. Despite these policies, the GDE currently lacks specific legislation or policies dedicated to AI. The absence of an AI-specific legislative and policy framework hampers the department's ability to effectively guide the adoption, integration, and ethical use of AI technologies.

Based on these findings, this study concludes that GDE records management practitioners are not fully informed about the legal and policy frameworks that support effective records management, highlighting a significant knowledge gap that must be addressed. Additionally, there is a notable deficiency in the legislative and policy guidelines related to the use of AI technologies within the GDE. This shortcoming hinders the ability of the GDE to adopt and utilise AI tools efficiently and responsibly in its records management practices.

6.3.2 Perception of records management practitioners regarding the utilisation of AI for managing records at the GDE

This section provides the key conclusions regarding the perceptions of GDE records management practitioners concerning the use of AI in records management processes. User perception is a crucial factor influencing the acceptance and adoption of AI technologies within organisational settings.

Regarding familiarity with AI, there is no solid understanding of AI technologies among GDE records management practitioners. Their responses were limited to describing AI as "machines" or "robots," with no further explanation. Similarly, there is a lack of understanding of the application of AI in the realm of records management. Some respondents and participants explicitly stated that they have never heard of AI technologies in the records management field. Despite this limited understanding, the findings revealed a high level of disinterest and

unwillingness to learn about the application of AI technologies in records management. Such disinterest appears to be driven by concerns such as the fear that machines might replace human jobs, leading many practitioners to show little interest in exploring the potential benefits of AI technologies in the field.

In terms of overall user perception, the findings indicated that a significant proportion of records management practitioners within the GDE exhibit discomfort with the integration of AI into records management practices. Their concerns mainly focused on issues of reliability and safety, with fears that AI could be a risky technology. There is also apprehension about data breaches, especially when sensitive files stored in cloud environments might be at risk of being lost or compromised. Furthermore, many practitioners expressed apprehensions related to job security, perceiving that the capabilities of AI might render their roles redundant. However, some records management practitioners acknowledge the potential utility of AI, particularly in addressing backlog management, optimising storage capacity, mitigating space constraints, and automating repetitive tasks such as classification. Therefore, this study concludes that GDE records management practitioners generally display scepticism towards AI adoption, primarily driven by concerns related to trust, security, and employment stability. Nonetheless, there is an awareness of the potential of AI technologies to boost operational efficiency in the current GDE records management system.

6.3.3 Skills required for records management practitioners to manage records using AI

This section offers the conclusion on the skills required to manage records using AI at the GDE. To facilitate adoption of AI technologies, records practitioners must attain proficiency in digital skills, including AI skills, data management expertise, database management capabilities, and a solid understanding of AI ethics.

The current skills profile of GDE records management practitioners reveals a substantial deficiency in AI skills. Notably, only a small proportion of IT technicians demonstrated positive responses concerning their AI capabilities. Additionally, gaps were identified in data management skills, database administration skills, and ethical use of AI. Nevertheless, respondents and participants generally exhibited a foundational level of computer literacy, which is a positive indicator for the potential development of more advanced skills. These findings underscore a considerable skills gap that poses a challenge to the effective adoption and application of AI technologies in records management processes within the GDE. Consequently, this study concludes that the current skills set of GDE records management

practitioners is inadequate for the successful deployment of AI technologies to enhance records management practices.

6.3.4 AI infrastructure readiness to manage records using AI

This section provides a conclusion on the AI infrastructure readiness of the GDE to manage records with AI technologies. The majority of records management practitioners lacked familiarity with AI infrastructure components. This deficiency was primarily due to the absence of such components within the current technological environment of the GDE. A small proportion of respondents who reported familiarity with AI infrastructure were solely IT technicians. Among these technicians, the AI infrastructure components with which they were the most familiar included HPC, networking infrastructure, ML, cloud computing, and DL. The GDE records practitioners who exhibited limited familiarity with AI infrastructure, proposing that the implementation of comprehensive educational initiatives, including training programmes, workshops, seminars, conferences, and short-term learning modules, focused on AI technologies and their various components, which is crucial for enhancing their understanding of AI dynamics. The study concludes that the GDE currently lacks adequate infrastructure to effectively support the adoption of AI technologies within records management systems. Moreover, it reveals that even within the records management domain, there is a significant deficiency in knowledge regarding AI infrastructure. These findings highlighted the critical need for substantial infrastructural development and capacity building to facilitate the successful adoption and integration of AI solutions.

6.3.5 Records management activities that can be carried out by AI

This section presents conclusions about GDE records practitioners' views on the records management activities that AI technologies can perform. AI technologies have shown significant promise in improving the efficiency and effectiveness of records management, as corroborated by a substantial corpus of scholarly evidence. The present study also aimed to assess the adoption of AI solutions to enhance the records management practices within the GDE. Nevertheless, only a small fraction of GDE records management practitioners strongly concurred with the notion that AI can substantially improve records management effectiveness and efficiency. The minority of GDE records partitioners who supported the integration of AI articulated that, despite its potential to ameliorate existing deficiencies, significant concerns persist. These concerns encompass potential inaccuracies, accountability dilemmas, and security vulnerabilities, particularly in the context of managing sensitive and confidential data

The majority of GDE records management practitioners express scepticism regarding the efficacy of AI technologies in managing records. This reluctance is primarily driven by concerns about the reliability of AI systems, with practitioners highlighting the potential for system malfunctions and the generation of inaccurate data, which could undermine the integrity of records. Furthermore, apprehensions regarding job security were prominent, as many practitioners perceived that increased dependence on AI for records management might lead to workforce reductions. Additional issues raised included concerns related to data privacy and security vulnerabilities.

The minority of GDE records practitioners, who held a more optimistic view of AI technologies' potential, contended that AI can effectively oversee the entire spectrum of records management activities, from initial creation to final disposal. However, this group was a minority and was predominantly composed of practitioners not in management positions, which posed a substantial challenge to broader acceptance and implementation. The study concludes that only a small proportion of GDE records practitioners agreed that AI can effectively and efficiently manage records and that such technologies can significantly improve existing records management practices. These insights highlight a vital need for training programmes designed to enhance practitioners' understanding of the capabilities and limitations of AI technologies. Such initiatives are essential for aligning practitioner understanding with technological advances and for fostering trust in AI systems.

6.4 RECOMMENDATIONS

In response to the research problem, this study recommends the adoption of AI technologies to optimise the current records management process and mitigate space constraints encountered by GDE registry clerks. The adoption of AI technologies holds considerable promise for enhancing the processes involved in record creation and digitisation. Specifically, the utilisation of collaborative robots (cobots) alongside ML algorithms can facilitate the automation of record classification, thereby increasing efficiency and accuracy. These digitised records can then be transferred to cloud-based storage systems, which offer scalable solutions capable of accommodating the ever-expanding volume of data generated by the GDE. AI-enhanced cloud platforms furnish the requisite computational infrastructure to support advanced applications, including generative AI, aimed at optimising record retrieval processes. Furthermore, cloud storage solutions provide robust security measures, including encryption protocols, which safeguard sensitive information while supporting the maintenance and

management of records. In view of these developments, the present study proposes a comprehensive framework designed to assist the GDE in adopting and leveraging AI technologies.

Nevertheless, the findings of the study indicated that the successful adoption and implementation of AI technologies within the GDE are currently impeded by a multitude of significant challenges. Foremost among these is the inadequacy of the existing legislative and policy frameworks, which are ill-equipped to facilitate the seamless integration and deployment of AI within the GDE's records management system. Additionally, pervasive negative perceptions of AI among records practitioners, coupled with a pronounced skills gap necessary for the effective management of AI-driven record systems, further diminish prospects for successful adoption. Therefore, the study strongly recommends that these systemic and institutional issues should be thoroughly resolved prior to initiating AI adoption initiatives for the successful integration of AI innovations within the GDE.

6.4.1 Recommendations about legislation and policy framework

This section provides recommendations regarding the legislative and policy framework for the regulation of AI. The study recommends that GDE officials should undergo regular training on the current legislation and policy frameworks governing records management within the department. Such ongoing training will enhance their understanding of all relevant legislative instruments and policies mandated by NARSSA, thereby enabling them to effectively implement these regulations in their daily records management activities. Additionally, the study recommends that the existing GDE legislation and policy frameworks should be reviewed and updated to accommodate the integration of AI technologies into records management practices. It is also recommended that the legislative and policy frameworks establish clear guidelines for the ethical use, deployment, and governance of AI technologies within records management. Furthermore, the study recommends that the GDE must develop standards and ethical guidelines to ensure the responsible and ethical use of AI technologies in records management. Given the sensitive nature of AI technologies, which can potentially cause harm if misused or applied unethically, these guidelines are essential to safeguard ethical standards and accountability. The final recommendation of the study underscores the importance of establishing ongoing training programmes to ensure that records practitioners are thoroughly informed about and compliant with the relevant legislative, policy, and ethical standards associated with AI integration. Additionally, the implementation of continuous

monitoring mechanisms is essential to ensure sustained adherence to these laws and regulations. Such measures are critical for promoting ethical practices, maintaining effective governance, and ensuring the responsible deployment of AI technologies within the GDE records management domain.

6.4.2 Recommendation about the perceptions of records management practitioners towards the utilisation of AI for managing records

This section presents the recommendations based on the perspectives and opinions of GDE records management practitioners concerning the integration of AI in records management at the GDE. Based on the findings of this study, it is recommended that targeted educational interventions be implemented to equip GDE records practitioners with a comprehensive understanding of AI technologies. There is a critical need to expand their epistemic framework regarding the benefits, limitations, and challenges of AI. This recommendation is informed by the observation that prevailing perceptions among practitioners are predominantly shaped by misconceptions and limited exposure to information about AI, which may hinder its effective integration into their professional practices. Therefore, training initiatives must be carefully designed to deconstruct these misconceptions, fostering a paradigm shift where AI is seen as an empowering tool that complements and enhances human expertise, rather than as a destabilising force that threatens job security.

Furthermore, this study recommends that records practitioners at the GDE records management section should be trained on the prevailing technological paradigm, specifically 5IR, which is defined by interactive collaborations between humans and technology. Such awareness is essential to motivate GDE records practitioners to develop the necessary skills required to adapt effectively and sustain their professional roles, thereby mitigating concerns related to job displacement.

The study further recommends that policymakers actively engage in formulating policies that address the concerns and lack of trust among GDE records management practitioners regarding AI technologies. The records management practitioners play a vital role in the effective implementation of AI within GDE records management processes. Therefore, the study recommends that practical measures be considered to facilitate the successful adoption of AI technologies at the GDE.

6.4.3 Recommendation about the skills required for records management practitioners to manage records using AI

This part offers recommendations about the skills required to effectively manage records using AI technologies. The findings of this study revealed a significant skills gap in AI competencies and related skills essential for records practitioners to effectively manage records using AI technologies. Consequently, this study recommends the implementation of comprehensive AI training programmes for records practitioners. Such training should encompass the application of AI models in records management, as well as methods for training these models to perform records management tasks efficiently. Additionally, it is proposed that training in complementary skills, such as data processing, database management, data analytics, and programming, is provided. Furthermore, instruction on the ethical use of AI technologies is imperative to ensure their responsible deployment in alignment with their intended purposes. The study also recommends that GDE records practitioners should be trained in collaboration with robotics and ML for more efficient and enhanced record keeping.

6.4.4 Recommendations about infrastructure readiness to manage records using AI

This section presents recommendations regarding the infrastructure required to manage records with AI technologies at the GDE. Based on the findings, the study recommends that the GDE invest in acquiring technological infrastructure components to effectively run AI technologies. These components include both software and hardware elements. Hardware infrastructure encompasses HPC systems and collaborative robots (cobots). Software infrastructure includes data processing and storage solutions, AI models such as ML algorithms, NLP algorithms, DL, and neural network models. Additionally, it involves automated classification algorithms and AI-powered search engines. The study also proposes that GDE officials receive training on these components to enhance their knowledge and learn how to utilise them effectively.

6.4.5 Recommendations about records management activities that can be carried out by AI

This section offers recommendations on the records management activities that can be carried out by AI technologies. In view of the findings of this study, it is recommended that GDE records management professionals enhance their understanding of AI technologies and conceptualise these tools as means to improve operational efficiency. Adopting this perspective will enable the GDE to leverage the benefits provided by AI in enhancing records management practices. Furthermore, given the potential of AI technologies to advance record-keeping

efficiency and accuracy, it is recommended that the GDE eliminate reliance on traditional paper-based records by deploying cobotic machines to digitise all existing physical records. The GDE records practitioners could assist in aligning the scanned documents to ensure proper digitisation and in disposing of records that have reached the end of their retention period. This will prevent obsolete records from being digitised and transferred to cloud-based storage. Following digitisation, these records can be automatically classified in accordance with the GDE-approved filing scheme through the application of ML algorithms and cobotic systems. In the cloud environment, records can be safeguarded via encryption and maintained through robust data management protocols. Authorised personnel should have seamless access to retrieve records at any time and from any location using standard devices such as smartphones, laptops, or desktops, facilitated by generative AI models that enable secure and efficient retrieval. Additionally, AI models can be employed to automate the disposition process by identifying records due for destruction. These models can generate alerts for records practitioners to review and take appropriate actions, thereby ensuring compliance with records retention policies. Implementing these recommendations will significantly enhance the creation, classification, storage, security, maintenance, retrieval and disposal of records at the GDE. Ultimately, these measures have the potential to transform the GDE records management system, thereby enhancing its overall efficiency and effectiveness.

6.4.6 Recommendation about the proposed framework for the utilisation of AI to enhance records management practices at the GDE

This section proposes the framework for the utilisation of AI technologies to enhance records management practices at the GDE. The proposed framework is strategically developed to accomplish two primary objectives: firstly, to effectively address the prevailing challenges inherent in the current records management system; and secondly, to advance the overall efficiency and effectiveness of records management processes. A principal focus of the framework is to resolve the critical issue of inadequate storage capacity, which hampers the ability of registry offices to accommodate the continuously expanding volume of records generated daily. The scarcity of sufficient storage space has resulted in overcrowded shelving systems, thereby increasing the risk of physical deterioration and potential loss of records due to misfiling. These circumstances further impede the retrieval process, rendering it a time-consuming and resource-intensive task. Additionally, the operational environment of certain registry offices, characterised by open-plan layouts, compromises the security of sensitive records.

To mitigate these issues, the proposed AI framework advocates for the digitisation of paper-based records through the utilisation of the AI-powered cobotic scanning machines and ML algorithms. The digitised records can be auto-classified using the GDE file plan and transferred to secure storage within cloud-based repositories. This approach ensures the safeguarding, proper maintenance, and swift retrieval of records, substantially enhancing the efficacy and security of records management practices at the GDE.

6.4.6.1 Recommended framework

The final objective of this study was to propose a framework that can assist the GDE to adopt and implement the records management practices effectively and efficiently using AI technologies. As articulated previously, the dual purpose of this framework is to address existing challenges within the records management processes at the GDE and to enhance the overall quality and robustness of record keeping within the organisation.

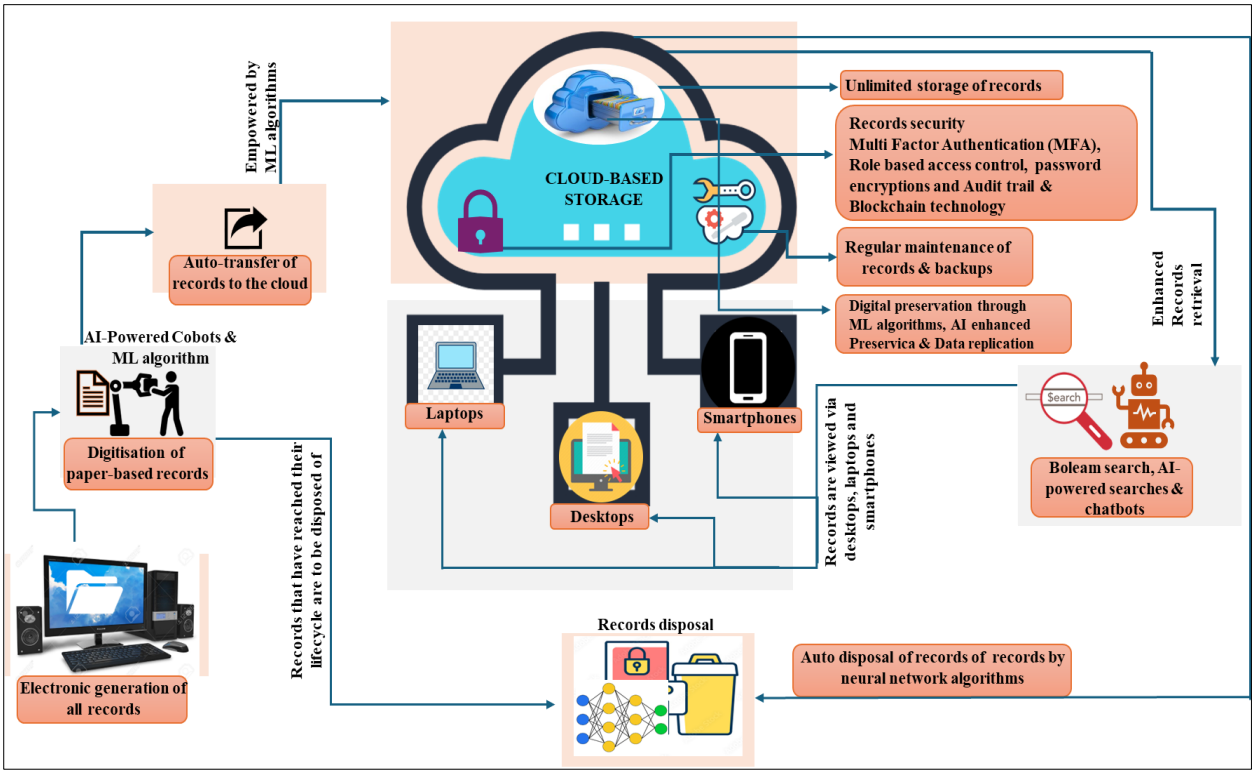


Figure 6.1: Framework for the utilisation of AI to enhance the records management at the GDE

(Source: Researcher 2025)

Figure 6.1 illustrates the proposed framework delineated by this research, which seeks to augment the records management practices of the GDE. The framework is systematically

designed according to the key records management activities, considering that the purpose of this study is to investigate the utilisation of AI to enhance records management practices at the GDE. In line with the purpose of the study, the framework includes AI technologies that can be utilised in records management for an advanced AI-powered records management system.

Digitisation of records

The initial stage involves the digitisation of both paper-based and born digital records through an AI-powered cobotic machine and ML algorithm. Records management practitioners within the GDE are responsible for sorting and preparing physical records for scanning, while also ensuring that records that have reached the end of their lifecycle are properly identified and disposed of. This process ensures that only active records and those with archival value are subjected to digitisation.

Automated classification

The digitisation stage is followed by the classification of records using an automated classification algorithm, in accordance with the GDE-approved file plan, thereby enhancing both the accuracy and efficiency of the classification process. Automated classification algorithms will improve accuracy by reducing human errors and ensuring strict compliance with the GDE-approved file plan. Moreover, these algorithms can speed up the process, saving time and resources compared to manual classification, and enhance consistency throughout.

Furthermore, the ML algorithms can be trained to automate the transfer of classified records to cloud-based storage systems. This approach lowers the potential for data leaks or human errors during the transfer process. Additionally, ML algorithms can adapt to varying sensitivity levels within records, ensuring the protection of sensitive information in the cloud. The cloud storage platform will offer sufficient capacity to efficiently store all GDE records, with the flexibility to accommodate future growth. Additionally, utilising cloud storage ensures a high level of security through robust protective measures and routine maintenance of records. This approach enhances data integrity and confidentiality while restricting access exclusively to authorised personnel.

AI-embedded security and disaster recovery

Through the authentication and access control protocols, such as multi-factor authentication (MFA) and role-based access control as well as encrypted passwords, the risk of unauthorised access can be mitigated. Additionally, the deployment of backup strategies, disaster recovery

plans, and comprehensive audit trails can safeguard data integrity. To further enhance security, blockchain technology can be integrated, leveraging its immutable ledger to guarantee data integrity and prevent unauthorised modifications. Moreover, automated processes for maintaining data integrity over time, along with regular backups, can be conducted to ensure the ongoing security and reliability of stored data.

Search, access and retrieval of records

Records can be efficiently retrieved by conducting searches using Boolean search techniques or AI-powered search engines with relevant keywords. The retrieval process can be further enhanced through the application of NLP algorithm, which can interpret human language and facilitate more intuitive communication through generative AI models. Generative AI models, including chatbots and conversational agents, support personalised and efficient search capabilities, ensuring that records are accessible at any time and from any location via devices such as smartphones, laptops, desktops, or tablets. Additionally, chatbots can enhance both system integration and the user interface, providing seamless communication and improved user experience.

Automated disposal of records

In addition, records due for disposal can be accurately identified and flagged through the application of neural network algorithms. These algorithms are proficient in detecting anomalies within datasets and can be trained to flag records that are subject to disposal according to retention schedules. AI supervision can play a crucial role in this process by involving authorised personnel who review and validate the flagged records before disposal, ensuring the procedure is both accurate and compliant. Once approved through this AI-supervised review, a notification is sent to the authorised personnel to proceed with the disposal of the records.

Digital preservation

The scalability of cloud storage significantly enhances digital preservation efforts by facilitating seamless expansion to accommodate increasing data volumes without necessitating physical infrastructure upgrades. Additionally, ML algorithms can be trained to address specific preservation requirements, such as detecting data degradation, automating format migrations, and verifying the authenticity of metadata. Moreover, the integration of AI into platforms like Preservica within cloud environments can streamline digital records migration

and long-term preservation workflows. AI-driven algorithms can identify records suitable for migration to contemporary formats, thereby ensuring the ongoing accessibility, viability, and retrievability of digital records amidst technological evolution. Furthermore, cloud-based storage supports automated data replication records, safeguarding them against loss from hardware failures or disasters. This ensures greater long-term preservation of cloud-stored records than is possible with traditional on-premises systems.

6.5 IMPLICATIONS OF THE RESEARCH FOR THEORY, POLICY AND PRACTICE

This study proposes several recommendations to address the records management challenges faced by the GDE, such as space constraints, overcrowded shelves, misplacement of files, time-consuming record retrieval, and security concerns. AI technologies can be instrumental in overcoming these challenges by enabling scalable and secure cloud-based storage solutions. Cloud storage provides ample space to accommodate the increasing volume of records while ensuring security protocols, maintenance, and regular backups. Furthermore, AI technologies can enhance the overall records management system of the GDE by streamlining all the records management processes. This would facilitate the transition towards an AI-driven records management system, from creation to disposal.

Such challenges are not exclusive to the GDE; numerous other organisations encounter similar obstacles. Consequently, the recommendations derived from this research have broader applicability, offering valuable insights for other entities seeking to implement and leverage AI technologies. Furthermore, this study makes a valuable contribution to the scholarly discourse by advancing understanding of the factors influencing the adoption of AI technologies within the context of records management. Moreover, the study proposes a framework to address the current records management challenges at the GDE and to advance the entire records management system. By tackling these issues, the quality and efficiency of records management are expected to improve significantly. The theoretical implications of this study include the development of a conceptual framework that can serve as a foundation for modifying and refining existing theories related to records management and AI integration.

From a policy perspective, the findings and recommendations of this study have the capacity to influence the development of AI policies and procedures, thereby guiding the ethical and effective deployment of AI technologies within the GDE. Furthermore, these insights can serve as a valuable resource for policymakers and professional bodies in shaping strategic directives.

Additionally, the findings and recommendations of this study may inform the review of NARRSA legislation to facilitate the adoption of 5IR technologies, such as AI, within records management systems.

Practically, the study indicates that AI technologies have the potential to significantly enhance records management practices. It examines various records management processes that can be optimised through AI technologies. However, the study recommends investing in AI infrastructure, providing personnel training, establishing legislation and policies to govern AI tools, and addressing the primary concerns and perspectives of users. These measures are essential to ensure the effective adoption of AI in records management.

6.6 SUGGESTIONS FOR FURTHER RESEARCH

This study was guided by five objectives designed to address the research problem. The findings and recommendations were developed based on these objectives. The objectives were as follows:

- To analyse legislative and policy frameworks regulating AI to enhance records management practice at the GDE in South Africa.
- To establish the perception of records management practitioners regarding the utilisation of AI for managing records at the GDE in South Africa.
- To assess the skills required for records management practitioners to manage records using AI to enhance records management practice at the GDE in South Africa.
- To assess the infrastructure readiness to manage records using AI at the GDE.
- To identify the records management activities AI technologies can perform at the GDE in South Africa.

The findings of this study were systematically analysed and presented in alignment with the predefined objectives. Based on the results, specific recommendations were made for the GDE. Additionally, the study proposed a framework for integrating AI technologies into the records management system of the GDE. The recommendations and the proposed framework aim to provide guidance and support not only to the GDE but also to other governmental institutions at the national, continental, and global levels confronting analogous challenges.

It is pertinent to acknowledge that there are additional operational areas within the GDE where AI could be effectively harnessed to enhance records management. These areas include, but are not limited to, the administration of records related to school funding and learner enrolment.

Nonetheless, further empirical investigation is required to generate nuanced insights and evidence-based interventions.

Future research is also recommended to explore the use of AI technologies in the GDE school admission processes and the South African School Administration and Management System (SASAMS). Furthermore, more extensive studies should examine the potential applications of AI in records management within the national Department of Basic Education and the Department of Higher Education and Training.

6.7 FINAL CONCLUSION

The current records management system at the GDE is facing significant challenges due to a lack of sufficient space to store the increasing number of records generated daily. This has led to overcrowded shelves, which put the physical safety of records at risk by increasing the chances of loss or damage. Furthermore, retrieving records has become a lengthy and cumbersome process.

AI technologies offer a promising solution to these problems through the digitisation of records using AI-enhanced cobotic machines and ML algorithms. Digitised records can be securely stored in the cloud, offering scalable storage and easy access from any smart device, anytime and anywhere. This would dramatically improve record retrieval speed, security, and space optimisation.

While AI has the potential to transform the records management system at the GDE, several obstacles could impede its successful implementation and efficient use. Key barriers include the lack of clear legislation and policies to govern the ethical deployment of AI, infrastructure constraints, and a shortage of skilled personnel capable of operating and maintaining AI systems. Additionally, negative perceptions among records staff, stemming from concerns about safety, accountability of AI technologies, and job security, pose significant challenges to AI adoption. Therefore, successfully integrating AI into the GDE records management system will require overcoming these challenges. Nonetheless, AI remains a viable and promising solution to improve the efficiency, security, and accessibility of records management practices at the GDE.

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Appendix 1 : Letter to Request Approval to Conduct the Study at the Gauteng Department of Education

GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

TEMPLATE PERMISSION LETTER

Request for permission to conduct research at the Gauteng Department of Education

"Utilisation of Artificial Intelligence to enhance records management practices at the Gauteng Department of Education in South Africa"

19 February 2025

Dr. Gumani Mukatuni
7th Floor Marshal Street
Johannesburg
The Education Research (ER) Sub-directorate
011 355 0775/1379

Dear Dr Mukatuni

I, Thabisile Mbali Sikhakhane am doing research with Dr Mashilo Modiba, a senior 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 **Utilisation of Artificial Intelligence to enhance records management practices at the Gauteng Department of Education in South Africa.** The purpose of this study is to investigate the utilisation of AI to enhance records management practice at the GDE in South Africa.

The GDE has been chosen as the focus of the study, specifically the 15 district offices along with the Head Office. The participants will consist of records management officials who are employed by the department to manage records at the registry offices.

This study will adopt a mixed-methods research approach utilising a convergent parallel design. The research aims to integrate both qualitative and quantitative data to adequately address the study's research questions and produce comprehensive findings. Data collection will be conducted through a combination of questionnaires, interviews, and document analysis, targeting records management practitioners within the GDE who constitute the population of the study. The participants will include the Deputy Director, Assistant Directors, Chief Registry Clerks, Senior Registry Clerks, as well as IT professionals within the Department of Education.

In this study, the participant selection process will involve approximately 120 records management officials, of which a sample of 112 officials will be systematically selected for data collection. This sample size has been deemed appropriate to strike a balance between statistical power and practical feasibility. A parallel sampling method will be employed to facilitate the simultaneous selection of participants from various strata within the population. This approach aims to enhance the robustness and generalisability of the data collected. Data will be gathered using multiple methods to ensure a comprehensive understanding of the research questions. Specifically,

questionnaires will be utilized to collect quantitative data from Senior Registry Clerks and IT Technicians, while semi-structured interviews will be conducted with Deputy Directors, Assistant Directors, and Chief Registry Clerks to enrich the qualitative dimension of the study. Additionally, document analysis will be employed to examine existing records management legal and policy frameworks that govern record management practices within the Gauteng Department of Education (GDE). Ethical considerations will be paramount throughout the study. This will include obtaining informed consent from all participants, ensuring confidentiality, and providing participants with the right to withdraw from the study at any time without repercussions. In terms of data analysis, both qualitative and quantitative analytical tools will be utilized. Qualitative data will be analyzed using atlas.ti software, while quantitative data will be processed using SPSS to ensure accurate and reliable findings. This comprehensive methodological framework aims to yield substantive insights into the research topic while adhering to rigorous academic standards.

This study offers several significant benefits, particularly in improving the management and retrieval of GDE records through the implementation of artificial intelligence technologies. By addressing challenges associated with limited physical storage space, artificial intelligence technologies can reduce the reliance on physical record-keeping by digitising and organising records more effectively. Additionally, it streamlines records management processes by automating tasks such as data entry and retrieval, minimising human error, and saving time. These advancements enhance accessibility, allowing stakeholders to quickly retrieve necessary information for better decision-making and operational efficiency. Furthermore, the integration of artificial intelligence will prepare the GDE for future technological advancements, ensuring it remains adaptable to evolving needs. Overall, this study is essential for optimising GDE record management and driving operational improvements.

This study will also encourage records practitioners within the GDE and other agencies to enhance their skills in this dynamic landscape. The findings and recommendations have broader implications, providing insights for government agencies and private institutions about the advantages and applications of artificial intelligence in records management.

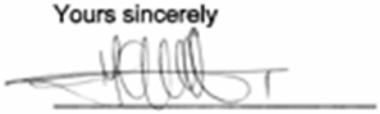
Moreover, the results can assist in shaping regulatory guidelines that promote the responsible integration of artificial intelligence into records management and policymaking. This research also holds significant implications for higher education institutions in South Africa, highlighting the necessity of developing an education system that prepares future generations with the skills needed to excel in an AI-driven world. The proposed framework offers guidance on how the GDE can effectively leverage the combined strengths of artificial intelligence technologies and human intelligence to optimise records management practices through a strategic and collaborative approach.

We are dedicated to providing you with a completely positive and risk-free experience in this research study. After careful consideration, we are pleased to inform you that there are no expected inconveniences or risks associated with your participation. The study is designed to require a minimal time commitment, with all activities, including surveys and interviews scheduled at your convenience. We prioritise your comfort, ensuring that you will not encounter any emotional or physical discomfort. Additionally, we have taken measures to mitigate any potential risks related to social or economic impacts, legal issues, loss of confidentiality, and psychological concerns. Your well-being is our top priority, and we are here to support you throughout the process.

The feedback procedure will be conducted in two main phases. Initially, senior registry clerks and IT officials will be invited to complete anonymous surveys. Once they have submitted their responses, management which includes the Deputy Director, Assistant Director, and Chief Registry Clerks will participate in a semi-structured interview. The feedback collected from both the surveys and interviews will be systematically analyzed to identify trends and areas for improvement. Subsequently, all participants will be informed of any changes made in response to their input. After the study, a comprehensive summary of the findings will be shared with participants, along with an acknowledgement of their contributions. We value the insights provided by participants, and we are committed to enhancing the research process based on their feedback.

Tel: (011) 694 9462
Cnr. Biccard & Jorrissen Str, FNB Building, Braamfontein, 2017
Private Bag x 1, Braamfontein 2017
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Yours sincerely



Thabisile Mbali Sikhakhane

JN: Senior Librarian

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Appendix 2: Letter Of Approval To Conduct The Study at the GDE Premises

GAUTENG PROVINCE
Department: Education
REPUBLIC OF SOUTH AFRICA

8/4/4/1/2

GDE RESEARCH APPROVAL LETTER

Date:	**28 February 2025**
Validity of Research Approval:	**08 February 2025– 30 September 2025** **2025/610**
Name of Researcher:	**Sikhakhane TM**
Address of Researcher:	**29 Kerk Street**
	Jozi House Building
Telephone Number:	**074 079 2816**
Email address:	**Thabisile.sikhakhane@gauteng.gov.za**
Research Topic:	**Utilisation of Artificial Intelligence (AI) to enhance Records Management practices at the Gauteng Department of Education (GDE) in South Africa**
Name of University:	**UNISA**
Type of qualification	**Masters**
Number and type of schools:	**GDE**
District/s/HO	**15 Districts**

Re: Approval in Respect of Request to Conduct Research

This letter serves to indicate that approval is hereby granted to the above-mentioned researcher to proceed with research in respect of the study indicated above. The onus rests with the researcher to negotiate appropriate and relevant time schedules with the school/s and/or offices involved to conduct the research. A separate copy of this letter must be presented to both the School (both Principal and SGB) and the District/Head Office Senior Manager confirming that permission has been granted for the research to be conducted.

The following conditions apply to GDE research. The researcher may proceed with the above study subject to the conditions listed below being met. Approval may be withdrawn should any of the conditions listed below b

1. *Letter that would indicate that the said researcher/s has/have been granted permission from the Gauteng Department of Education to conduct the research study.*

1

Making education a societal priority

Office of the Director: Education Research and Knowledge Management
7th Floor, 17 Simmonds Street, Johannesburg, 2001
Tel: (011) 355 0488
Email: Faith.Tshabalala@gauteng.gov.za
Website: www.education.gpg.gov.za

2. *The District/Head Office Senior Manager/s must be approached separately, and in writing, for permission to involve District/Head Office Officials in the project.*
3. ***Because of the relaxation of COVID 19 regulations researchers can collect data online, telephonically, physically access schools or may make arrangements for Zoom with the school Principal. Requests for such arrangements should be submitted to the GDE Education Research and Knowledge Management directorate.***
4. ***The Researchers are advised to wear a mask at all times, Social distance at all times, Provide a vaccination certificate or negative COVID-19 test, not older than 72 hours, and Sanitise frequently.***
5. *A copy of this letter must be forwarded to the school principal and the chairperson of the School Governing Body (SGB) that would indicate that the researcher/s have been granted permission from the Gauteng Department of Education to conduct the research study.*
6. *A letter / document that outline the purpose of the research and the anticipated outcomes of such research must be made available to the principals, SGBs and District/Head Office Senior Managers of the schools and districts/offices concerned, respectively.*
7. *The Researcher will make every effort obtain the goodwill and co-operation of all the GDE officials, principals, and chairpersons of the SGBs, teachers and learners involved. Persons who offer their co-operation will not receive additional remuneration from the Department while those that opt not to participate will not be penalised in any way.*
8. *Research may only be conducted after school hours so that the normal school programme is not interrupted. The Principal (if at a school) and/or Director (if at a district/head office) must be consulted about an appropriate time when the researcher/s may carry out their research at the sites that they manage.*
9. *Research may only commence from the second week of February and must be concluded before the beginning of the last quarter of the academic year. If incomplete, an amended Research Approval letter may be requested to conduct research in the following year.*
10. *Items 6 and 7 will not apply to any research effort being undertaken on behalf of the GDE. Such research will have been commissioned and be paid for by the Gauteng Department of Education.*
11. *It is the researcher's responsibility to obtain written parental consent of all learners that are expected to participate in the study.*
12. *The researcher is responsible for supplying and utilising his/her own research resources, such as stationery, photocopies, transport, faxes and telephones and should not depend on the goodwill of the institutions and/or the offices visited for supplying such resources.*
13. *The names of the GDE officials, schools, principals, parents, teachers and learners that participate in the study may not appear in the research report without the written consent of each of these individuals and/or organisations.*
14. *On completion of the study the researcher/s must supply the Director: Knowledge Management & Research with one Hard Cover bound and an electronic copy of the research.*
15. *The researcher may be expected to provide short presentations on the purpose, findings and recommendations of his/her research to both GDE officials and the schools concerned.*
16. *Should the researcher have been involved with research at a school and/or a district/head office level, the Director concerned must also be supplied with a brief summary of the purpose, findings and recommendations of the research study.*

The Gauteng Department of Education wishes you well in this important undertaking and looks forward to examining the findings of your research study.

Kind regards



.....

Mr. David Bapela
CES: Education Research and Knowledge Management

DATE: 28/02/2025

Office of the Director: Education Research and Knowledge Management
7th Floor, 17 Simmonds Street, Johannesburg, 2001
Tel: (011) 355 0488
Email: Faith.Tshabalala@gauteng.gov.za
Website: www.education.gpg.gov.za

Appendix 3: Ethical Clearance Letter from Unisa Department of Information Science Ethics Review Committee

UNISA university of south africa

College of Human Sciences_CREC

NHREC Registration # : (Rec-240816-052)
Ref #: 5753
Name: Ms Thabisile Mbali Sikhakhane
Student #: 36632791

Date: 09/06/2025

Dear: Ms Thabisile Mbali Sikhakhane

Decision: Ethics Approval from 09 June 2025 to 08 June 2026

Researcher: Ms Thabisile Mbali Sikhakhane

Gauteng Department of Education

Johannesburg

36632791@mylife.unisa.ac.za 0116949462

Supervisor: Dr Mashilo Modiba modibmt@unisa.ac.za

Co-Supervisor: Dr Kabelo Chuma chumakg@unisa.ac.za

Utilisation of Artificial Intelligence to Enhance Records Management Practices at the Gauteng Department of Education 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 **09 June 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 (**08 June 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.
5. Kindly note that the College of Human Sciences_CREC requires the submission of regular progress reports to be submitted {annually}. In line with section 7.2 of the Unisa Policy on Research Ethics (2024).

Note

The reference number 5753 should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.

Kind regards,



Prof K J Malesa
Chair of College of Human Sciences_CREC
E-mail: maleskj@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 4: Survey Questionnaire/Interviews Informed Consent Form

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DATA COLLECTION INFORMED CONSENT FORM

QUESTIONNAIRE/ INTERVIEW INFORMED CONSENT FORM (COVER LETTER)

UTILISATION OF ARTIFICIAL INTELLIGENCE (AI) TO ENHANCE RECORDS MANAGEMENT PRACTICES AT THE GAUTENG DEPARTMENT OF EDUCATION (GDE) IN SOUTH AFRICA

I am Thabisile Mbali Sikhakhane, currently pursuing a master's degree in information science at the University of South Africa (UNISA). My research focuses on the **"Utilisation of Artificial Intelligence (AI) to Enhance Records Management Practices at the Gauteng Department of Education (GDE) in South Africa"**. The primary objective of this study is to explore how AI technologies can be integrated into the management of records at GDE, aiming to improve the effectiveness and efficiency of these processes. The findings and recommendations from this research could significantly aid GDE in enhancing records management practices. The information in this questionnaire/ interview will be treated with respect and dignity and will not be used for any other purpose than for this study. You **are not required** to provide your name therefore you will remain anonymous. The primary aim of this questionnaire/ interview is to gather your thoughts, views, and feelings about partnering with AI technologies for record management at the GDE. Your insights will help address critical questions surrounding the application of AI in records management.

By taking part in this study, you will:

- Expand your knowledge by discovering how AI can transform records management.
- Share your insights by providing your views, thoughts and opinions.
- Influence future practices by contributing to the development of enhanced records management strategies.

Your participation is completely voluntary. If you agree to participate, please indicate your consent by completing this form. If you have any questions or need further clarification, please don't hesitate to reach out to the researcher at any point during your participation at Thabisile.Sikhakhane@gauteng.gov.za or 074 079 2816, or contact the study supervisors at modibmt@unisa.ac.za or chumakg@unisa.ac.za.

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APPENDIX A: CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the interview

I have received a signed copy of the informed consent agreement.

Participant Name & Surname…… (please print)

Participant Signature…….. Date……

Researcher's Name & Surname……..(please print)

Researcher's signature……..Date……

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APPENDIX 5: SURVEY QUESTIONNAIRE

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SURVEY QUESTIONNAIRE

UTILISATION OF ARTIFICIAL INTELLIGENCE (AI) TO ENHANCE RECORDS MANAGEMENT PRACTICES AT THE GAUTENG DEPARTMENT OF EDUCATION (GDE) IN SOUTH AFRICA

PLEASE COMPLETE THIS QUESTIONNAIRE AS GUIDED BELOW

- Please sign the consent form before answering the questions.
- Please answer questions by making a cross (x) next to the correct answer and explain where necessary.
- Please answer all questions.

SECTION 1: PERSONAL DATA

1.1 Indicate your age, gender, job title and academic qualification in the table below

Age Group	20-30		31-40		41-50		51-65	
Gender	Male		Female					
Job title	Deputy Director		Assistant Director					
	Chief Registry Clerk		Senior Registry Clerk					
	IT technicians							
Qualification	Grade 12		Diploma		Bachelor's Degree			
	Honours Degree		Master's Degree		Doctoral Degree			
	Other, Specify							

SECTION 2: LEGISLATIVE AND POLICY FRAMEWORK

2.1 Is there a records management legislative framework applied by GDE?

YES		NO	

2.2. If yes in #2.1, identify any South African legislative framework used to manage the records at GDE. Please indicate by (X) next to the applicable answer (s). Multiple selections are allowed.

The Constitution of the Republic of South Africa	
The National Archives and Records Service of South Africa Act	
Protection of Personal Information Act	
The Promotion of Access to Information Act	
Electronic Communication and Transactions Act	
Others specify	

2.3. Is the GDE complying with the legislative framework mentioned above? Please insert (X) next to the records management activities that are carried out according to the legislative framework. Multiple selections are allowed.

Record Creation		Record classification	
Record Storage		Record security	
Records maintenance		Record retrieval	
Record disposal			
Other, specify			

2.4. Is there an existing AI legislative framework in place at the GDE?

YES		NO		UNSURE	

2.4.1 If your answer is YES in #2.4, can current AI legislation be effectively applied for the adoption, deployment, and responsible use of AI in managing records at the GDE? Briefly explain.

_____

_____

_____

_____

2.4.2 If your answer is NO in #2.4, what do you think can be done to ensure that there is AI legislation?

_____

_____

_____

_____

2.5. Does the GDE have a records management policy that guides records management?

YES		NO	

2.5.1 If yes, indicate by an (X) next to the policy (s) that guide records management activities at the GDE. Multiple selections are permitted.

Minimum Information Security Standard (MISS)	
Records management policy manual	
GDE records management policy	
Managing electronic records in governmental bodies: policy, principles, and requirements	

Other, specify	

2.6. Is the GDE complying with the policy framework mentioned above? Please insert (X) next to the records management activities that are carried out according to the policy above. Multiple selections are allowed.

Record Creation		Record classification	
Record Storage		Record security	
Records maintenance		Record disposal	
Records retrieval			

Other, specify	

2.7. Is there any policy on AI at GDE?

YES		NO		UNSURE	

2.7.1 If your answer is YES in #2.4, can the current AI policy be effectively applied for the adoption, deployment, and responsible use of AI in managing records at the GDE? Briefly explain.

_____

_____

_____

2.7.2 If your answer is NO in #2.7, what do you think can be done to ensure that there is an AI policy at the GDE?

_____

_____

_____

SECTION 3: USER PERCEPTION REGARDING ARTIFICIAL INTELLIGENCE

Artificial Intelligence (AI) encompasses intelligent software and advanced machines capable of performing records management tasks with greater efficiency (Omigie, Krubu & Solomon 2023).

3.1 Are you familiar with the term "Artificial intelligence"?

YES		NO	

3.2 Please indicate with (X) the best statement (s) you think explain AI better. Multiple selections are permitted.

Artificial intelligence (AI) involves creating machines that can mimic human intelligence to carry out tasks traditionally performed by people	
Artificial intelligence refers to robotic machines	
Artificial intelligence refers to the World Wide Web	
Artificial intelligence refers to machines that can predict the future	
I don't know what Artificial Intelligence is	
Other, specify	

3.3 Are you familiar with the application of artificial intelligence (AI) in the management of records?

YES		NO	

3.3.1 If the answer is YES at #3.3, where did you learn about the application of AI for effective management of records?

3.3.2 If your answer is No at # 3.3, are you willing to learn how to work with AI for effective management of records?

I am willing, but I require training to be able to work effectively with AI	
No, I am not willing to learn how to work with AI	
I am not sure	

3.4 What are your thoughts or perceptions regarding the application of AI in managing records? Multiple selections are permitted.

AI can manage GDE records effectively	X
AI is a dangerous technology that cannot be trusted	
AI can enhance my job performance	X
AI is a difficult technology to use and cannot be easily learned	
Other, specify	

SECTION 4: SKILLS REQUIRED FOR RECORDS MANAGEMENT PRACTITIONERS TO MANAGE RECORDS BY ARTIFICIAL INTELLIGENCE

Effective utilisation of AI requires records management professionals to possess a diverse skill set that includes digital/ computer literacy, AI skills, data management skills, database management skills, and a strong understanding of ethical skills and knowledge related to AI usage (Araz et al. 2023).

4.1 Please indicate by the cross (x) all the skill sets you possess below. You may select multiple answers.

Computer literacy skills		Artificial Intelligence skills	
Data management skills		Database management skills	
AI Ethical skills			
Other, specify			

4.2. Based on the skills you selected in section #4.1, please indicate your level of competency in each skill by selecting the response that best describes your level of proficiency.

	Very good	*Good*	*Very Poor*	*Poor*
Computer / Digital literacy skills				
Artificial Intelligence skills				
Data management skills				
Database management skills				
AI Ethical skills				
Other identified skills				
Skill 1				
Skill 2				
Skill 3				

Note: To effectively adapt and make use of innovative technologies such as artificial intelligence, continual skill development and knowledge accumulation are needed.

4.2.1 Based on the statement above, what strategies do you think can be implemented to enhance your skills and knowledge of emerging technologies such as AI? Multiple selections are allowed.

Attending workshops and conferences	
Training programmes	
Enrolling in specialised online courses and certifications	
Other, specify	

SECTION 5: ARTIFICIAL INTELLIGENCE INFRASTRUCTURE FOR MANAGING RECORDS EFFECTIVELY

AI infrastructure refers to the specialised hardware and software components necessary for effectively managing records in AI technologies. This infrastructure differs significantly from conventional computer systems, as it is specifically designed to support the unique demands of AI applications (Zhao 2024; Wohlfarth 2024).

5.1 Are you familiar with AI infrastructure?

YES		NO	

5.2 If YES in #5.1, identify any AI infrastructure components you are familiar with below. Please indicate by (X) next to all appropriate answers.

High-Performance computing		Cobotic Machines	
Networking infrastructure		Data processing storage	
Machine learning		Deep learning	
Natural Language Processing		Neutral networks	
Cloud computing			
Other, specify,			

5.3 If NO, in 5.1, what do you think can be done to familiarise yourself with AI infrastructure

Artificial Intelligence Training	
Introduction of workshops related to AI	
Attending seminars and conferences related to AI	
Short learning programme on AI in records management	
All of the above	
Other, Specify	

SECTION 6: RECORDS MANAGEMENT ACTIVITIES THAT CAN BE DISCHARGED BY ARTIFICIAL INTELLIGENCE

Research in the field of records management has shown that AI can efficiently perform all tasks associated with managing records. This capability has made AI an interesting technology in records management (Omigie, Krubu & Solomon 2023; Osagie & Oladoku 2024; Francis 2024; Modiba 2024).

6.1. Do you think that AI can perform all records management activities effectively and efficiently at the GDE?

YES		NO	

6.1.1 If yes on #6.1, which records management activities do you think AI can manage effectively and efficiently at the GDE? Please choose all the appropriate answers.

Records creation		Records classification	
Records Storage		Records maintenance	
Records security		Records retrieval	
Records Disposal		Other, Specify	

6.1.2 If no, please provide reasons why you think AI cannot perform all records management activities effectively and efficiently at the GDE.

_____

_____

_____

_____

THANK YOU FOR PARTICIPATING IN THIS STUDY!!

APPENDIX 6: INTERVIEW SCHEDULE

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INTERVIEW SCHEDULE

UTILISATION OF ARTIFICIAL INTELLIGENCE (AI) TO ENHANCE RECORDS MANAGEMENT PRACTICES AT THE GAUTENG DEPARTMENT OF EDUCATION (GDE) IN SOUTH AFRICA

ANSWER THESE INTERVIEW QUESTIONS AS GUIDED BELOW

- Please sign the consent form before answering questions in this interview.
- Please respond to only asked questions that are related to the study.
- Please answer all questions

SECTION 1: INTERVIEW DETAILS

1.1. Date : _____

1.2. Interviewer: _____

1.3. Mode of Interview: _____

SECTION 2: DEMOGRAPHIC INFORMATION

2.1.What is your gender? _____

2.2. What is your job title? _____

2.3. How long have you been working at GDE? _____

2.4. What is your highest academic qualification? _____

SECTION 3: LEGISLATIVE AND POLICY FRAMEWORK FOR RECORDS MANAGEMENT AT THE GDE

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3.1 Are there legislative frameworks guiding records management at the GDE? Please list them below:

3.2 Is GDE complying with all the legislative frameworks regulating sound records management at the GDE? Please explain.

3.3. Is there an existing AI legislative framework in place at the GDE?

3.3 Is there a records management policy guiding records management at the GDE?

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3.4 Is GDE complying with all the policy frameworks for regulating sound records management at the GDE? Please explain

3.5 Is there any AI policy framework in place at the GDE?

SECTION 4: USER PERCEPTION REGARDING THE USE OF ARTIFICIAL INTELLIGENCE

4.1 Briefly explain your understanding of what artificial intelligence is.

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4.2 Are you familiar with the usage of AI technologies in records management? If yes, briefly explain.

4.2.1 If not, what do you think could be done to help you learn more about the utilisation of AI in records management?

4.3. What is your own opinion regarding the utilisation of AI technologies to manage records? Briefly explain your view.

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SECTION 5: SKILLS REQUIRED FOR RECORDS MANAGEMENT PRACTITIONERS TO MANAGE RECORDS BY ARTIFICIAL INTELLIGENCE

5.1 Do you have the skills to effectively manage records using AI? Please mention them.

5.2 Regarding the skills we've discussed, could you please elaborate on your proficiency level? For instance, if you have experience with database management, please list the specific database management systems or tools you are familiar with and your level of experience with each

5.2.1 If you lack skills or have not progressed, what strategies do you think could be implemented to enhance your skills and knowledge in managing records with AI?

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SECTION 6: ARTIFICIAL INTELLIGENCE INFRASTRUCTURE FOR MANAGING RECORDS EFFECTIVELY

6.1 Are you familiar with AI infrastructure?

6.1.1 If yes, what are the AI infrastructure components you are familiar with?

6.1.2 If no, what do you think you must do to familiarise yourself with the AI infrastructure components to effectively manage records?

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SECTION 7: RECORDS MANAGEMENT ACTIVITIES THAT CAN BE DISCHARGED BY ARTIFICIAL INTELLIGENCE TECHNOLOGIES

7.1 Do you think that AI can manage all records management activities effectively and efficiently? Briefly explain.

7.1.1 If yes, which records management activities do you think AI can manage effectively and efficiently?

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7.1 2 If no, please provide reasons why you think AI cannot perform all records management activities effectively and efficiently at the GDE. Briefly explain.

_____

_____

_____

_____

_____

_____

THANK YOU FOR YOUR PARTICIPATION!!

APPENDIX 7: DOCUMENT REVIEW CHECKLIST

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DOCUMENT REVIEW CHECKLIST

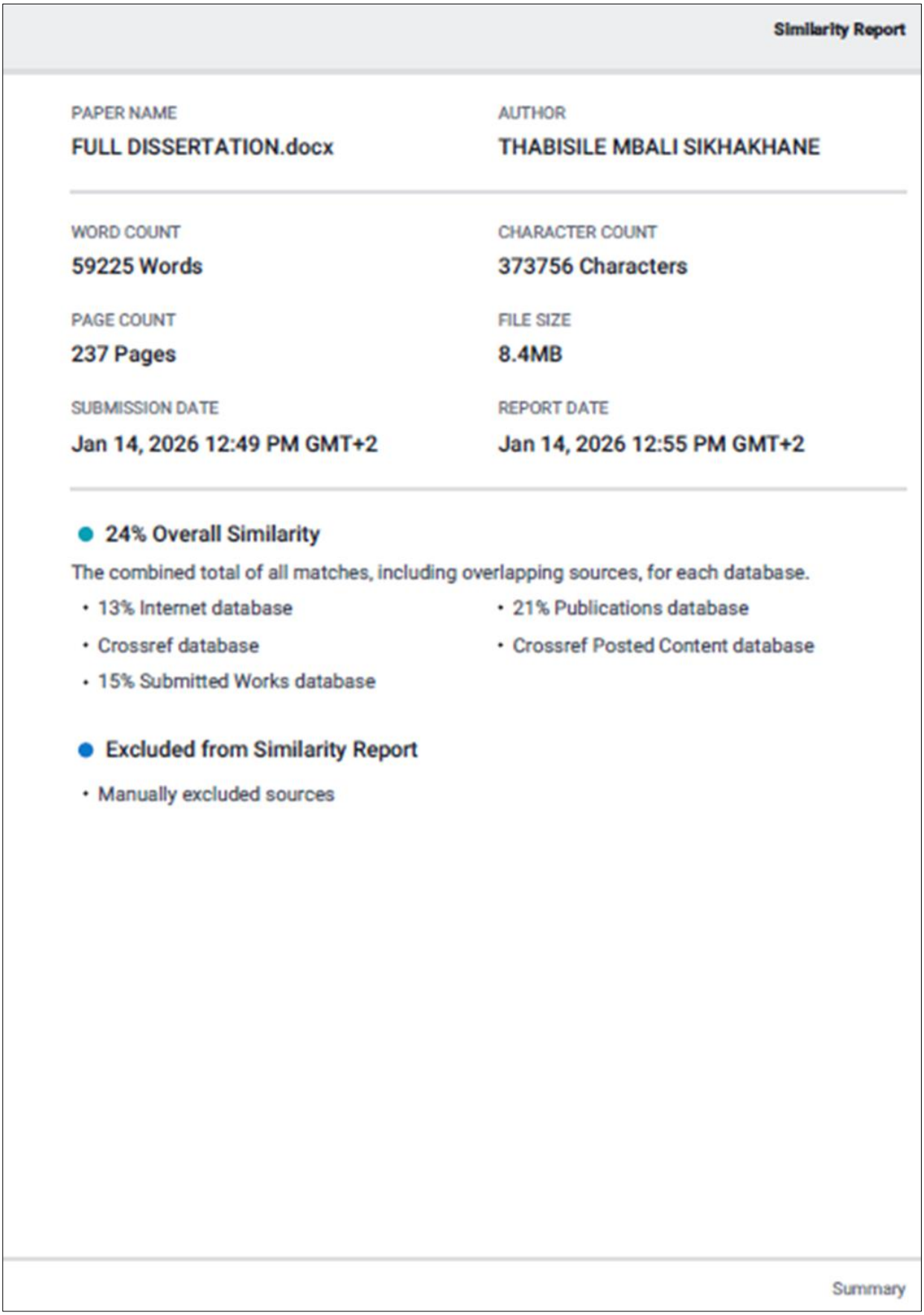
Document Title:

Document Reviewer(s):

Availability of policies that guide the management of records.	YES NO		Comment:
Does the policy address the creation of records?	YES NO		Comment:
Does the policy address the security and maintenance of records?	YES NO		Comment:
Does the policy address the records disposal?	YES NO		Comment:
Does the policy address the records management systems?	YES NO		Comment:
Does the policy address access to the records at GDE?	YES NO		Comment:
Does the policy address the ICT for digital records?	YES NO		Comment:
Does the policy address the adoption and use of AI in records management?	YES NO		Comment:

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APPENDIX 8: TURNITIN SIMILARITY REPORT



Similarity Report

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FULL DISSERTATION.docx

AUTHOR
THABISILE MBALI SIKHAKHANE

WORD COUNT
59225 Words

CHARACTER COUNT
373756 Characters

PAGE COUNT
237 Pages

FILE SIZE
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Jan 14, 2026 12:55 PM GMT+2

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Summary

APPENDIX 9: CONFIRMATION OF EDITING

LETITIA GREENBERG

LANGUAGE SPECIALIST

Cellphone: 084 077 1580
Email: lgletitia@gmail.com

31 Aland Road
Valhalla
0185

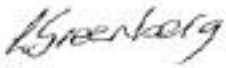
31 May 2026

To whom it may concern

With this letter, I confirm that I have language edited the capstone report titled *Utilisation of artificial intelligence to enhance records management practices at the Gauteng Department of Education in South Africa* by Thabisile Mbali Sikhakhane.

With a relevant degree and honours degree, I am fully qualified to undertake such editing.

Yours faithfully



Letitia Greenberg