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Electronic records management in government departments and parastatals in Zambia

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A B S T R A C T

Traditionally, records have existed as print sources of information. Therefore, many records in most government departments and agencies in many developing countries such as Zambia remain paper records. However, as countries push to implement the concept of e-governance, government departments and agencies are deploying electronic records management systems (ERMS) to manage electronic records. The study employed a survey research design, exploiting purposive sampling method to sample 50 government departments and parastatals. Data was collected from 42 records officers, registry clerks, or officers in charge of managing records through a questionnaire. The collected data was analysed quantitatively using the Statistical Package for Social Sciences (SPSS) version 23. The findings reveal that the majority 76% of government departments and parastatals in Zambia kept e-records. Only 24% indicated that they do not keep e-records. The study also shows that the adoption and use of ERMS in government departments and parastatals in Zambia have deployed EDRMS commercial software such as TRIM and HP Records Manager. The study further established that inadequate funding was the greatest challenge towards the effective management of e-records, alongside issues such as the absence of clear policies, laws, and standards, lack of qualified staff, inadequate end user ICT infrastructure, and lack of senior management support and corruption.

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1. Introduction

In many countries, the records management sub-sector remains manual. This is prominent in developing countries such as Zambia where many departments and agencies use orthodox manual processes in managing records. This results in inefficiencies characterised by long queues and delays in providing services to the general citizenry. A study by Mulauzi et al. (2015),¹ established that in the Zambian pension industry, misplacement or loss of records including the slow speed at which needed records are retrieved from their storage results in beneficiaries not being given feedback on time about their benefits.

In the recent past, however, the world has undergone great advancements mainly due to the emergence of modern ICTs. Notably, revolutionary changes brought by ICTs to the global society are pushing governments to develop more elegant ways of digitalising routines and practices to offer more efficient, effective, and responsive government services to the citizens. Therefore, recognising the power of ICTs, modern governance systems are slowly shifting from traditional paper-based systems by turning to egovernment led solutions like e-records management. In their quest to provide government services in a timely, more efficient and transparent manner, coupled with the need to modernize their systems, governments in both developed and developing countries are creating and

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managing vast amounts of records electronically. Research has shown that more than 90 percent of the records are now produced in the electronic environment.² These e-records are being managed digitally through the use of e-government initiatives such as electronic records management systems.

Well-managed e-records provide a strong foundation for enhancing accountability, transparency, democratic governance, poverty eradication, elimination of corruption, and efficient use of donor-funded resources. However, for an e-government initiative such as e-records management to be implemented successfully, important technological, cultural, social, political, and organisational issues must be considered and handled carefully by any government considering its implementation, especially in developing countries. Newa and Mwantimwa (2019),³ affirms that the most basic prerequisites for e-records management implementation to succeed is that there should be robust ICT infrastructure in place; appropriate policies and regulatory frameworks; an IT-oriented public; availability of electricity; a reliable and accessible internet service; top management support; and adequate financial resources to set up the appropriate infrastructure.

1.1. Statement of the problem

Governments in developing countries have begun to digitalize records management because of its inherent advantages. Many government departments and parastatals have realised that paper-based systems are a source of inefficiencies in service delivery. Therefore, to ensure speedy, more responsive, and transparent government services to the citizens, coupled with the need for government systems reinvention, more records are being generated and managed electronically across all government institutions. These e-records are being managed electronically through the use of e-government systems such as electronic records management systems (ERMS). However, there is lack of evidence on the extent to which government departments and parastatals in Zambia have adopted and implemented ERMS. Due to this gap in knowledge, very little is known about the extent to which Zambian government departments and parastatals manage e-records, the e-records management systems being used and the challenges they face in the management of e-records. This research therefore sought to bridge the above knowledge gap.

1.2. Research objectives

The main objective of the study was to investigate electronic records management in government departments and parastatals in Zambia. In this regard, the study sought to:

- 1. Establish the extent to which government departments and parastatals in Zambia keep e-records.
- 2. Determine the e-records management systems being used by government departments and parastatals in Zambia to manage e-records.
- 3. Establish the challenges faced by government departments and parastatals in Zambia in the management of e-records.

2. Literature Review

As indicated in the introduction and statement of the problem, e-records have been embraced in both the public and private sectors because they help organisations to achieve the virtues of efficiency and transparency. Therefore, there is an appetite for organisations in the public sector to keep e-records.

2.1. Electronic records management in some selected countries

In the face of continuous advancement in Information and Communication Technology (ICT), e-records management is inevitable in both government departments and agencies. In this digital era, many factors such as online businesses, high-technological gadgets, and e-records management systems have influenced how records are created, managed, and accessed. In addition, the types of records generated in organisations directly reflect the nature as well as the activities undertaken in those organisations.

In Uganda, a study by Luyombya and Ndagire (2020),⁴ on records management procedures and service delivery at the Islamic University, revealed that the University generated e-records in the categories of correspondence, policies, minutes of meetings, reports, contracts, and equipment documents. Similarly, a study by Newa and Mwantimwa (2019)³ on e-records management in Tanzanian public service, revealed that records such as government bills, workers' data, speeches, policies, standing orders, circulars, and reports were being created and managed in both electronic and print formats at the Records and Archives Management Department of Tanzania.

Accordingly, Porogo's study on a strategic framework for digital preservation capability maturity readiness in the context of e-government in the public service in Botswana, revealed that there were various types of e-records created, received, and/or maintained in government ministries such as emails, CDs, audio and videos, photographs, letters, word processed documents, spreadsheets, presentations, and desktop published projects which were stored on servers as no specified digital repositories were identified (Porogo, 2020).

2.2. Electronic records management systems

Advanced systems aimed at enhancing records management are being developed daily. This is so due to technological advancements and the need for efficient information management. In today's electronic environment, some organistions keep e-records in centralised and decentralised Database Management Systems (DBMS), Electronic Records Management Systems (ERMS), and Electronic Document Management Systems (EDMS) while other organisations keep e-records on personal computers hard drives, Optical Discs (CD ROMs/DVDs), Magnet Tapes, and Flash Drives. However, to ensure that e-records are managed efficiently and that their authenticity is maintained, government departments and agencies need to develop and deploy proper e-records management solutions.

Several electronic records management systems (ERMS) and electronic documents and records management systems (EDRMS) exist. These include TRIM, IRIDA, HP Records Manager, Alfresco, OpenKM, Microsoft SharePoint, Documentum, Laserfiche, FileNet, etc. In Greece, for instance, an EDRMS called IRIDA was developed in 2020 by the Air Force agency. The developed system was piloted in the Ministry of Infrastructure and Transport with the sole purpose of replacing printed incoming and outgoing mail by providing integrated protocol, digital handling and archiving, processing services, and digital signatures (Lales, 2021).⁵ A study by Nguyen et al. (2008)⁶ investigated the Australian public sector adoption of EDRMS. The findings show that a commercial EDRMS called TRIM was the most popular records management system currently in use in around 93% of all surveyed organisations in the Australian public sector. In Botswana, several studies conducted by Moatlhodi (2015)⁷ and Mosweu et al. (2016)⁸ established that the Ministry of Trade and Industry successfully implemented an EDMS known as the Document Management Workflow System (DMWS) to improve the records management activities and procedures. Conversely, Luyombya (2010)⁹ in his study, revealed that specific EDRMS software was lacking in Ugandan Public Service and yet this is a key requirement for effective records management in the digital era.

This clearly shows that government departments and agencies in both developed and developing countries have been adopting and implementing electronic records management systems to manage the creation, use, maintenance, and disposal of records created electronically to provide evidence of organisational activities.

2.3. Challenges of managing electronic records

Globally, poor e-records management has become one of the major issues of concern. In many countries around the world, but particularly in the Eastern and Southern Africa Regional Branch of the International Council on Archives (ESARBICA) region where Zambia is part, the absence of relevant policies and legal frameworks remains a major challenge in the area of e-records management. For instance, a study conducted by Kamatula (2018),¹⁰ on a framework for e-records in support of e-government implementation in the Tanzania public service, revealed that there were no specific policies for e-records management in the public service. Further, Luyombya (2010),⁹ observed that in the absence of clear and enforceable policies, programmes, and strategies, organisations are likely to face several challenges such as loss of data, poor accountability as well as failure to access and retrieve required information stored in the electronic environment over time.

Lack of qualified staff and training is another challenge associated with e-records management in many countries. Nasieku et al. (2012), in their study on the management of e-records at Moi University in Kenya, revealed that only 10.6 percent of personnel were trained in e-records management. A similar study in South Africa by Keakopa (2008),¹¹ found that only one person was self-trained in e-records management in every government institution. In their study, Nkala et al. (2012),¹² also found that government departments in Zimbabwe were managing e-records according to systems that best suited their institutions due to many factors which included the lack of skills required for proper e-records management. However, owing to fast changes in information technologies, the training of records management professionals in the 21st century where much of records are created and managed by computer technologies is an important tool.

Additionally, some studies such as those conducted by Matangira (2016),¹³ and Baheer et al. (2020),¹⁴ found a lack of funding, lack of senior management support as well as inadequate ICT infrastructure to be the main problems associated with e-records management in most developing countries.

2.4. *The Technology-organization-environment (TOE framework)*

The study adopted a TOE framework developed in 1990 by Tornatzky and Fleischer (Figure 1). This classic framework proposes generic factors that explain and predict the likelihood of innovation/technological adoption. The three bits enterprise perspectives comprise technological, organisational, and environmental contexts about how they influence innovation adoption. The TOE framework in this study helped to explain the factors that could catapult or militate against the management of electronic records in government departments and parastatals in Zambia.

According to the TOE framework, the technological context refers to the internal and external technologies that are relevant to the firm. This includes technologies that exist in the marketplace as well as technologies that are being utilised within the firm. The five key perceived

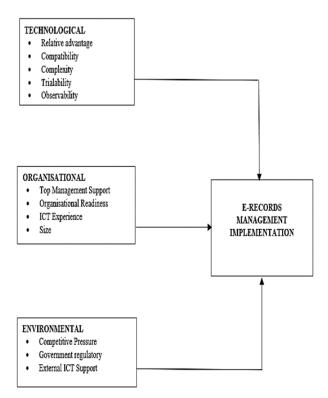


Figure 1: The TOE framework adopted fromTornatzky and fleischer (1990)

attributes of an innovation under this context include relative advantage (the degree to which an innovation is seen as being superior to its predecessor), compatibility (the degree to which an innovation is seen to be compatible with existing values, beliefs, experiences, and needs of adopters), complexity (the degree to which an innovation is seen by the potential adopter as being relatively difficult to use and understand), triability (the degree to which an idea can be experimented with on a limited basis) and observability (the degree to which the results of an innovation are visible). The organisational context refers to the features and resources of the firm in terms of its top management support, organisational readiness, ICT experience, and size. The environmental context refers to the environment in which a firm conducts its business, referring to its competitors, access to resources supplied by others, and dealings with government that may affect any decision-making related to the adoption of technology by an organization.

In line with the TOE framework, it can be argued that the deployment of e-records management in government departments and parastatals in Zambia is dependent on it being perceived to offer some advantages/benefits to the adopting organisations and that it should also conform to the existing values, past experiences and needs of government departments and parastatals in Zambia. In addition, if government departments and parastatals perceive the erecords management initiative to be easy to use and that it has been tried, tested, and found to be working well, many government departments and parastatals in Zambia would adopt the e-records management initiative. The TOE framework also suggests that if senior-level management in government departments and parastatals commit financial and other resources, and that the staff have the necessary skills and technical knowledge, more government departments and parastatals in Zambia could adopt e-records management.

Furthermore, the TOE framework suggests that government departments and agencies without an ERMS may experience more pressure when more competitors have adopted it. In this regard, it can be argued that if government departments and parastatals in Zambia experience greater competitive pressure, they are more likely to adopt e-records management. In addition, if government departments and parastatals in Zambia perceive that new laws and policies have been enacted to promote e-government implementation and that there is adequate third-party support, more government departments and parastatals in Zambia could adopt e-records management.

3. Materials and Methods

This study was quantitative in nature and the survey design was used. The research was conducted among Zambian government departments and parastatals where 50 institutions were purposively sampled and from each institution one representative holding the position of records officer, registry clerk, or officer in charge of managing records was purposively selected to take part in the study, giving a total of 50 respondents sampled. The study used hand-delivered questionnaires to gather data from 42 respondents. The collected data was cleaned, edited, and coded before it was entered into the statistical software for analysis. Statistical Package for Social Sciences (SPSS) version 23 was used to analyse the collected data to obtain frequencies, graphs, and percentages. To ensure the validity and reliability of the research findings, the questionnaire was piloted and peer-reviewed. Further, before data collection, permission from the Research Ethics Committee (HSSREC-2022-MAY-002A) and informed consent were sought from all the participants. However, one of the major limitations is that the study solely relied on the use of self-administered questionnaires to gather data from the respondents.

4. Data Analysis

As indicated above, this study sought to determine the extent to which government departments and agencies in Zambia manage e-records; and establish the ERMS being used and possible challenges faced in managing e-records.

SN	Variable	Value	Frequency	Percentage (%)
1	Candan	Female	12	29
1	Gender	Male	30	71
		16-25	0	0
		26-35	16	38.1
2	Age Category	36-45	15	35.7
		46-55	9	21.4
		56+	2	4.8
		Records Officer	8	19.0
3	Positions Held	Registry Clerk	28	66.7
		Others	6	14.3
		Secondary	3	7.1
	Educational Levels	Certificate	3	7.1
4		Diploma	9	21.4
4		Bachelor's Degree	25	59.5
		Master's Degree	2	4.8
		Doctorate	0	0
		3 years & below	12	28.6
		4-7 years	14	33.3
5	Years of Work Experience	8-11 years	8	19.0
		12-15 years	3	7.1
		16 years & above	5	11.9

 Table 1: Demographic characteristics of the respondents

4.1. Response rate and characteristics of respondents

A total number of 50 institutions were sampled but 42 questionnaires were completed, registering a response rate of 84%. The study revealed that 30 (71%) of the respondents were male while 12 (29%) were female. As regards the age distribution of the respondents, the majority 16 (38.1%) and 15 (35.7%) of the respondents were between the age brackets of 26-35 years and 36-45 years respectively. Information on the job description showed that the majority 28 (66.7%) of the respondents were Registry Clerks. As regards the levels of education attained, the majority 25 (59.5%) of the respondents were Bachelor's Degree holders. Furthermore, in terms of work experience, the majority 14 (33.3%) of the respondents had been working in the institution for 4-7 years, as shown in (Table 1) below.

4.2. Types of institutions

In terms of the type of institutions that participated in the study, 29 (69%) were Government Departments while 13 (31%) were Parastatal Institutions, as depicted in (Figure 2) below.

4.3. Electronic records management in government departments and parastatals in zambia

On whether or not government departments and parastatals in Zambia keep e-records, the majority 32 (76%) of the respondents said that they keep e-records while 10 (24%) said that they do not keep e-records, as shown in (Figure 3) below.

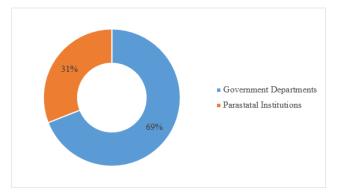


Figure 2: Institutions by type

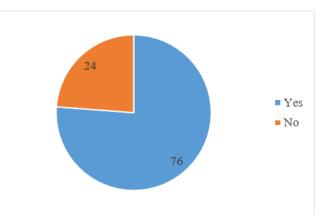


Figure 3: Availability of E-records

S. N.	Record Type	Frequency	Percentage (%)
1	Emails	23	54.8
2	Policy documents	14	33.3
3	Reports/monthly, yearly etc	12	28.6
4	Minutes	11	26.2
5	Court proceedings	8	19.0
6	Press release/statements	7	16.7
7	Official speeches	7	16.7
8	Tax invoices	7	16.7
9	Workshop/conference papers	7	16.7
10	Business Plans	3	7.1
11	Others	14	33.3

Table 2: Types of E-records found in government departments and parastatals

The researcher asked the respondents, particularly the 32 (76%) who had indicated that they keep electronic records to state the types of e-records created, received, and or stored in their institutions. (Table 2) below shows that the majority 23 (54.8%) of the respondents stated that they create and/or receive records in the form of e-mails. However, a considerable number of 14 (33.3%) respondents also said that they had records in the form of policy documents and other records such as contracts, agreements, memorandum of understanding (MOUs), confidential personal records, case records, and international agreements.

4.4. Electronic records management systems used

The respondents who had indicated that they keep e-records were asked to state where they keep their e-records. In this regard, the majority 21 (50.0%) of the respondents indicated that they keep e-records on personal computers while 11 (26.2%) indicated that they keep e-records on a server computer, as depicted in (Table 3) below.

Those who had indicated that they keep e-records on a server computer were further asked to state the name of the software/ system they were using. (Table 4) below shows that a few 4 (9.5%) of the respondents reported that they were using the electronic document and records management system, as depicted below.

4.5. Challenges of electronic records management

As captured in (Table 5) below, inadequate/lack of funding was the most notable challenge, which was reported by 30 (71.4%) of the government departments and parastatals. Other challenges cited included lack of policies, laws and standards 28 (66.7%), inadequate ICT infrastructure 26 (61.9%), lack of qualified staff and training 24 (57.1%), high cost of ICT and maintenance 21 (50.0%), lack of senior management support and corruption 14 (33.3%), high resistance towards technology 14 (33.3%), security and privacy issues 13 (31.0%), and poor/non-availability of electricity 1 (2.4%).

5. Discussion of Findings

The study established that the majority (76%) of government departments and parastatals in Zambia kept e-records. The study further showed that these e-records were being kept on personal computers as indicated by (50%) of respondents. These findings present a strength on one hand, thus a large number of government departments and parastatals producing e-records indicate that they have realised the advantages of utilizing digital technologies to improve the management of records in their institutions generally and expedite administrative procedures.

On the other hand, a weakness emerges from the fact that many public sector organisations in Zambia keep e-records on personal computers and not on servers clearly showing that there is little that is known about Electronic Records Management Systems in Zambia. Electronic records management involves formalised way of keeping records on centralised systems such as EDRMS, ERMS, and EDMS. This however is not the case in Zambia. The findings have shown that the adoption and use of e-records management systems in government departments and parastatals in Zambia is not widespread. For example, only a few (9.5%) of government departments and parastatals in Zambia such as the Supreme Court and High Court of Zambia have deployed the Electronic Document and Records Management System (EDRMS) commercial software such as TRIM and HP Records Manager, respectively. The lack of e-records management systems may be attributed to the fact that many public sector organisations are not aware of the potential benefits and safety of using Electronic Records Management Systems (ERMS). These findings concur with Luyombya $(2010)^9$ whose study results revealed that specific EDRMS software was lacking in Ugandan Public Service and yet this is a key requirement for effective records management in the digital era.

This is contrary to what is happening in other countries such as South Africa and Botswana where both the public and private sector players have deployed erecords management systems such as EDMS, EDRMS,

Means of Storage	Frequency	Percentage (%)
On Personal Computers	21	50.0
On a Server Computer	11	26.2
N/A	10	23.8
Total	42	100

 Table 3: Ways in which E-records are kept

Table 4: Software used for managing E-records

		Type of Software				
SN	Software name	EDMS	ERMS	EDRMS	ECMS	Total
1	TRIM	0	0	1	0	1
2	HP Records manager	0	0	2	0	2
3	Saperion	0	0	0	1	1
4	Serge	0	0	0	1	1
5	ESS/Case flow management	1	0	0	0	1
6	E-NHIMA	0	0	0	1	1
7	ZRA ERMS	0	1	0	0	1
8	VicDocs/ Navison	1	0	0	0	1
9	Contract Management System	1	0	0	0	1
10	IRIS	0	0	1	0	1
	Total	3	1	4	3	11

Table 5: E-records management challenges

SN	Challenges	Frequency	Percentage (%)
1	Inadequate/lack of funding	30	71.4
2	Inadequate/lack of policy, laws and standards	28	66.7
3	Inadequate ICT Infrastructure	26	61.9
4	Lack of qualified staff and training	24	57.1
5	High cost of ICT and maintenance	21	50.0
6	Lack of senior management support and corruption	14	33.3
7	High resistance towards technology	14	33.3
8	Security and privacy issues	13	31.0
9	Poor/non-availability of electricity	1	2.4

Digital Imaging Systems (DIS), HP TRIM and Document Management Workflow System (DMWS) to keep and manage e-records (Moatlhodi, 2015; Mosweu et al. 2016).^{7,8} However, the studies above presented findings that are different from those of this study. This is so in that, while this study established e-records being kept on personal computers, the studies by Moatlhodiand Mosweu et al. went further to show adoption of e-records management solutions such as EDMS and EDRMS. The difference can be necessitated by the availability of funds to allocate towards the purchase of e-records management systems.

It is evident from the findings that government departments and parastatals in Zambia, to a larger extent, utilise the decentralisation approach in managing their erecords. This is so because the e-records that are generated and maintained in most government departments and parastatals in Zambia are not kept in one central place but are sitting on the personal computers of staff who are charged with the responsibility of managing records. However, it is worth mentioning that keeping e-records on personal computers is bad practice and it is meant for personal use. Further, access is limited to the owner of the computers and there is a risk to records as they may be exposed to data breaches, unauthorized access, and cyberattacks. Thus, the practice of keeping e-records on personal computers is not formalised e-records management.

The study has further established that government departments and parastatals in Zambia face several challenges in the management of e-records. These include lack of policies and laws, inadequate ICT infrastructure, lack of senior management support and corruption, lack of funding, lack of qualified staff, high cost of ICT and maintenance, poor/non-availability of electricity, high resistance towards technology, and security and privacy issues. However, as evidenced by the findings, it has been discovered that lack of funding is a major problem in the effective management of e-records in many government departments and parastatals in Zambia. These findings also corroborate previous studies, elsewhere in the ESARBICA region, which reported a lack of financial resources to support e-records management activities. For instance, in Tanzania, Kamatula (2018)¹⁰ also found that lack of adequate funding impeded progress on the records management agenda at the University of Dar Es Salaam. Lack of sufficient funds was also cited by Luyomba (2010)⁹ in Uganda as one of the challenges facing the public service in the management of e-records. Related results were also reported in other several studies by Rakemane and Mosweu (2020), and Mulauzi et al. (2015) who found that the funding needed to accomplish records management activities, including supporting the management of erecords and taking care of records and archives, is a necessity neglected in many countries in sub-Saharan Africa.

Findings from this study have presented different applications to the Technology-Organization-Environment (TOE) Framework. Technology-wise, the results have shown a relative advantage in as much as the issue of adoption is concerned. Participants seem to have relatively adopted the use of personal computers more than use of analog records in their daily work. In addition, there seems to be compatibility in handling both e-records and analog records during this transition. In that, the technological shift, in this case, the use of personal computers is not causing major disruptions in daily operations or existing processes, making it easier for government departments and parastatals in Zambia to adapt to the use of e-records.

Organisation-wise, the study identifies several challenges faced by government departments and parastatals in Zambia, including lack of funding, inadequate ICT infrastructure, lack of policies and laws, lack of senior management support, and lack of qualified staff. These organisational factors, particularly senior management support is key to the successful implementation of any technology. Without adequate management support, records staff may face challenges in deploying new technologies such as ERMS into their daily operations. Additionally, lack of management support may also affect participants' ICT experience and readiness, further hindering the adoption process. Therefore, if an ERMS has to be successfully adopted in government departments and agencies, management has to buy in and provide the needed support such as money to buy ICT equipment and train people. Accordingly, results indicate competitive pressure for both government and parastatals. This can be noted from the willingness of participants to adopt the use of personal computers just as a way of shifting from dealing with paper records.

6. Conclusion and Recommendations

It can be concluded that government departments and parastatals in Zambia are making commendable efforts in transitioning from traditional paper-based recordkeeping to electronic records management although many institutions are managing e-records on personal computers, signifying a lack of formalised e-records management programme in the surveyed public sector ogranisations. It has also been established that government departments and agencies that keep e-records on servers are using systems such as EDRMS, ERMS, and EDMS. However, the study has further shown that the adoption and utilisation of e-records management systems within government departments and parastatals in Zambia is not widespread. Specifically, only less than 10% of the public sector organisations in Zambia have implemented commercial EDRMS software such as TRIM and HP Records Manager. The findings have also shown that various challenges such as lack of funding, lack of policies and laws, inadequate ICT infrastructure, lack of qualified staff, lack of top management support, and high resistance towards technology impede the effective deployment of e-records management initiatives in the public service in Zambia.

Given the above findings, management in government departments and parastatals should:

- 1. Prioritise allocating sufficient funding for the procurement and continuous maintenance of ICT facilities.
- 2. Implement e-records management systems such as EDRMS, ERMS, and EDMS tailored to the needs of the organisations.
- 3. Provide training and capacity-building programs to equip staff with the necessary skills for e-records management.
- 4. Develop clear policies for e-records management.
- 5. Address staff resistance towards technology through change management strategies.

7. Conflict of Interest

None.

8. Source of Funding

None.

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