

Transition from audio-visual archives to trusted digital repository at the National Archives of Zimbabwe

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Abstract

While many organisations are shifting from analogue to digital formats for audio-visual archiving, some institutions in developing countries continue to rely on outdated formats. This qualitative case study explored the ingestion of audio-visual archives into a trusted digital repository at the National Archives of Zimbabwe (NAZ). The study was guided by constructs from literature, the life cycle concept and the digital curation centre (DCC) model. The DCC model was adopted in this study to facilitate understanding of how audio-visual archives in digital formats can be acquired, safeguarded, and preserved over a long period to enhance access. For data collection, one of the researchers physically visited the NAZ to conduct interviews, observations, and document reviews. The findings revealed that the ingestion of audio-visual archives was still at an embryonic stage. However, the reality of emerging digital technologies in audio-visual archiving enabled the NAZ to respond appropriately through the establishment of a film digitisation project. The slow uptake of digital audio-visual archives was attributed to the absence of an acquisition policy in place, outdated archival legislation, inadequate infrastructure, the absence of vibrant digital preservation strategies, and low levels of digital skills. Based on the research findings, the study concluded that the NAZ should embrace the transition of audio-visual archives to trusted digital repository. The study recommended a framework to facilitate the transition of audio-visual archives to trusted digital repository.

Keywords: acquisition, audio-visual archives, digital format, archival infrastructure, preservation, trusted digital repository

1. Introduction and background to the study

The Victorian era paved the way to analogue technological progression in cinematography. According to Bradsher (1988), a Frenchman, Louis Daguerre confirmed that he had captured a photographic image on a silver-coated copper plate in 1839. In 1927, Thomas Alva Edison successfully recorded sound on a rotating tin foil cylinder. Many archival institutions in Africa have preserved their national documentary heritage in traditional paper formats (Bishi

2022). The challenge in acquiring digital audio-visual records at the NAZ is caused by a lack of digital infrastructure, skills, and technological obsolescence (Mudzaki 2013). This is despite the fact that many archival institutions are spearheading the migration from analogue formats to digital formats, which are regarded as principal media in this technological milieu. Most of these institutions have not effectively acquired audio-visual formats, particularly digital audio-visual materials. The NAZ falls into this category. Ncala (2017) defines digital audio-visual heritage as sound and image records documented in digital format. The NAZ continues to lag behind in the ingestion of digital audio-visual formats at a time when audio-visual media have become a predominantly worldwide format. In most African countries, such as South Africa, these formats are even used for recording oral history in an attempt to decolonise archives (Ngoepe & Mahlatji 2022). Miller and Gherdevich (2017:13) observed that “as physical audio-visual formats have changed over the generations, the digital format is the dominant content delivery format today.” According to the International Association of Sound and Audio-visual Archives (IASA) (2022), the collection of audio-visual archives may come from a variety of sources. Some of the most common ways of building collections are through acquisitions, donations, legal deposits or the archive’s own recording activities (IASA 2022). Progression in digital technology has paved the way for archival institutions to embark on a march towards the ingestion of digital audio-visual archives in order to be in touch with the tech-savvy generation they now serve.

Archival institutions worldwide, particularly in the Global South, where infrastructure, skills and legislation are lacking, should adopt digital audio-visual records as the future format. In the developed world, digital audio-visual records have created a passage of opportunities for archival institutions to offer online digital cultural services as income-generating projects through virtual tours on online portals (Lawton, Fujiwara & Hotopp 2021). In Africa, the growing volumes of digital audio-visual media have created new challenges in collection and development. Rakemane and Mosweu (2020) observe that national archival institutions in sub-Saharan Africa experience challenges in administering and adopting digital technology for audio-visual archives. Nonetheless, updating the infrastructure hardware to modernise storage, access and the server supporting the ingestion of digital audio-visual archives is the silver bullet solution (Library of Congress 2017). Several scholars, including Mnjama and Lipinge (2017), argue that the major challenge in collecting audio-visual archives in many African archival institutions is attributed to the lack of legislation for acquiring digital audio-visual materials. Despite technological advancements in audio-visual archiving, African archival institutions still fail to acquire digital audio-visual records (Mudzaki 2013). Incorporating digital audio-visual heritage remains a key function of the NAZ's Sound and Visual Section. Nonetheless, the NAZ suffers from technological obsolescence and has not yet successfully acquired digital audio-visual infrastructure (Matangira 2003). The ingestion of digital audio-visual media may enable the institution to align its operations with advances in digital technology. It is against this background that this study sought to investigate the ingestion of digital audio-visual records into trusted digital repository, with the view to suggesting adoption for the ingestion of digital audio-visual records at the NAZ.

1.1 Contextual profile of the National Archives of Zimbabwe

Matangira (2016:26) state that “NAZ was established by the Archives Act of 12 April 1935 during the colonial era.” When Zimbabwe gained independence in 1980, the department was renamed to the NAZ, responsible for the collection and curation of archival resources and facilitating access to historical and cultural records.” The NAZ envisions becoming the

principal guardian and provider of the nation's documentary heritage in all formats such as film and sound archives. Already, the NAZ boasts standard archival infrastructure and systems that enable the provision of records and archival services to the country at large. The archival national centre has different units, including the Records Centre, charged with the administration of government's, parastatals' and local authorities' records throughout their entire life cycle. The archival institution's Research Section is responsible for housing public, private and manuscript records.

The Reprographic Section, headed by the Chief Archivist of the technical sections, is charged with duplicating all archival records of the institution. Reprographic activities include digitisation, photoreproduction, photocopying and microfilming. The audio-visual unit falls under the technical sections and is responsible for housing sound and visual archives in various formats. The conservation unit is in charge of prescriptive and prevention measures for the institution's collection. The institution's maintenance workshop is responsible for corporal restoration and maintenance of institutional buildings. The NAZ's audio-visual unit was constructed in 1988 and was dedicated to creating, organising, preserving and disseminating all the colonial and post-colonial audio-visual material.

1.2 Originality, significance and contribution

There are quite a number of studies that have been conducted in this postmodernist era to establish the proper management of audio-visual archives. These studies have been inspired by the philosophical view of Edmondson (2016) that audio-visual archiving is a profession on its own. However, many scholars like Zinyengere (2008), Ncala (2017), Rakemane and Mosweu (2020) and Mulauzi et al. (2021) concentrated on preservation and access issues of analogue audio-visuals archives and not on the acquisition and digital audio-visual archives. These previous studies have been broader in scope and have not satisfactorily addressed digital technological progression in the field of audio-visual archiving with reference to the acquisition process. As technology progresses, so too does the volume of audio-visual materials in digital formats. Previous research works by African academic scholars like Abankwah (2008), Matangira and Ngulube (2010) and Asogwa (2011) did not address issues to do with the acquisition of audio-visual archives in digital formats. Their works was dominated by preservation, access and digitisation of analogue audio-visual heritage. This paved way for this current research to bridge the gap by focusing on the acquisition of digital audio-visual materials and developing a framework. However, other scholars in the developed world like Stockinger (2014), Miller and Gherdevich (2017) and Simon and Benghozi (2022) focused on the administration of digital audio-visual materials with reference to preservation and access. These studies are not in the context of the NAZ, rendering their findings inapplicable to the NAZ. In this regard, this study is confirmed original and essential to the development of the NAZ as the national house of memory.

2. Statement of the problem

Despite the widespread use of digital technologies in audio-visual archiving, the NAZ continues to acquire analogue formats (Bishi 2024; Mudzaki 2013). Archival institutions such as the NAZ possess the necessary resources and knowledge to handle the acquisition of digital audio-visual archives and storing systems (Izod & Mäusli 2021). However, African archival institutions are still struggling to acquire digital audio-visual archives into their repositories due to a lack of skills, infrastructure and the exclusion of digital formats in

archival legislation (Rakemane & Mosweu 2020.) In the modern digital era, many African archival institutions lack digital audio-visual records in their holdings. In his study, Mudzaki (2013) found that the NAZ remains committed to safeguarding its extensive collection of analogue materials, despite being constrained by outdated formats. Komba, Nawe and Manda (2017) assert that the current state of audio-visual archiving in African archival institutions is unclear due to the complex global technological obstacles associated with obtaining and safeguarding digital audio-visual records. According to Green (2007), the equipment used by audio-visual archivists is becoming obsolete. On the other hand, Zinyengere (2008) discovered that in Zimbabwe, legislation regarding archives does not address the collection and preservation of digital audio-visual records and instead prioritise conventional records. The difficulty in obtaining digital audio-visual records at the NAZ is due to a deficiency in digital infrastructure, expertise and technological obsolescence (Mudzaki 2013). Despite the efforts of many archival institutions to transition from analogue formats to digital formats, which are considered the main form of storage in modern technology, the problem still prevails.

3. Purpose and objectives of the study

The purpose of this study was to investigate the ingestion of audio-visual archives into a trusted digital repository at the NAZ. The specific research objectives were to:

- Analyse the legislative, standards and policy framework for digital audio-visual archive transfer at the NAZ.
- Determine preservation strategies in place for the ingestion of audio-visual archives at the NAZ.
- Assess the infrastructure that is needed to acquire digital audio-visual archives and related metadata at the NAZ.
- Evaluate the skills of audio-visual archivists in managing digital audio-visual archives at the NAZ.

4. Literature review

Literature for this study is reviewed from themes emanating from the objectives.

4.1 Legislative, standards and policy framework on digital audio-visual archives acquisition

The ingest process of digital materials in the DCC model promotes the transfer of digital records or migrating of data from one digital archive to another archive while observing documented guidelines. This sequential data process was linked with objective one of this research (Higgins 2008). The acquisition of digital audio-visual heritage in national archival institutions needs to be reinforced by forceful legislative structures and policies (Zinyengere 2008). Edmondson (2016:8) states that “audio-visual archives are often fugitive by nature so acquisition action can require vigilance and urgency.” National archival institutions across the globe are mandated to select, acquire, accession, preserve and provide access to archival heritage in any format, including audio-visual records. According to IASA (2022), “audio-visual archives hold cultural heritage covering all spheres of musical, artistic, sacred, and scientific and communications activity, reflecting public and private life, and the natural environment, in the form of published and un-published recorded sound and image.”

4.2 Strategies for the preservation of digital audio-visual archives

According to Higgins (2008), the DCC model's preservation of digital records entails to curate and preserve, which is the process responsible for running and controlling processes that are meant to stimulate the curation of data throughout the cycle. This construct is used as it was related with objective two of this study that aimed to establish preservation strategies in place at the NAZ for digital audio-visual records. Rakemane and Mosweu (2020) state that IASA advocates for the care, access and long-term preservation of the world's sound and moving image heritage. Prince (2009), who studied the audio-visual department of the Jamaican National Library, postulated that one of the of the audio-visual department's biggest problems was the preservation of acquired audio-visual archives. Mulauzi et al. (2021:48) state that many archival institutions are "moving away from the analogue contents that were accessed with the use of readable machines to the migrated digital medium, which aim at enhancing both accessibility and preservation."

4.3 Infrastructure to acquire digital audio-visual records and related metadata

The DCC model stipulates that storage of digital records involves procedures of safeguarding data in accordance with applicable digital standards (Higgins 2008). This construct linked with objective three of this study that aimed to determine infrastructure required to acquire digital audio-visual records and related metadata into archival custody. Mulauzi et al. (2021) lament that many archival institutions fail to access their audio-visual archives due to a lack of equipment. Edmondson (2016:60) opines that "the world's archives and libraries face the collective challenge of preserving almost unimaginable quantities of digital data, and the prospect of long-term preservation, at this stage, raises as many questions as answers." Many African archival institutions continue to lag behind in digital technology, yet digital audio-visual media have become a predominant medium for worldwide information exchange for past, present and future generations (Schüller 2008). The equipment and infrastructure for audio-visual archiving is greatly affected by the rapid change in technology. Failure to consider these rapid changes will result in institutions failing to acquire, preserve and provide access to digital audio-visual records and hinder access services to the researchers because of obsolete equipment and infrastructure.

4.4 Skills for managing digital audio-visual archives.

The DCC (2008) emphasises various skills that are required by archivists for a successful administration of digital records throughout their life cycle (Higgins 2008). These skills include selection, acquisition, preservation and use of digital records throughout their life cycle. This construct was in line with the skills objective of this present study. Mulauzi et al. (2021) indicate that there is a greater need to advance skills and techniques to administer audio-visual records in archival institutions. It is essential for audio-visual archivists to be in touch with technological progression. There is a need to put in place a mechanism that facilitates transfer of knowledge gained to other members of archival institutions. The NAZ's audio-visual archivists have opportunities to be trained in audio-visual archiving in both the developed and developing countries. The sad part is that most of these trained audio-visual archivists eventually leave the institution in search of greener pastures. Recently, audio-visual archivists who were trained at the George Eastman House in the USA also left the audio-

visual unit. Komba et al. (2017) state that there are low levels of training for audio-visual archivists to perfect expert work.

5. Conceptual framework

The study drew on the constructs from the records life cycle and the DCC life cycle model to comprehend the acquisition, safeguarding and preservation of digital audio-visual materials over an extended period, with the aim of improving access to audio-visual archives in electronic format. The conceptual framework acts as a blueprint for the entire research process by revealing the roadmap to empirical research (Ngulube 2018). The conceptual framework also refers to theories of literature that have been verified and endorsed by several scholars (Adom, Hussein & Agyem 2018). The constructs obtained from the DCC used included creation, appraisal, migration, preservation, access, storage, use and disposal. These critical elements made researchers adopt the model, as they are prerequisites for the operative acquisition, administration and safeguarding of digital audio-visual materials throughout their lifespan. The conceptual framework was adopted in the study as it also delivered a framework for other essential purposes of archival institutions, which include creation, selection, appraisal and storage. The conceptual framework was adopted to evaluate the skills of archivists in administering digital audio-visual archives at the NAZ. These were deemed vital in easing the attainment of acquiring audio-visual archives in digital format. This study used the digital curation model, as it was in line with objective one of the investigation, which placed weight on archival standards, legislation and guidelines in the management of audio-visual records in archival institutions (Higgins 2008). Well-documented policies, guidelines and standards are crucial elements in the management of digital materials facilitating the DDC life cycle from creation to disposition. The research assessed these critical elements and their application in the admiration of audio-visual materials in digital format at the NAZ.

6. Research methodology

Creswell (2008) believes that a research is undertaken on a particular philosophy and paradigm. The research was influenced by the interpretivist paradigm and made use of qualitative research methodology based on a case study research design. An interpretivist paradigm encouraged the certainty that the meanings established can be diverse, stimulating researchers to chase additional idiosyncratic interpretations instead of narrowing down the connotations into only a few viewpoints (Creswell 2014). The exploratory nature of this research made it qualitative. The present study at the NAZ was conducted within an interpretivist epistemology to get a deeper understanding of the ingestion of audio-visual archives in digital format. Researchers physically visited the NAZ to conduct interviews, observations and document reviews with a view to collecting in-depth data. Data collection tools assisted researchers in gathering indispensable data pertaining to the ingestion of audio-visual archives in digital format at the NAZ.

The study population was all 27 the NAZ employees, and the units of analysis included the top-level management staff, audio-visual archivists and ICT staff. The participants were selected purposively, as highlighted by Creswell (2014), to ensure those with correct knowledge of the administration of audio-visual archives were chosen. These persons had extensive knowledge in audio-visual management, as they administered these valuable formats daily. The researchers used research objectives to create themes and categories for data analysis. The purposively selected sample comprised the deputy director, chief technical

archivist, two audio-visual archivists and the information technology (IT) officer. The researcher used codes to obtain data that were essential to conducting the research analysis. The coding methodology helped researchers pick themes for case analysis, and the data were analysed using thematic data analysis with an interpretivist perspective.

7. Findings and discussions

The following section presents and discusses the results that emerged from the investigation as per the study's objectives of the study.

7.1 Legislative, standards and policy framework on digital audio-visual transfer

The initial objective of the research was to assess the impact of legislative and policy frameworks regarding the ingestion of audio-visual archives in digital format at the NAZ. The archival legislation, standards and acquisition policy are critical tools that facilitate effective ingestion of audio-visual archives in digital format (Ncala 2017). The collection and building of audio-visual archives in digital format must be supported by archival legislation, standards and well-documented acquisition policies (Mnjama 2010). Likewise, in the Zimbabwean perspective, scholars like Zinyengere (2008), Matangira and Ngulube (2010), Chigariro (2014) and Bishi (2022) state that archival legislation is critical in enabling the ingestion of audio-visual archives in digital format. In the same vein, scholars such as Ngoepe and Van der Walt (2009) opine that for archival legislation to be effective, it must be backed by state-of-the-art infrastructure to ingest digital archives. Audio-visual archival institutions need well-documented policies and legislation to enable the operative acquisition of audio-visual archives in any format (Mnjama & Ipinge 2017). The ingestion of audio-visual archives in digital format greatly relies on up-to-date legislation and well-documented acquisition policies. In Zimbabwe, the National Archives Act of 11 May 1986, which replaced the National Archives Act of 1935, does not clearly stipulate the ingestion of digital audio-visual archives. This has led to the collection being built through donations or dumping from production houses (Matangira 2003).

The study found that the absence of written policies and legislation pertaining to the ingestion of audio-visual archives in digital format has crippled the collection building of the institution and the transition from analogue to digital. The challenge of the absence of acquisition policies was not peculiar to the NAZ, as scholars such as Abankwah (2011), Mnjama (2017), Komba et al. (2017), Rakemane and Mosweu (2020) lament the lack of documented acquisition policies that facilitate the ingestion of audio-visual archives in the ESARBICA region. The study also found that the NAZ Act of 11 May 1986 was the major legal tool in facilitating the ingestion of audio-visual archives in digital format, as illustrated in Table 4.2 of the previous chapter. The study established that the National Arts, Culture and Heritage Policy facilitates the ingestion of audio-visual archives in digital format at the NAZ.

7.2 Preservation strategies in place for ingesting digital audio-visual records

National archival institutions are chiefly mandated to preserve the nation's memories in whatever format facilitates long-term preservation (Mutsagondo & Tholanah 2022). In this regard, the second objective of the research sought to assess strategies in place for the preservation of digital audio-visual records at the NAZ. Abankwah (2011), Matangira and Ngulube (2010), Mnjama and Ipinge (2017), and Komba et al. (2017) point out that preservation strategies are crucial in facilitating long-term access to audio-visual collections.

The technical committee (TC) of IASA (2017) advocates for the proper care of audio-visual archives in digital format, as they require constant technicalities to enable future access. Preservation of digital records entails curating and preserving, which is the process responsible for running and controlling processes that are meant to stimulate the curation of data throughout the cycle (Higgins 2008). Audio-visual associations, which include the Association of Moving Image Archivists (AMIA), International Association of Sound and Audio-visual Archives (IASA), International Federation of Film Archives (FIAF) and International Federation of Television Archives (FIAT), are responsible for drafting standards in line with the preservation of various formats of audio-visual archives.

The research found that the NAZ has inadequate digital preservation strategies to facilitate the preservation of audio-visual archives in the digital format, which include backups, migration, file standardisation, preservation metadata, software upgrades and format preservation. Participants highlighted that the chief reason for the adoption of these cheaper basic preservation strategies was a result of a stringent budget allocation to the NAZ. Chigariro (2014), Ncala (2017) and Bishi (2022) observed a similar situation in their previous outcomes: low levels of funding led to inadequate preservation of audio-visual archives in the ESARBICA region. Matangira (2016) states that the low levels of funding for archival institutions in the ESARBICA region were caused mainly by the wrong placement of archival institutions in government ministries. Ngoepe and Keakopa (2011) made similar observations that their national archival institutions, which include the National Archives and Records of South Africa (NARSSA) under the Department of Arts and Culture and the Botswana National Archives and Records Services (BNARS) under the Ministry of Youth, Sports and Culture, were viewed in an inferior light.

7.3 Infrastructure to acquire digital audio-visual records and related metadata

Edmondson (2016) points out that standard infrastructure is the basis for audio-visual archiving to be done effectively and efficiently. In this regard, the third objective of the research was to assess the infrastructure that facilitates the ingestion of digital audio-visual archives and related metadata at the NAZ. The DCC echoed the above sentiments by propounding that the storage of digital records involves procedures for safeguarding data in accordance with applicable digital standards and good infrastructure (Higgins 2008). The capturing of metadata is a crucial process in the management of audio-visual archives in digital format. In the developed world, captured metadata facilitates the proper preservation of audio-visual archives in digital format and enables long-term access (North East Document Conservation Centre 2022). The hasty transformation in digital technology significantly crippled the infrastructure for digital audio-visual archiving. Failure to consider these rapid changes will affect archival institutions regarding the acquisition, preservation and provision of access to audio-visual archives and hinder access services to archival users due to outmoded infrastructure (Komba et al. 2017). Archival institutions require state-of-the-art infrastructure that will facilitate the ingestion of audio-visual archives in digital format, as it is the latest technology in post-modern archiving. The state-of-the-art infrastructure will facilitate proper metadata management to enable effective preservation of digital audio-visual archives.

The present research found that the NAZ was still struggling to procure the required infrastructure to facilitate the ingestion of audio-visual archives in digital format. Similarly, Bishi (2022) points out that the audio-visual unit lacks the entire required infrastructure to facilitate the transition from analogue to digital audio-visual archiving. Similarly, Abankwah

(2011), Ngulube (2012), Chigariro (2014), Mnjama and Iipingwe (2017), Ncala (2017) and Bishi (2022) observed that the infrastructure in archival institutions in the ESARBICA region was adequate to facilitate the transition from analogue to digital archiving. As was illustrated in the literature review of the study, this lack of adequate infrastructure hinders the ingestion of audio-visual archives in digital format. Scholars such as Matangira (2003), Schüller (2008), Matangira and Ngulube (2010), Mnjama (2017), Komba et al. (2017), and Bishi (2022) highlighted that audio-visual archiving is a highly technical field that requires standard infrastructure to promote the ingestion of audio-visual archives in any format.

Miller and Gherdevich (2017) point out that archival institutions in this green revolution should always strive to keep in touch with changes in technology so as to upgrade their infrastructure to accommodate the ingestion of digital audio-visual archives, and the NAZ, as a government department, greatly relies on donations from its stakeholders. The Zimbabwean government, like most governments in the ESARBICA region, finds itself faced with other challenges such as the eradication of poverty, food security, education and health. As a result, the procurement of infrastructure for digital audio-visual archiving remains a lesser priority. Similarly, scholars such as Zinyengere (2008) and Bishi (2022) lamented that developing countries are failing to procure the required infrastructure to spearhead the administration of digital archives, as such initiatives are still given lesser priority.

7.4 The skills of audio-visual archivists in managing digital audio-visual archives

Archivists must have special technical skills to manage audio-visual archives in digital format. In this regard, the study sought to assess the skills that audio-visual archivists should possess to effectively manage the NAZ's digital audio-visual archives. Technical skills in audio-visual archiving are essential for facilitating efficient operations in the acquisition and management of audio-visual archives (Edmondson 2016). According to Higgins (2008), the availability of skills such as selection, acquisition, preservation and use of digital records makes it easier to manage audio-visual archives overall. Bishi (2022) states that expert technical skills enable the effective and efficient management of audio-visual archives in digital format. According to Edmondson (2016), audio-visual archivists must now possess certain contemporary skills in order to ensure that operations run smoothly. These abilities included cataloguing, digital preservation, database administration and digitisation. The TC of IASA (2012) points out that audio-visual archivists must strive to stay current with the necessary technical skills in audio-visual archiving.

The study found that audio-visual archivists have the basic skills needed to manage audio-visual archives in any format. However, the study also discovered that one of the major strengths in skills for audio-visual archivists was the ability to administer audio-visual archives in analogue format. Similarly, scholars such as Matangira (2003), Zinyengere (2008) and Chigariro (2014) note that the skills possessed by NAZ archivists were primarily due to the analogue collection, which is still dominant. On a positive note, the turn of the millennium saw the need for archivists to learn digital skills in order to function in the digital environment of audio-visual archiving. The NAZ did not fall behind in human capital development because it helped audio-archivists stay up to date on current audio-visual archiving techniques. The TC of IASA (2020) advocates for audio-visual archivist training to keep up with the most recent scientific and technical information in the field of digital audio-visual archiving. The NAZ received training from the Swiss embassy and INA regarding the digitisation of analogue audio-visual formats and the cataloguing of audio-visual materials in any format.

8. Conclusions and recommendations

Legislative, standards and policy frameworks are crucial tools in facilitating the ingestion of audio-visual archives in archival institutions. Archival institutions greatly depend on up-to-date legislation, standards incorporation and effective written policies in collection building. Preservation strategies are crucial tools for prolonging the lifespan of audio-visual archives in digital format. Preservation is regarded as the bedrock of archival access and one of the major core functions of an audio-visual archivist. The ability of an audio-visual unit to preserve ingested digital audio-visual archives depends on effective preservation strategies in place. The success of ingesting audio-visual archives in digital format greatly depends on the infrastructure to facilitate the entire process required in digital archiving. A state-of-the-art infrastructure enables archival institutions to acquire audio-visual archives in digital format. Competencies in digital audio-visual archiving are critical, as they promote positive management of audio-visual archives in digital format. Professional associations in audio-visual archiving emphasise various skills required by archivists for fruitful administration of digital records throughout their life cycle.

In line with the legislative, standards and policy framework on digital audio-visual archives transfer, the study recommended that the NAZ revise the Act of 11 May 1986 to mandate all broadcasting institutions to legally deposit audio-visual archives in digital format at the NAZ. Ncala (2017) observed that in neighbouring South Africa, the NARSSA Act No. 43 of 1996 guides the legal depositing of audio-visual heritage to the National Film and Video of South Africa (NFVSA). Effective preservation tools facilitate the ingestion of audio-visual archives into an archival institution. Digital preservation is one of the major core functions of digital asset archivists, who are responsible for the administration of audio-visual archives in digital format. These essential preservation strategies boost the ingestion of digital audio-visual archives, including their preservation, security and access.

The study recommended that the NAZ should adopt other modern, effective preservation strategies, including emulation, cloud storage facilities, digital preservation software, storage rooms, backup facilities, digital preservation policies and refreshing. Researchers recommended that the NAZ should network with fellow archival institutions locally, regionally and internationally. Networking with other audio-visual archival institutions across the globe to donate digital archiving equipment they no longer need but is still functional is also recommended. Researchers recommended that the NAZ should collaborate with regional and internal professional associations, including ESRABICA and FIAT, respectively, to facilitate summer schools in line with digital audio-visual archives management. It is also recommended that the NAZ should offer refresher courses to audio-visual archivists in line with digital technology, as the world is in transition from analogue to digital technology.

Declarations

We declare that the above article is our own work and that all the sources that we have used or quoted have been indicated and acknowledged by means of complete references. The manuscript has not been previously published and is not under consideration for publication with any other journal or copyrighted publishing platform of any kind. Permission was granted for collection and publication of the presented identifiable data from target

organisation, and the permission letter is attached. As the authors of the article we therefore give consent to the Journal of South African Society of Archivist to publish the manuscript.

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