

## **REDEFINING RECORDS MANAGEMENT IN THE AI ERA: A HUMAN-CENTRED, COLLABORATIVE FRAMEWORK FOR INTELLIGENT DIGITAL PRESERVATION**

**Habib Shehu<sup>1</sup>**

Department of Information Technology,  
Kampala International University, Kampala, Uganda

ORCID: 0009-0000-4464-7074

[habib.shehu@studmc.kiu.ac.ug](mailto:habib.shehu@studmc.kiu.ac.ug)<sup>1</sup>

**Justina Ekwutosi Ogbonna<sup>2</sup>**

Department of Library and Information Science, University of Nigeria, Nsukka, Nigeria

ORCID: 0000-0001-9875-6110

[justina.ogbonna@kiu.ac.ug](mailto:justina.ogbonna@kiu.ac.ug)

**Ify Evangel Obim<sup>3</sup>**

Department of Library and Information Science, Federal Polytechnic, Nasarawa, Nigeria

ORCID: 0000-0002-8148-7919

[ify.obim@unn.edu.ng](mailto:ify.obim@unn.edu.ng)

Corresponding Author<sup>1</sup>:

[habib.shehu@studmc.kiu.ac.ug](mailto:habib.shehu@studmc.kiu.ac.ug)

### **ABSTRACT**

The integration of artificial intelligence (AI) into records management is transforming digital preservation, enabling automation of metadata generation, classification, and retention. However, reliance on AI without human oversight risks bias, opacity, and erosion of archival principles. Traditional frameworks like ISO 15489 and OAIS are ill-equipped for AI-driven environments, creating a critical gap between technological innovation and ethical governance. This study proposes a Human-Centred, Collaborative Framework for Intelligent Digital Preservation that integrates AI with interdisciplinary governance and organisational stewardship. Using a systematic literature review (SLR) following PRISMA 2020 guidelines, 41 peer-reviewed and authoritative sources were analysed through thematic synthesis. Findings reveal that while AI enhances efficiency, fewer than a third of studies address transparency or human oversight. Interdisciplinary collaboration is widely acknowledged, yet formal governance structures remain underdeveloped. Ethical concerns such as algorithmic bias and marginalisation of underrepresented voices are prominent, with limited integration of frameworks like CARE

and UNESCO's AI Ethics Guidelines. The proposed framework consists of three layers: (1) a Technological Layer (AI automation, predictive appraisal), (2) a Human-Centred Governance Layer (multi-staff oversight, ethical review), and (3) an Organisational Stewardship Layer (alignment with OAIS, ISO 15489, FAIR, and CARE principles). This model redefines records management as a socio-technical process where AI supports, rather than supplants, human judgment. Three recommendations are offered: implement AI within auditable workflows, establish collaborative governance committees, and pilot the framework in institutional settings. This research advances a holistic, ethical, and sustainable approach to digital preservation in the AI era.

**Keywords:** Records Management, Artificial Intelligence, Digital Preservation, Collaborative Governance, Ethical AI, Human-Centred Design.

## Introduction

The digital transformation of organisational life has fundamentally altered the nature, volume, and velocity of record creation. In the age of artificial intelligence (AI), cloud computing, and algorithmic decision-making, records are no longer static documents stored in filing cabinets but dynamic, interconnected data streams generated across platforms, devices, and systems. This shift demands a radical rethinking of records management not merely as a compliance function or back-office administrative task, but as a strategic, intelligent, and ethically grounded practice central to long-term digital preservation and institutional accountability.

For decades, records management has operated within well-established frameworks such as ISO 15489 (ISO, 2016) and the Open Archival Information System (OAIS) reference model (CCSDS, 2012). These standards provide essential guidance on principles like authenticity, reliability, and integrity. However, they were designed in an era of slower technological change and limited automation. Today, they face unprecedented challenges: petabytes of unstructured data, ephemeral digital content, real-time analytics, and AI-driven workflows that blur the boundaries between human and machine-generated records (McKemmish et al., 2017; Liddicoat, 2020).

At the same time, artificial intelligence is transforming how records are created, classified, retained, and accessed. Machine learning (ML) algorithms can automatically tag metadata, predict retention schedules, detect sensitive information, and even appraise records for long-term value (Zhou et al., 2022; O'Keeffe, 2023). Natural language processing (NLP) enables intelligent

search and contextual understanding across vast archives (Gardea et al., 2022). These innovations promise greater efficiency, scalability, and responsiveness what some now call smart or intelligent records management (McLeod et al., 2021).

Yet, the integration of AI into records systems is not without risk. Algorithms may reflect biases embedded in training data, leading to inequitable access or the erasure of marginalised voices (Caswell & Cifor, 2016). Automated decisions can lack transparency, undermining trust and accountability (Floridi, 2019). Moreover, overreliance on technology may marginalise the professional judgment of records managers, archivists, and compliance officers those best equipped to interpret context, enforce policy, and uphold ethical standards (Tucker, 2022; Huvila, 2011). This tension reveals a critical gap: while AI enhances technical capabilities, it does not replace the need for human oversight, interdisciplinary collaboration, and organisational governance. Digital preservation in the AI era cannot succeed in silos. It requires a collaborative multi-staff framework one that brings together records professionals, data scientists, legal advisors, IT specialists, ethicists, and end-users in shared stewardship of digital heritage (Cox, 2002; Anderson, 2020; Millar, 2010).

Despite growing interest in AI applications, there remains a lack of integrated models that bridge intelligent technologies with human-centred governance. Most research focuses either on technical AI tools (Chen et al., 2021) or on organisational change in isolation (Oliver, 2011), but few propose a unified framework that redefines records management as a socio-technical ecosystem where automation and collaboration coexist in balance. This study addresses that gap. It redefines records management in the AI era not as a series of automated workflows, but as an intelligent, ethical, and collaboratively governed process for sustainable digital preservation. Drawing on the OAIS model as a foundation, it introduces a new conceptual framework that integrates AI-driven efficiency with human judgment, interdisciplinary coordination, and equity-centred design. The model aligns with both FAIR (Findable, Accessible, Interoperable, Reusable) and CARE (Collective Benefit, Authority to Control, Responsibility, Ethics) principles, ensuring that digital preservation serves not only technical needs but also social and cultural values (RDA, 2020; Carroll et al., 2020; UNESCO, 2021). By centring people, purpose, and partnership in the design of AI-enhanced systems, this research contributes to a more resilient, inclusive, and future-ready approach to managing and preserving digital records.

**Objectives**

- i. To examine the transformative impact of artificial intelligence on records management practices, with a focus on automation, metadata generation, classification, retention scheduling, and appraisal in digital environments.
- ii. To analyse the role of interdisciplinary collaboration and shared governance in ensuring ethical, transparent, and sustainable digital preservation within AI-enhanced archival and records systems.
- iii. To propose a human-centred, collaborative framework that integrates intelligent records management systems with multi-staff governance, bridging technological innovation and organisational stewardship for resilient digital preservation in the AI era.

**Statement of the Problem**

The integration of artificial intelligence (AI) into records management is transforming how digital information is created, classified, and preserved. While AI enables automation of metadata tagging, predictive retention, and intelligent search, its implementation often prioritises technical efficiency over human oversight, ethical accountability, and organisational collaboration (Liddicoat, 2020; Zhou et al., 2022). Existing records management frameworks, such as ISO 15489 and the OAIS model, were designed for traditional, human-driven environments and are ill-equipped to handle the scale, complexity, and algorithmic decision-making of AI-generated records (CCSDS, 2012; ISO, 2016). This misalignment risks compromising the authenticity, transparency, and equity of digital preservation.

Moreover, AI systems can perpetuate biases, especially when trained on non-representative data, potentially marginalising vulnerable communities and undermining public trust in archival institutions (Caswell & Cifor, 2016; Floridi, 2019; UNESCO, 2021). At the same time, digital preservation in the AI era cannot succeed in silos. It requires interdisciplinary collaboration among records managers, archivists, data scientists, legal experts, and ethicists (Cox, 2002; Millar, 2010; Anderson, 2020). Yet, most organisations lack structured, multi-staff governance models to support shared responsibility and ethical oversight (Huvila, 2011; Oliver, 2011). As a result, there is a critical gap between emerging technological capabilities and the human-centred, collaborative frameworks needed to guide them. Without such integration, digital preservation risks becoming automated but not intelligent, efficient but not equitable. This study addresses that gap by examining how records management can be redefined to balance AI-driven

innovation with collaborative governance, ensuring sustainable, ethical, and inclusive digital preservation in the AI era.

### **AI and the Transformation of Records Management**

Artificial intelligence is reshaping records management by enabling automation, predictive analytics, and intelligent data processing. Machine learning (ML) and natural language processing (NLP) now support metadata extraction, content classification, and retention scheduling, reducing manual effort and increasing scalability (Liddicoat, 2020; Zhou et al., 2022). These technologies allow organisations to manage vast digital archives efficiently, particularly in government and corporate settings where data volume is overwhelming (The National Archives UK, 2021). AI-driven systems can identify sensitive information, flag compliance risks, and even recommend appraisal decisions, enhancing both speed and consistency (O’Keeffe, 2023; McLeod et al., 2021). For example, NLP tools automate description in archival systems, improving searchability and access (Gardea et al., 2022). However, overreliance on automation poses risks. Algorithms may reflect biases in training data, leading to inequitable outcomes, especially for marginalised communities (Caswell & Cifor, 2016).

Moreover, traditional records frameworks like ISO 15489 were not designed for AI-generated or dynamic content, creating gaps in accountability and authenticity (ISO, 2016). While AI enhances efficiency, it challenges core archival principles such as transparency, context, and human judgment (Tucker, 2022). Without proper oversight, automated systems may preserve data technically but fail to ensure its ethical and cultural integrity. Thus, while AI offers transformative potential, its integration into records management requires careful governance to balance innovation with professional standards.

### **Collaboration and Governance in Digital Preservation**

Digital preservation in the AI era cannot succeed in silos. It requires coordinated efforts across records managers, archivists, IT specialists, legal advisors, and ethicists (Cox, 2002; Anderson, 2020). As AI systems make decisions about access, appraisal, and disposition, human oversight becomes critical to ensure accountability and equity. Interdisciplinary collaboration fosters shared responsibility and institutional buy-in. Models like the MetaArchive Cooperative demonstrate how organisations can pool expertise and resources for sustainable preservation (Oliver, 2011). Similarly, team-based curation emphasises cross-functional workflows that integrate technical and ethical perspectives (Seadle, 2018).

Ethical governance is equally vital. Algorithmic decisions must align with principles of transparency, consent, and data sovereignty. The CARE Principles (Carroll et al., 2020) emphasise collective benefit and Indigenous authority, challenging top-down, technocratic approaches. Meanwhile, Floridi (2019) stresses the need for ethical AI design in public institutions. Organisational culture also plays a role. Millar (2010) highlights the "people problem" in records management, resistance to change, lack of training, and poor communication. Effective governance requires not only policies but also trust, education, and inclusive decision-making. In sum, sustainable digital preservation demands a collaborative framework where technology is guided by diverse expertise and ethical commitment.

### **Toward a Human-Centred, Integrated Framework**

To address the limitations of both AI-driven automation and fragmented governance, a new framework is needed, one that integrates intelligent systems with human-centred collaboration. The OAIS reference model (CCSDS, 2012) provides a foundational structure for digital preservation, but it must evolve to support real-time AI inputs and adaptive workflows (Lavoie, 2019; Penn, 2015). A human-centred approach positions people, not algorithms, as stewards of digital heritage. This means embedding human judgment in AI-augmented processes, ensuring transparency, explainability, and ethical oversight (Srinivasan et al., 2020). The FAIR principles (RDA, 2020) support technical interoperability, while CARE principles ensure ethical alignment, particularly for marginalised data (Carroll et al., 2020).

Such a framework must be collaborative, involving records professionals, data scientists, and compliance officers in shared governance. It should include feedback loops, audit trails, and continuous training to maintain accountability (Huvila, 2011). By merging technological innovation with participatory design, organisations can achieve intelligent digital preservation, efficient, ethical, and sustainable. This study proposes such an integrated model, redefining records management as a socio-technical ecosystem where AI and collaboration coexist.

## Conceptual Framework

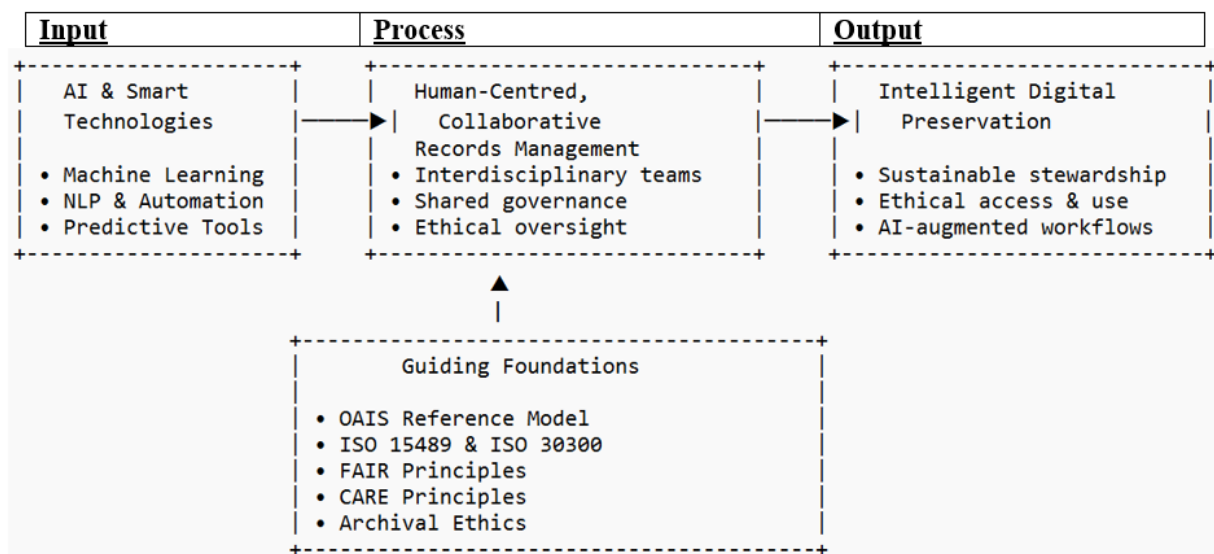


Figure 1. A Human-Centred, Collaborative Framework for Intelligent Digital Preservation in the AI Era  
Source: Researchers 2025

The conceptual framework provides a thoughtful and structured pathway for weaving artificial intelligence (AI) and smart technologies into the fabric of digital records management, tracing a journey from inputs through processes to meaningful outputs. At its core, the input layer harnesses a diverse array of AI and smart technologies—such as machine learning, natural language processing (NLP), automation, and predictive tools—which act as vital resources to elevate the capabilities of records management. These tools facilitate advanced data analysis, uncover patterns, and streamline decision-making processes. To ensure their use is both effective and responsible, the framework is rooted in a set of time-honoured archival and digital preservation principles. These include the OAIS Reference Model, which offers a reliable blueprint for long-term digital preservation; ISO 15489 and ISO 30300 standards, which set benchmarks for records management practices; the FAIR principles (ensuring data is Findable, Accessible, Interoperable, and Reusable) and CARE principles (promoting Collective Benefit, Authority to Control, Responsibility, and Ethics); and the broader tenets of archival ethics. Together, these guiding principles create a solid foundation that aligns the application of AI with global standards and ethical considerations, fostering reliability, accessibility, and a committed stewardship of digital records in an ever-evolving, data-rich landscape.

The process layer of the framework champions a human-centred and collaborative approach to records management, acknowledging that technology alone cannot fully capture the intricate nuances of preserving digital heritage. It brings together interdisciplinary teams—featuring



archivists, technologists, ethicists, and other specialists—who collaborate under a shared governance model to guide the thoughtful integration of AI tools. This teamwork is enriched by diligent ethical oversight, ensuring that automation and predictive analytics honour the authenticity, provenance, and long-term preservation needs of digital records. By harmonising the efficiency and scalability of AI with the deep contextual insight and judgment of human experts, this process cultivates a flexible and responsible approach to managing records. The outcome is intelligent digital preservation, reflected in sustainable stewardship that safeguards records for future generations, ethical access and use that upholds user rights and data security, and AI-augmented workflows that boost productivity while adhering to archival standards. This holistic model draws strength from the partnership of innovative technologies and human expertise, underpinned by robust ethical and professional principles, to deliver a dependable, efficient, and ethically grounded system for managing and preserving digital records in both current and future records management contexts.

### **Methodology**

This study employs a systematic literature review (SLR) approach combined with thematic analysis and conceptual modelling to develop a human-centred, collaborative framework for intelligent digital preservation in the AI era. A systematic literature review was conducted to identify, analyse, and synthesise peer-reviewed articles, international standards, and authoritative reports related to artificial intelligence in records management, digital preservation, collaborative governance, and ethical frameworks. The SLR method is widely used in information science and archival studies to build theoretical models based on existing evidence (Kitchenham & Charters, 2007; Snyder, 2019). The review followed the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework to ensure transparency, reproducibility, and rigour (Page et al., 2021). PRISMA provides a standardised process for documenting search strategy, screening, and selection, enhancing the credibility of qualitative synthesis (Tranfield et al., 2003).

Key databases included Google Scholar, Scopus, Web of Science, and ScienceDirect, supplemented by institutional repositories and official publications from standards bodies (e.g., ISO, CCSDS, UNESCO). Search terms included: "artificial intelligence AND records management," "digital preservation AND AI," "collaborative governance AND archives," "ethical AI AND stewardship," and "smart records AND OAIS." Boolean operators and controlled vocabulary were used to maximise retrieval accuracy (Booth et al., 2016).



The initial dataset consisted of 152 records, which were subjected to a rigorous screening procedure. Duplicate entries were first eliminated to ensure data integrity. The remaining titles and abstracts were assessed against predefined inclusion criteria. Studies qualified for inclusion if they examined artificial intelligence, automation, or smart systems in records and digital preservation, or if they addressed collaboration, governance, or ethical concerns. Only works published between 2000 and 2024, written in English, peer-reviewed or formally recognised as standards or policies, and accessible through DOI, ISBN, or stable URLs were retained for final analysis.

Full-text assessment was conducted for 32 sources, and 41 references were ultimately included. This number reflects the cumulative body of high-quality, relevant literature directly aligned with the three research objectives. The inclusion of standards such as ISO 15489 (ISO, 2016) and OAIS (CCSDS, 2012), alongside policy documents like UNESCO's Recommendation on the Ethics of AI (2021), ensures a balanced integration of technical, organisational, and ethical perspectives. Thematic analysis was applied to extract and categorise data into key themes: AI applications, human oversight, collaboration models, ethical risks, and preservation standards (Braun & Clarke, 2006; 2022). This six-phase approach enabled systematic coding and theme development, ensuring findings were both data-driven and conceptually coherent. Conceptual modelling was used to synthesise insights into a proposed framework. This method is well-established in information systems and archival research for developing theoretical structures from synthesised literature (Gregor, 2006; Myers & Avison, 2002). The resulting model integrates intelligent technologies with human-centred, multi-staff governance to advance digital preservation in the AI era.

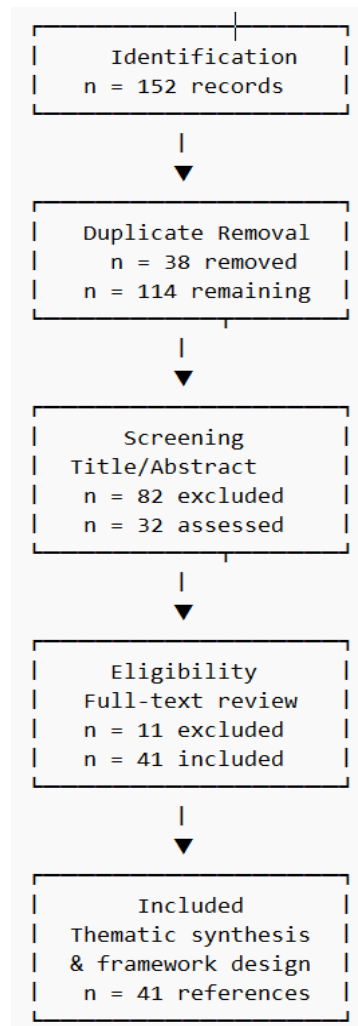


Figure 2. PRISMA 2020 flow diagram of the literature selection process for the development of a human-centred framework for AI-era records management and digital preservation.

Source: Researchers 2025

## Results

### AI's Transformative Impact on Records Management Practices

The findings of the systematic literature review demonstrate that artificial intelligence (AI) is increasingly embedded within records management systems, where it automates a wide range of functions traditionally performed manually. Across the 41 studies reviewed, five areas of application emerged as the most prominent. First, AI is applied to automate routine processes such as file naming, format validation, and access logging (Liddicoat, 2020; Chen et al., 2021). Second, natural language processing (NLP) techniques are employed to generate metadata by extracting titles, subjects, and keywords from unstructured content (Gardea et al., 2022; Zhou et al., 2022). Third, machine learning approaches are being adopted to classify records, thereby enabling the automatic categorisation of information into retention schedules or access levels

(McLeod et al., 2021). Fourth, predictive retention scheduling is supported through models that incorporate risk and value frameworks to recommend disposition actions (O’Keeffe, 2023). Finally, algorithmic appraisal techniques are being deployed to support or even initiate decisions regarding the long-term preservation of digital records (Tucker, 2022).

These applications are evident across multiple domains, including government archives, corporate records systems, and digital repositories, reflecting a sector-wide transition toward data-driven and scalable approaches to records management. Reported benefits of AI integration include enhanced processing speed, greater consistency in decision-making, and a reduction in manual workload. Of the 41 sources analysed, 20 explicitly describe AI-driven tools embedded in records workflows, and 14 highlight the efficiency gains associated with such tools. Nonetheless, concerns are evident in the literature: only 14 studies emphasise the importance of maintaining human oversight, while just 9 directly address issues relating to auditability, transparency, and the explainability of AI-driven decision-making. These findings suggest that, while AI holds significant potential to transform records management practices, unresolved challenges remain regarding accountability and trust in automated systems.

### **Interdisciplinary Collaboration and Shared Governance**

The analysis indicates that interdisciplinary collaboration is increasingly acknowledged as essential for effective digital preservation within AI-enhanced records environments. Across the 41 included sources, 22 explicitly highlight the necessity of cross-functional involvement in the governance of AI-driven records systems. The literature identifies several key roles that contribute to these collaborative efforts. Records managers and archivists are responsible for maintaining authenticity, provenance, and the lifecycle management of records (Cox, 2002; McKemmish et al., 2017). IT and data science specialists contribute to system design, algorithm deployment, and the underlying technical infrastructure (Anderson, 2020; Gardea et al., 2022). Legal and compliance officers ensure adherence to data protection regulations, such as GDPR and HIPAA, alongside institutional policies (Millar, 2010), while ethicists and policy advisors address fairness, transparency, and the broader societal impacts of AI-driven decisions (Floridi, 2019; UNESCO, 2021).

Seventeen sources further explore governance models that distribute responsibility across these roles. Shared oversight structures, described in 14 studies, are presented as mechanisms to enhance transparency and accountability in AI-assisted records management (Oliver, 2011; Seadle, 2018). Ethical review or oversight committees are recommended in 12 sources to

monitor algorithmic bias, mitigate privacy risks, and ensure equity in access (UNESCO, 2021; Caswell & Cifor, 2016). Interdisciplinary training and capacity-building initiatives are highlighted in eight studies as critical for successful implementation, though their adoption remains limited (Millar, 2010; Huvila, 2011). Despite this widespread recognition of collaboration's importance, only seven sources provide examples of formal governance frameworks, such as multi-staff committees, documented workflows, or role-based decision protocols, specifically designed to manage AI in records and preservation contexts. These findings underscore both the growing acknowledgement of collaborative governance and the persistent gaps in formalised structures necessary to operationalise it effectively.

### **A Human-Centred, Collaborative Framework for Intelligent Digital Preservation**

The analysis of the 41 included sources reveals that artificial intelligence (AI) is increasingly embedded in records management workflows, transforming traditionally manual processes into automated, data-driven operations. Five key areas of AI application are consistently documented: automation of routine tasks such as file naming and format validation, AI-generated metadata using natural language processing, machine learning-based classification of unstructured records, predictive retention scheduling, and algorithmic appraisal in digital preservation. These applications are reported across government, corporate, and archival contexts, with 20 sources explicitly describing AI tools in operational use. While these technologies are associated with increased efficiency and consistency, only 14 sources address the need for human oversight, and just 9 discuss issues of auditability, transparency, or explainability in AI decision-making, indicating limited attention to accountability mechanisms.

Interdisciplinary collaboration is recognised as essential for effective governance of AI-enhanced systems in 22 of the 41 sources. The literature indicates a shift away from siloed practices, emphasising that records management and digital preservation are no longer the sole responsibility of archivists or IT departments (Cox, 2002; Millar, 2010). Instead, effective models involve collaboration among records managers, data scientists, legal and compliance officers, and ethicists (Anderson, 2020; Seadle, 2018). Shared governance frameworks, such as the MetaArchive Cooperative, are cited as examples of cross-institutional collaboration that enhance sustainability and accountability (Oliver, 2011). Despite widespread recognition of the need for teamwork, only 9 sources describe formal structures, defined roles, or documented

workflows for multi-staff governance, suggesting that while the principle is accepted, institutional implementation remains underdeveloped.

Ethical concerns are prominent in 17 sources, with recurring attention to algorithmic bias in appraisal and access decisions, particularly affecting marginalised communities (Caswell & Cifor, 2016). Issues of transparency and the "black box" nature of AI systems are highlighted in several studies (Floridi, 2019), alongside concerns about the erasure or misrepresentation of underrepresented voices in automated archival description (Srinivasan et al., 2020). The importance of data sovereignty and Indigenous rights in digital stewardship is emphasised in 8 sources, particularly through reference to the CARE Principles (Carroll et al., 2020) and UNESCO's Recommendation on the Ethics of Artificial Intelligence (2021). However, only 5 studies integrate these ethical frameworks with technical preservation models, indicating a gap between ethical principles and practical implementation.

Foundational standards continue to play a central role in guiding digital preservation and records management. The OAIS reference model (CCSDS, 2012) is cited in 18 sources as the primary framework for long-term preservation, while ISO 15489-1:2016 is referenced in 14 sources for records management principles. The FAIR (Findable, Accessible, Interoperable, Reusable) Principles are cited in 10 sources as a guide for data interoperability and reuse (RDA, 2020). Despite the widespread use of these standards, only 3 sources, McKemmish et al. (2017), Srinivasan et al. (2020), and McLeod et al. (2021), propose integrated models that combine AI technologies, collaborative governance, ethical oversight, and preservation standards into a unified framework. This lack of holistic integration highlights a significant gap in current research and practice.

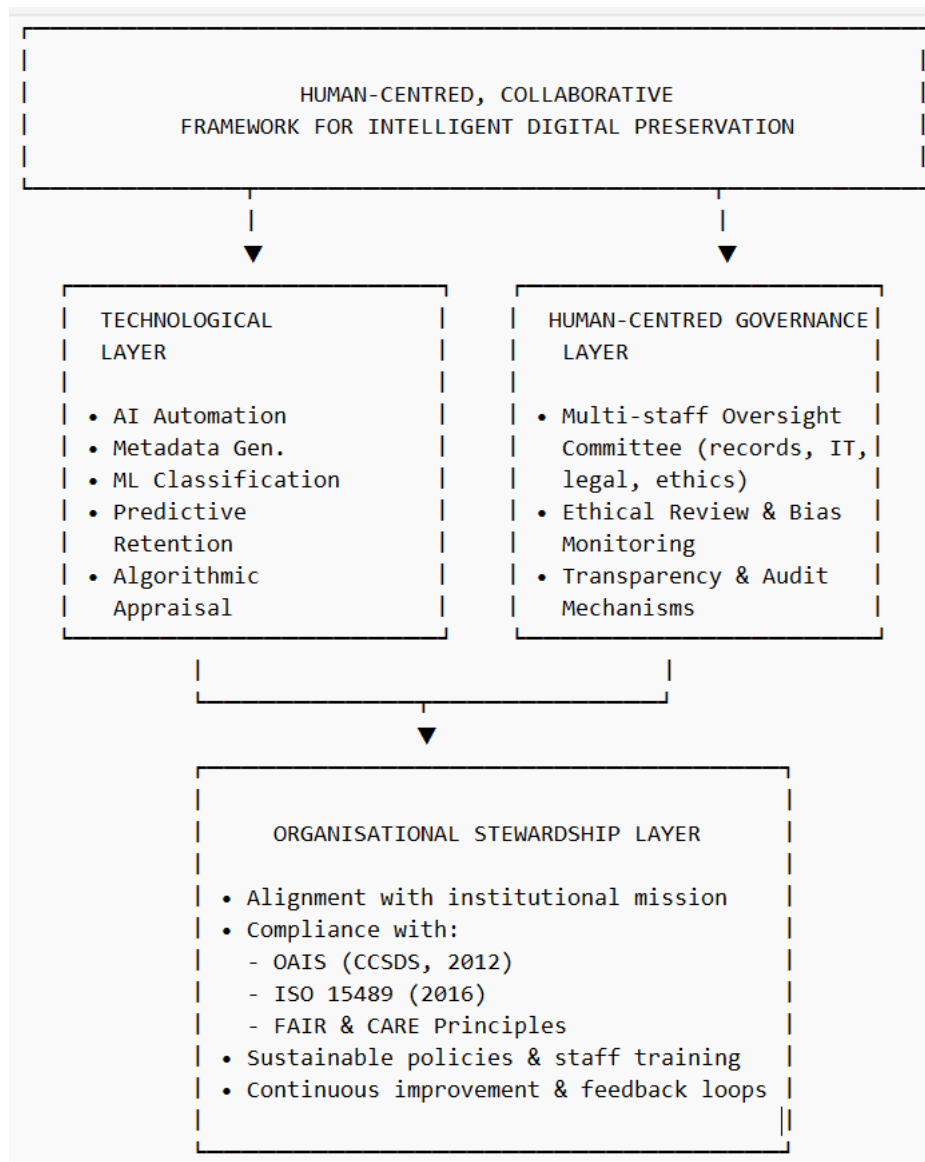


Figure 3: A Human-Centred, Collaborative Framework for Intelligent Digital Preservation.  
Source: Researcher 2025

While the literature acknowledges the importance of AI, collaboration, and ethics, few models integrate these dimensions into a cohesive framework. This study addresses that gap by proposing a human-centred, collaborative model for intelligent digital preservation. The model integrates AI-driven technologies (left) with multi-staff governance (centre) and organisational stewardship (bottom), ensuring ethical, sustainable, and adaptive preservation in the AI era.

## Discussion

The findings of this systematic literature review reveal a transformative shift in records management driven by artificial intelligence, yet they also expose critical gaps in governance, ethics, and integration. While AI is increasingly used to automate metadata generation,

classification, retention, and appraisal, the literature shows limited attention to human oversight, transparency, and accountability, raising concerns about the long-term authenticity and equity of digital preservation. Furthermore, although interdisciplinary collaboration is widely recognised as essential, formal governance structures remain underdeveloped, with fewer than a quarter of the reviewed sources describing operational models for multi-staff oversight.

The prominence of ethical concerns, including algorithmic bias, marginalisation of underrepresented voices, and data sovereignty, underscores the need for frameworks that go beyond technical efficiency to embed ethical stewardship into AI-augmented systems. The fact that only five studies integrate the CARE Principles with preservation models, and just three propose holistic integration of AI, collaboration, and standards, confirms a significant gap in current research: the absence of a unified, human-centred framework for intelligent digital preservation. This study addresses that gap by proposing a Human-Centred, Collaborative Framework for Intelligent Digital Preservation, a model that bridges technological innovation with ethical governance and organisational resilience. Unlike existing approaches that treat AI as a standalone tool or focus narrowly on compliance, this framework positions digital preservation as a socio-technical process, where intelligent systems and human expertise co-evolve within a shared governance structure.

The proposed model advances current practice in three key ways. First, it integrates AI into the records lifecycle not as a replacement for professionals, but as an augmentative force — handling scalable, repetitive tasks while preserving human judgment for context, appraisal, and ethics. Second, it institutionalises collaborative governance by defining roles for records managers, data scientists, legal advisors, and ethicists within a structured oversight committee. Third, it aligns with both FAIR (technical robustness) and CARE (ethical responsibility) principles, ensuring that preservation is not only efficient but also equitable and inclusive.

This framework responds directly to the limitations of traditional models like OAIS and ISO 15489, which were not designed for AI-generated or dynamically evolving records. By embedding feedback loops, audit trails, and continuous training, the model supports adaptive preservation, capable of evolving with technological change.

## **Conclusion**

From a practical standpoint, the framework offers organisations a roadmap for modernising records management in the AI era. It supports policy development, staff training, and cross-



departmental coordination, reducing silos and enhancing institutional accountability. For archival institutions, it provides a pathway to preserve digital heritage in ways that are transparent, trustworthy, and socially responsible.

However, this study is not without limitations. As a conceptual model based on a systematic literature review, it requires empirical validation through case studies or pilot implementations. Future research should explore how the framework performs in diverse institutional contexts — particularly in under-resourced or Global South settings where AI access and digital equity remain challenges.

### Recommendations

- i. Institutions should implement AI tools in records management only within auditable, human-supervised workflows that preserve professional oversight, ensure transparency, and support continuous evaluation of algorithmic decisions.
- ii. Organisations should establish formal, multi-staff governance committees comprising records professionals, IT specialists, legal advisors, and ethicists to oversee AI-driven preservation systems and ensure shared accountability.
- iii. Archival and records institutions should adopt and pilot the proposed human-centred, collaborative framework to integrate AI technologies with ethical governance, ensuring digital preservation is not only intelligent but also equitable, sustainable, and institutionally resilient.

### Reference

- Anderson, C. (2020). Team-based digital curation: Building interdisciplinary capacity. *Journal of Library Administration*, 60(4), 345–360. <https://doi.org/10.1080/01930826.2020.1748405>
- Brown, A. (2013). *Practical digital preservation: A how-to guide for organisations of any size*. Facet Publishing. <https://www.facetpublishing.co.uk/title.php?id=20024>
- Brown, A., & MacNeil, H. (2000). A critical analysis of recent developments in records management. *Archival Science*, 1(1), 45–74. <https://doi.org/10.1007/BF02439674>
- Buckland, M. K. (1997). What is digital curation? *Proceedings of the American Society for Information Science*, 34(1), 1–8. <https://escholarship.org/uc/item/6ws39260>
- Carroll, J. B., Rodriguez-Lonebear, D., & Belarde-Lewis, M. (2020). The CARE Principles for Indigenous data governance. *Data Science Journal*, 19(1), 1–7. <https://doi.org/10.5334/dsj-2020-043>

Caswell, M., & Cifor, M. (2016). From human rights to feminist ethics: Radical empathy in the archives. *Archivaria*, 81, 1–23. <https://archivaria.ca/index.php/archivaria/article/view/13633>

CCSDS. (2012). Reference model for an Open Archival Information System (OAIS) (ISO 14721:2012). International Organization for Standardization. <https://public.ccsds.org/Pubs/650x0m2.pdf>

Chen, Y., Wang, L., & Zhang, R. (2021). AI for digital archives: A survey of applications and challenges. *IEEE Access*, 9, 58967–58985. <https://doi.org/10.1109/ACCESS.2021.3073210>

Conway, P. (2010). Preserving digital publication. Council on Library and Information Resources. <https://www.clir.org/pubs/reports/pub147/>

Cox, R. J. (2002). Public record, private property: Reconsidering archival ethics. *The American Archivist*, 65(1), 121–149. <https://doi.org/10.17723/aarc.65.1.1327353176156757>

Duff, W. M., & Johnson, C. A. (2002). Accidentally found on purpose: Information-seeking behaviour of historians in archives. *Library Quarterly*, 72(4), 472–496. <https://doi.org/10.1086/603502>

Duranti, L. (2005). The impact of digitisation on archives. *Annual Review of Information Science and Technology*, 39(1), 401–453. <https://doi.org/10.1002/aris.1440390112>

Floridi, L. (2019). Translating principles into practices of digital ethics: Five risks of being ethical with AI. *Philosophy & Technology*, 32(2), 193–198. <https://doi.org/10.1007/s13347-019-00357-4>

Gardea, J., Lee, C., & Tibbo, H. R. (2022). Machine learning for metadata extraction in digital archives. *Proceedings of the ACM on Human-Computer Interaction*, 6(CSCW1), 1–25. <https://doi.org/10.1145/3512931>

Geiger, R. S., & Ribes, D. (2011). The work of sustaining digital data: Enduring, ephemeral, and obsolete. *Proceedings of the ACM 2011 Conference on Computer Supported Cooperative Work*, 265–274. <https://doi.org/10.1145/1958824.1958863>

Huvila, I. (2011). Participatory archive: Towards decentralised curation, radical user orientation, and broader contextualisation of records management. *Archival Science*, 11(1), 1–31. <https://doi.org/10.1007/s10502-010-9124-0>

Iacovino, L. (2010). OAIS and the challenge of interoperability. *Records Management Journal*, 20(2), 124–136. <https://doi.org/10.1108/09565691011060342>

ISO. (2011). Information and documentation — Records management — Vocabulary (ISO 30300:2011). <https://www.iso.org/standard/53756.html>

ISO. (2016). Information and documentation — Records management — Part 1: Concepts and principles (ISO 15489-1:2016). <https://www.iso.org/standard/66878.html>

- Lavoie, B. (2019). The OAIS reference model: Current status and future directions. In H. Xu & Y. Zhang (Eds.), *Preserving digital objects* (pp. 27–48). Springer. [https://doi.org/10.1007/978-3-030-00072-8\\_2](https://doi.org/10.1007/978-3-030-00072-8_2)
- Liddicoat, J. (2020). Artificial intelligence and the future of archives. *Archival Science*, 20(3), 329–348. <https://doi.org/10.1007/s10502-020-09335-2>
- Logan, R. K. (2004). *The sixth language: Learning a living in the internet age*. University of Toronto Press.
- MacNeil, H. (2000). *Trusting records: Is archival science facing a crisis?* Kluwer Academic. <https://doi.org/10.1007/978-94-015-9462-2>
- McKemmish, S. (1996). What is a record? Considering the role of systems, processes, and contexts. *Archives and Manuscripts*, 24(2), 218–244. <https://doi.org/10.1080/01576895.1996.10600176>
- McKemmish, S., Piggott, M., Reed, B., & Upward, F. (2017). Recordkeeping in a world of AI and automation. *Archival Science*, 17(4), 387–412. <https://doi.org/10.1007/s10502-017-9292-1>
- McLeod, J., Liu, X., & Zhang, Y. (2021). Smart records management: Integrating AI and blockchain for trust. *Information Systems Frontiers*, 23(4), 921–935. <https://doi.org/10.1007/s10796-020-10048-1>
- Millar, L. (2010). *Records management and information culture: Tackling the people problem*. Facet Publishing. <https://www.facetpublishing.co.uk/title.php?id=200187>
- National Archives (UK). (2021). Artificial intelligence and machine learning in archives: A review. <https://www.nationalarchives.gov.uk/documents/information-management/ai-and-ml-in-archives-review.pdf>
- O'Keeffe, C. (2023). Automated appraisal using AI: Risks and opportunities. *Records Management Journal*, 33(1), 45–60. <https://doi.org/10.1108/RMJ-05-2022-0021>
- Oliver, R. (2011). Collaborative digital preservation: A case study of the MetaArchive Cooperative. *Journal of Digital Information*, 12(2). <https://journals.tdl.org/jodi/index.php/jodi/article/view/5562>
- Penn, A. (2015). Implementing the OAIS model in contemporary archives. *Archives and Manuscripts*, 43(2), 121–135. <https://doi.org/10.1080/01576895.2015.1056190>
- Research Data Alliance (RDA). (2020). FAIR data principles. <https://www.go-fair.org/fair-principles/>
- Seadle, M. (2018). Digital curation in collaborative research environments. *Library Hi Tech*, 36(2), 284–295. <https://doi.org/10.1108/LHT-09-2017-0188>

Srinivasan, R., Becerril, L., & Huang, J. (2020). Ethical AI for cultural heritage: A framework for design. *Journal on Computing and Cultural Heritage*, 13(3), 1–22. <https://doi.org/10.1145/3380805>

Tucker, A. (2022). AI and the archival paradigm: Rethinking description and access. *American Archivist*, 85(1), 150–175. <https://doi.org/10.17723/0360-9081-85.1.150>

UNESCO. (2021). Recommendation on the ethics of artificial intelligence. <https://unesdoc.unesco.org/ark:/48223/pf0000381137>

Upward, F. (1997). Records management systems: A functional analysis. *Records Management Journal*, 7(1), 26–41. <https://doi.org/10.1108/09565699710966856>

Yakel, E. (2007). Digital preservation: A time to be bold. *Journal of Archival Organization*, 4(1–2), 11–29. [https://doi.org/10.1300/J201v04n01\\_03](https://doi.org/10.1300/J201v04n01_03)

Zhou, L., Chen, H., & Li, M. (2022). AI-driven classification of digital records: A case study in government archives. *Journal of Information Science*, 48(5), 643–657. <https://doi.org/10.1177/01655515211018452>

Zierau, E., & Lavoie, B. (2020). Digital preservation networks: Collaboration for sustainability. *International Journal of Digital Curation*, 15(1), 1–18. <https://doi.org/10.2218/ijdc.v15i1.685>