

Digitisation of records to improve access at the Zimbabwe Energy Regulatory Authority

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Abstract

The change from paper to digital records management at the Zimbabwe Energy Regulatory Authority (ZERA) has been widely accepted to solve problems of poor records management systems and inefficiency throughout the organisation, but it brought with it some challenges. The purpose of the study was to assess the digitisation project to improve records access at ZERA. In a sequential explanatory design, the researchers used a simple mixed methods research approach to collect data. Data were collected through questionnaires and interviews from purposively selected individuals because of their characteristics and significance in the context of what the study was investigating. The findings of the study revealed that the digitisation project at ZERA was a major success and it has improved the records management system in numerous ways, including improved access to records, fast and easy retrieval of information and timely access to records. However, the study revealed that digitisation comes with challenges such as the issue of security of records as cyber criminals always try to unlawfully access the organisation's information. These challenges affect the organisation's efficiency and effectiveness, slowing down processes and affecting the organisation's service delivery. It also revealed that some members of the organisation find it difficult to adapt to digital change. Instead of embracing and using the new system, they lag behind and stick to the old ways of doing things. ZERA did not train its staff in the management of digital records, which contributed to resistance to digital change. The study recommends ZERA to budget for the appropriate infrastructure; employ more reliable security measures; train its staff in using, managing and securing digital records, and employ individuals with the required skills to manage digital records.

Keywords: Digitalisation, digitisation, records, records management, scanning, Zimbabwe Energy Regulatory Authority

1. Introduction

With technological interventions, digitisation has become a practical necessity and reality to provide improved access to information, preservation and dissemination as required at any time and anywhere. Although digitisation has been on most companies' agenda for quite some time, the impact of Covid-19 has driven forward-thinking organisations to prioritise it in an attempt to future proof their business. Digitisation is a process of converting non-digital born documents or analogue information to digital formats (Gbaje 2007; Feather & Sturges 2003) or a process of converting print-on-paper resources to digital form, usually by scanning (Amollo 2011). In simpler terms, digitisation deals with the conversion of non-digital material to digital material. Digitalisation is used to describe the process of leveraging digitisation, enabling, improving and transforming business operations and processes by using digitised data and technologies in order to transform how organisations conduct business and improve productivity (Burkett 2017). For example, instead of moving physical files and documents from one office to another, the organisation can use emails to disseminate information within the organisation. Where digitisation is the process of changing data into digital format, digitalisation embraces the ability of digital technology to capture and assess data to make better business decisions and enable new business models. In short, digitisation refers to information and digitalisation refers to the processes. This study focuses on digitisation and its challenges.

Many organisations have taken up the challenge of digitising their records with the aim of improving their services to the public via effective management of digital records. However, in the process of digitising records, there are challenges that affect the organisation as a whole, as well as the records management system. The current study assessed the effects of digitisation, highlighting the challenges, opportunities and any other issues that come with digitising records in an organisation.

1.1 Contextual setting

The Zimbabwe Energy Regulatory Authority (ZERA) was formed in 2011 and has three branches: one in Bulawayo, one in Harare and one in Mutare. The organisation is mandated to regulate the energy sector of Zimbabwe. It regulates procurement, production, transportation, transmission, distribution, importation and exportation of energy derived from any energy source (ZERA 2018). ZERA is responsible for licensing individuals who are interested in procuring, producing, importing and selling/pricing petroleum products that include diesel, ethanol fuel and liquid petroleum gas, and setting up electricity or solar plants (<https://www.zeraco.zw>). All these processes generate, receive and keep many records at ZERA, including petroleum licences, electricity licences, memoranda of agreement and understandings, mail, personnel records, tenders and board packs. All ZERA's records are kept within the organisation. Using a paper records system, the organisation faced many challenges, which included slow retrieval of records, loss of records, missing records, shortage of storage space due to duplication and bulkiness of paper records, inability to efficiently track records, insecure backup for records and a lack of security of records. All these challenges affected the organisation in terms of service delivery and efficiency. As an intern at ZERA, one of the researchers observed that although digitisation had a number of benefits, there were some drawbacks or challenges; these motivated this study. Sigauke and Nengomasha (2011) state that digitisation is innovative technology that continues to resonate with attractive benefits and some hidden drawbacks. The research sought to explore these hidden drawbacks and give possible solutions.

2. Statement of the problem

Digitising records is a fundamental practice in records management of any organisation. As ZERA embarked on its digitisation journey with the aim of improving its records management system, increase efficiency and improve service delivery, problems continue to emerge. Digitisation challenges affected the organisation as a whole, including the registry staff, slowing the business process, hence affecting the service delivery of the organisation. While on the one hand, digitisation has solved some of the challenges that ZERA sought to solve when taking on the digitisation project, on the other hand, some challenges continued to persist and new problems arose. It appears that other than enjoying the benefits of digitisation, the challenges kept affecting the end goals, which were improving the records management system and improving the service delivery of the ZERA. One of the researchers observed that ZERA had accumulated costs each time the SAP system went down, as it would require skilled and expensive technical expertise to keep it running. The expertise was not found in-house; hence, expenses for consultancy would need to be met even though the organisation's aim was to eliminate storage costs. In most cases, digitisation is implemented to solve storage space issues. However, having two systems in place does not solve the problem of storage space. The researchers observed that even though the organisation had gone digital, space was still an issue as all digitised materials were still kept in paper-based format. The aim of the study was to assess the digitisation project at ZERA, outlining its positives and challenges.

3. Research questions

The study sought to answer the following research questions:

- 1) What was the status of the digitisation project at ZERA?
- 2) What were the challenges that came with digitisation at ZERA?
- 3) How has digitisation improved the records management system at ZERA?
- 4) How were the members of staff adapting to change at ZERA?
- 5) What were the possible solutions to the challenges caused by digitisation at ZERA?

4. Literature review

In this section, literature review is presented thematically.

4.1 The status of the digitisation project

In recent years, there has been a growing trend in the adoption of digitisation by organisations in Zimbabwe. The use of digitised records and archives has widely been accepted in organisations throughout the world (Asogwa 2013; Asproth 2005; Chinyemba & Ngulube 2005). In Thurston's (2013) opinion, digitisation is a priority issue for many governments and international organisations as a quick way of making records accessible and ending dependency on paper records. Information and communication technologies (ICTs) have transformed the way in which organisations store and manage information, and organisations have adopted the use of ICTs to cope with the ever-increasing volume of information generated in the organisation (Iwhiwhu 2005; Lyman 2014). The major purpose of digitising documents is to make information resources more accessible and easier to use in the online environment. Information is every organisation's most

basic and essential asset, and as is common with any other business asset, recorded information requires effective management.

4.2 Improvement of digitisation to the records management system

Records management ensures that information can be accessed easily, can be destroyed routinely when no longer needed and enables organisations not only to function on a day-to-day basis, but also to fulfil legal and financial requirements (Tarpey 2020). The ARMA International Glossary of Records and Information Management Terms (2013) defines records management as an organisational function devoted to the management of information in an organisation throughout its life cycle, from the time of creation or inscription to its eventual disposition. Verma (2020) explains the benefits of a records management system as including more effective management of current paper and electronic records, a reduced or eliminated level of record-keeping redundancies, reduced costs for records storage equipment and supplies, and increased usable office space through the elimination of unnecessary file storage. According to Akporhonor (2020), there are many opportunities for applying computer systems in records management. These include wide access to, and secure and safe storage of records, fast retrieval of records, and easy tracking of records. Literature reveals that the use of digitised records brought about a new dispensation with many changes in modernising business processes, communication, records management and decision-making (Tsvuura & Ngulube 2021; Asogwa 2013, Asproth 2005). Verma (2020) states that digitising and automating the records management process are key to sustaining a high quality of work. It is clear that digitisation has improved records management functions.

The strategies that can be employed when digitising and preserving records include but are not limited to scanning, refreshing, emulation and migration (Luthuli & Buthelezi 2020; Dewah & Feni-Fete, 2014; Shimray & Ramaiah 2018). Digitisation has now become the approach to ensure long-term preservation of, and access to, selected archival materials (Mnjama 2011). Dewah and Feni-Fete (2014) consider digitisation as a preservation strategy that protects a document, thus extending the life of such archival material. Digitisation has attracted many organisations with its benefits such as improved access to records (Alhaji 2007; Akporhonor 2020; Tsvuura & Ngulube 2021; Jagboro, Omotayo & Aboyade 2012; Public Record Office Victoria (PROV) 2020), unlimited storage space, fast retrieval of records and improved service delivery (Akporhonor 2020), easy and fast tracking of records from digitised systems (Hamidovic 2010), improved preservation (Nyide 2014; Alhaji 2007), and improved security and storage of records (PROV 2020; Mukred 2019).

4.3 Digitisation challenges and adaptation of staff to changes

However, Thibodeau (2013) states that the transition from paper records to digital records management has been embraced and adopted globally with its fragmented arrays of successes, failures and challenges. Ndlebe and Dewah (2022) claim that digitisation poses serious challenges in organisations, including adaptation of staff to changes, lack of trained staff, security issues and complexity of the software used. Nevertheless, despite these challenges, government departments and other organisations are going ahead with their efforts to convert their valuable records into electronic format for the benefits that this offers.

Digitisation has not eradicated all problems in the records management domain. It has come with its own difficulties such as software and hardware costs (Zhang & Gourley 2009). Converting

records into digital form exposes them to many security hazards, as running two systems concurrently such as using a digital and manual system at the same time can be laborious and time consuming, and can be challenging in the organisation, especially for records management personnel (Records Nations 2021). Other challenges include lack of skilled staff (Abdulkadhim, Bahari, Bakri & Ismail 2015; Shatat 2015; Chaterera 2012; Mutsagondo & Ngulube 2018; Ezeani 2009), lack of appropriate infrastructure (Amollo 2011; Tsvuura & Ngulube 2020; Abdulkadhim, Bahari, Bakri & Ismail 2015) and resistance to digital change (Heathfield 2021; Loonam, Eaves, Kumar & Parry 2018; Laumer 2011; International Data Corporation 2019). Due to lack of infrastructure, the digitisation process at ZERA was very slow; therefore, it took a long time to digitise records and it created backlogs of outstanding records that needed to be digitised. Increased resistance can occur once a specific implementation is over, as employees become disillusioned with the new system and fall back into old ways of working.

5. Research methodology

In this sequential explanatory design, the researchers used a simple mixed methods research approach to collect data. Using qualitative and quantitative approaches improves an evaluation by ensuring that the limitations of one type of data are balanced by the strengths of another (Creswell & Hirose 2019). Self-administered questionnaires and telephonic interviews were the data collection instruments. To gain in-depth explanations of issues under discussion, the interview questions were open ended to allow individual perspectives on responses. The target population was all staff (35) at ZERA and the specific respondents were the registry staff, IT officers, human resource personnel and the chief executive officer's office workers. Purposive sampling was used by the researchers to target experienced personnel and select information-rich participants from each section. In this study, because of their busy working schedules, business trips and meetings, eight out of the chosen 10 members of staff from the four departments successfully participated in the study by answering the questionnaire, while two out of four were interviewed. To cater for the weaknesses of quantitative and qualitative methods, this study used self-administered questionnaires, semi-structured interviews and observations to collect data. Considering Covid-19 restrictions, many of the organisation's employees were working from home; therefore, self-administered questionnaires were delivered via email to email addresses obtained from the human resources unit. Informed consent was sought from respondents, particularly for recording of the interviews. Quantitative data from the questionnaire were analysed using Microsoft Excel while qualitative data from the interviews were analysed using themes derived from the research questions. The researchers held two telephonic interviews out of the scheduled four, with one interview lasting 20 minutes and the other one 30 minutes. The conversations were recorded, transcribed and analysed thematically.

6. Findings

The sections that follow present the findings and discussion.

6.1 The status of records digitisation at ZERA

Regarding the status of the digitisation project at ZERA, the findings revealed that the project was a success. Questionnaire respondents noted that out of the digitisation strategies listed, all respondents noted that ZERA employed the scanning method to digitise its records.

Interviewees were asked about the criterion used in selecting records for digitisation. Interviewee A responded as follows:

“The organisation looked at what is important according to the core business of ZERA and that is petroleum and electricity records. Mails were also included since it helps the authority to deliver its mandate. The criterion used was based on the records of vital importance and records serving the ZERA mandate.”

Respondents from both the questionnaire and the interview agreed that the digitisation project was a success. This was further confirmed by Interviewee B who noted that:

“The digitisation project was a success. We have been using the system since 2016 and we have seen many improvements. Retrieval services have been improved in terms of the turnaround time and on the other hand access has been made easy and also flow of information in the organisation has been improved.”

Regarding technical challenges, Interviewee B revealed that:

“The registry had only one scanner and this made clearing of backlogs of records that were yet to be scanned and uploaded to the system a very long and time consuming process. The organisation should set aside an appropriate budget specifically reserved for fixing broken computers and getting more equipment so as to make the processes of digitisation and management of digital records an easy process”.

6.2 Challenges with records digitisation at ZERA

Respondents were asked to identify any challenges they were facing because of digitisation. Table 1 presents the results.

Table 1: Challenges that come with digitisation (N=8)

Challenge	Frequency	Percentage
Computer and technical problems	8	100%
Lack of skilled staff	7	87.5%
Resistance to digital change	6	75%
Security Risks	4	50%
Software and hardware costs	4	50%
Simultaneous use of manual and electronic system	4	50%

Computer and technical challenges (8: 100%) were the most prevalent challenges. The study further revealed that there were challenges that came with digitisation such as a lack of skilled staff (7:87.5%) and resistance to digital change (6: 75%), while four (50%) respondents indicated that there were security risks, software and hardware costs and simultaneous use of manual and electronic systems.

Interviewees revealed that digitisation had not yet solved all the challenges the organisation aimed to solve prior to digitising its records. They made the following remarks:

Interviewee A: “Not all challenges were solved because the registry still faces retrieval problems emanating from poor data capture”

Interviewee B: “Digitisation has not solved all the challenges, we still face challenges of misfiling as a result of mistakes and failure to classify records appropriately when uploading the records into the SAP. Storage is still a challenge because even after digitising records we still keep the paper record and as a result the facility is running out of storage space.”

Interviewee A explained that the challenges affected the business of the organisation in that: “It causes delays in attending to the internal and external information requests which paints a negative picture about the organisation.”

Interviewees were asked if the organisation had adequate infrastructure for the digitisation process and for managing digital records. Interviewee B remarked: “The organisation does not have enough scanners. The registry only has one scanner, which makes clearing of backlogs a very slow process.”

6.3 Digitisation and improvement of records management system at ZERA

Table 2 presents results obtained about the reasons for adopting digitisation to improve the records management system.

Table 2: Digitisation and improvement of records management system at ZERA (N=8)

Reason for digitising records	Frequency	Response percentage
To save space	8	100%
To improve retrieval services	8	100%
To improve service delivery	8	100%
To have timely access	8	100%
To improve efficiency and effectiveness	8	100%
To allow multiple access	8	100%
For preservation purposes	5	62.5%

It emerged that most of the reasons (lack of storage space, to improve retrieval services, need to improve on access, need to improve effectiveness and efficiency and to allow multiple accesses) were identified by all eight (100%) respondents. Indeed, five (62.5%) of the respondents indicated that digitisation was for preservation purposes. Only one (12.5%) respondent indicated that by digitising records, issues of storage space were improved.

All eight (100%) respondents indicated that digitisation had improved the records management system in terms of access to records, retrieval of records and information sharing. However, six (75%) of the respondents confirmed that digitisation had improved records management in terms of file tracking, while four (50%) indicated that security had also been improved. Interviewee B disagreed and identified security issues as the biggest challenge:

“The biggest security challenge we are facing is cyber-crime on data. Cyber criminals are always trying to breach the ZERA digital environment. A breach once happened when one of the ZERA employees’ email account was hacked and all emails coming into that mail box were now being forwarded to the hacker.”

Despite the findings above from interviewee B about cyber-crime, six (75%) of the participants indicated that the organisation had not yet faced any security issues and two (25%) indicated that there had been some security challenges.

6.4 Adaptation of employees to digital change at ZERA

The study sought to find out if employees were adapting to digital change. When asked if they were trained to manage digital records, all eight (100%) respondents indicated that they were not formally trained to manage digital records.

All eight (100%) respondents also indicated that there was a little resistance to digital change. When asked if the respondents made use of paper records in completing tasks that can be done electronically, all eight (100%) agreed that they made use of paper records to complete tasks that could be done electronically. At ZERA, the researchers observed that there were some employees who preferred to work with paper records more than with the electronic system. The workers would request records, but instead of having them emailed or forwarded to them, they would request them to be printed out and a physical record delivered to them. This is time consuming since retrieving, printing or copying takes longer than just emailing the record. Reacting to the resistance to digital change, Interviewee A remarked that, “This slowed down business processes and also led to duplication of effort”.

Interviewee B reported that, “There was some resistance in accepting digital change. Some employees request for physical records instead of having them sent through email or forwarded to them via the SAP. Even when sent to them via email they would still ask for a print out of the record”.

When asked about the extent to which the organisation utilised outsourcing as a way to keep the system running, interviewee A indicated that, “The organisation had trained staff that could fix internal technical issues, hence the organisation mostly outsourced help on technical issues related to the SAP.”

7. Discussion

The discussion of the results was framed by the research questions that guided the research. Out of a number of strategies, ZERA chose scanning due to its merits and because of that, the project was a success. The result of the study corroborates Tarpey’s (2020) observation that scanning is the most common method in digitisation. Due to technical challenges, hardware shortages and a lack of funds, the organisation faced some infrastructure resources shortages. In similar studies, Tsvuura and Ngulube (2021) advise that there is need to have adequate infrastructure so as to keep the digitisation project running. Computer and technical challenges were the most outstanding challenges in this project. This is consistent with Nyide (2014), Thibodeau (2013) and Osahei et al. (2018) who state that it is always misleading to assume that the introduction of computers provides perfect and trouble-free information management possibilities. Findings revealed that the

organisation did not have adequate infrastructure. Regarding inadequate infrastructure, Tsvuura and Ngulube (2021) suggest that proper infrastructure such as scanners, computers and technical support of personnel with the requisite skills is needed for the smooth digitisation process.

Challenges that came with digitisation included a lack of skilled staff, software and hardware costs and simultaneous use of manual and electronic systems. A report by Usman and Lyin (2007) revealed that high costs of purchasing hardware and software, and inadequate skilled personnel were part of the challenges of digitisation in libraries. The findings proved that although digitisation was a success, some challenges persisted, thus corroborating Nyide's (2014) view that digitisation is not the answer or panacea to all challenges organisations face. Indeed, Ndlebe and Dewah (2021) state that digitisation brought with it new challenges, opportunities and lessons.

In terms of digitisation improving records management system, most respondents identified a lack of storage space, the need to improve retrieval services, the need to improve access, the need to improve effectiveness and efficiency, and the need to allow multiple accesses as main reasons. Similar results were reported by Pandey and Misra (2014) and UNESCO (2002) on the reasons for digitisation, which were to make access to information material fast and easy, to preserve materials for long-term use, and better search and retrieval facilities for information materials. These findings were also consistent with studies by Hammoya and Njobvu (2010) and Kleifeld (2010) which revealed that digitisation is believed to enhance access to historical records and valuable materials within collections. Digitisation was for used to solve space and preservation problems, which was corroborated by findings from studies done by Oni, Abu and Ekeniyere (2018) who revealed that digitisation alleviates storage space problems and improves preservation of materials by reducing the handling of originals. Oni et al. (2018) revealed that digitisation of information materials has many invaluable benefits for records management, including enhanced access to current and vast amounts of information from remote locations, as well as flexible search and retrieval. The study found that digitisation improved records management in terms of file tracking and security. The current findings corroborated findings by the Higher Information Group (2019) that with digital records, password-protected digital files reduce the chance of records being accidentally released, hacked or stolen. They further state that digital files that are backed up are not vulnerable to natural disasters, hence improved security for records. Cyber security threat to records was identified by some interviewees, but other respondents did not mention it. Staff may not be fully aware of the security risks that affect digital records, which may be a big challenge to the organisation. These findings corroborate Aebwanawong's (2019) observation that security is a major concern for most companies, but employees without security risks knowledge are one of the biggest security threats. This is because if staff are not aware of the security risks they might be unknowingly using the organisation's gadgets to access social media and other platforms that may contain malware, and share their passwords and other security information hence, contributing to security challenges. However, respondents from the IT department were able to identify some security risks. Interviewees suggested that the organisation should prioritise embedding security in all applications as the first line of defence through the use of strong passwords, firewalls, encryption, two-factor authentications and the use of up-to-date antivirus software. Security is very important when managing digital records. Without proper security, records can be accessed without authorisation, stolen and affected by malware.

From the findings, it can be noted that no training was given on using digital records at ZERA. Mutsagondo and Ngulube (2018) recommend that there is need for personnel managing digital records to be equipped with a variety of skills which include information technology skills, preservation skills, software engineering skills and information systems skills. Milano (2019) reveals that there is a lack of digital skills among workers in organisations in developing countries. Hence, there is great need for training of employees in organisations. Studies by Tsvuura and Ngulube (2021), Oni et al. (2018) and Nyide (2014) emphasised training of staff in order to acquire all the relevant and up-to-date digitisation skills. This is a challenge, as training is essential to help the staff know how to use the digital records. Furthermore, they get to learn how to manage digital records effectively as well as secure the records. Benefits of continuous electronic records management training include keeping professionals up to date with the laws, technologies and other considerations that can expose them to risk (Lorman 2019). Findings show that there is resistance to digital change, which might be because of a lack of training. Sharma (2019) notes that most employees will resist change because of a lack of communication and appropriate training.

8. Conclusion and recommendations

The study focused on the digitisation project at ZERA. Although there were some challenges in carrying out the digitisation exercise, we conclude that the project was a partial success. Success in such an endeavour evidently requires the presence of a supporting infrastructure and organisational top management who should be prepared to channel funding towards such a project. However, digitisation project initiatives experience a number of hurdles, including financial problems, a lack of expertise, and staff members who may feel insecure and fail to adapt. As a result, achieving tangible and measurable success in digitisation requires taking deliberate measures to improve records management. In particular, allocation of sufficient funds to support training and the purchase of ICT infrastructure, such as software and hardware, is necessary to speed up the digitisation process. Along with this, staff motivation and training, and the formulation of reliable policies have to be taken into consideration.

In view of the findings and conclusions, the study recommends that the human resources unit at ZERA should engage in continuous training programmes for staff to equip them with the necessary skills to be able to manage and secure digital records effectively. The continuous training programmes can be in the form of conferences, workshops, in-house training and courses. The human resource and public relations units at ZERA should conduct cyber-crime awareness within the organisation, which will educate employees on cyber-crime, how to identify it and how to respond to it. As an organisation, ZERA should invest in digital talent. The human resources unit should consider recruiting employees with the appropriate skills to avoid extra costs from outsourcing help. The organisation's IT section should implement effective security strategies, which include two-factor authentication. The organisation may also consider controlling how much the staff would be able to surf the internet using the organisation's network and computers to avoid visiting sites that contain malware. The organisation's finance unit should appropriately plan and set aside a budget specifically for the hardware of the organisation to increase the equipment needed for digitising records such as scanners to make the process easy.

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