DIGITAL PRESERVATION INITIATIVES IN LIBRARIES AND CULTURAL HERITAGE INSTITUTIONS IN MALAWI

Stanley Sahani GONDWE

Archivist. Malawi Savings Bank Limited
E-mail: stanleygondwe@yahoo.com

Abstract

Developments in information and communication technologies (ICTs) have changed the way libraries and cultural heritage institutions used to manage their collections. Significant volumes of collections are being transformed into digital format and made available to users in a more engaging way. Traditional techniques of collecting, organizing, preserving and making the collections available to users are being replaced by digital systems. The adoption of digital technologies by libraries and cultural heritage institutions is becoming a common phenomenon as computer-based systems are becoming essential tools for managing and preserving collections. In Malawi, available literature indicates that libraries and cultural heritage institutions were engaged in a wide range of digital preservation initiatives. Ironically, at the time of conducting this study, very little was known about success stories that could serve as models for other institutions. For this reason, this study sought to identify the institutions that were undertaking digital preservation initiatives in Malawi and also establish models of success. The findings of the study revealed that although digital technologies were becoming a worldwide phenomenon in libraries and cultural heritage institutions, only 19% of the total sample had registered meaningful digital preservation initiatives. 72% of the digital preservation activities were carried out on ad hoc basis, 24% were pilot projects, and only 4% were established programmes. 96% of the initiatives were not driven by organizational policies and strategies, and 68% of the projects were driven by availability of donor funding. In terms of capacity, over 88% of the target institutions did not have adequate capacity in undertaking digital preservation projects. As a way forward, this researcher proposes that libraries and cultural heritage institutions in Malawi should make deliberate to develop institutional policies and strategies, and also consider adopting collaborative digital preservations programmes. Further research should also be conducted to identify skills gaps in digital preservation so that appropriate training programmes can be developed to address the situation in Malawi.

Keywords: Digital Preservation; Malawi; Malawi ; Cultural Heritage Institutions

1. Introduction

From time immemorial libraries and cultural heritage institutions have been managing and preserving their collections by using traditional techniques. These techniques have for many years, made it possible for the collections to remain usable and in accessible format for the present generation and for decades to come. In recent years, the advent of information and communication technologies (ICTs) has also opened up new techniques of managing and preserving the collections. A variety of collections such as scarce, fragile and ephemeral books

and manuscripts and the whole spectrum of audio and video recordings are becoming amenable to digital preservation, and can safely be used or accessed by a wider audience in digital format. Libraries and cultural heritage institutions are increasingly adopting emerging technologies to collect, organize and make the collections available to users in a more engaging way. Traditional techniques of managing, preserving and conserving collections are rapidly being dominated by digital technologies.

2. Problem statement

In Malawi, available literature indicates that libraries and cultural heritage institutions were engaged in a wide range of digital preservation initiatives. According to Salanje (2011), some libraries in Malawi had adopted digital technologies for online access anytime and anywhere; improved and wider access; new forms of access; improved resource sharing; and reliable preservation. Ironically, at the time of conducting this study, only University of Malawi Libraries, Mzuzu University, Malawi National Library Service, National Research Council of Malawi, Reserve Bank of Malawi, and the National Archives of Malawi were known to have been undertaking digitisation programmes. Likewise, very little was known about their success stories. For this reason, this study sought to identify the institutions that were undertaking digital preservation initiatives in Malawi and also establish models of success so that other institutions should be able to emulate them.

3. Research questions

In conducting this survey, the researcher was guided by four research questions as follows: -

- Which libraries and cultural heritage institutions were undertaking digital preservation programmes in Malawi, and which ones could serve as models of success?
- Are there any policies/ strategies that guide digital preservation initiatives in the target institutions, and what factors were driving their projects?
- Do the institutions have adequate capacity to undertake digital preservation projects?
- What challenges were affecting digital preservation initiatives in Malawi?

4. Research objectives

The objective of the study was to identify libraries and cultural heritage institutions that were undertaking digital preservation initiatives, and establish models of success. Specifically, the study sought:-

- To identify institutions undertaking digital preservation initiatives in Malawi.
- To find out if there were any policies and strategies on digital preservation, and establish factors that were driving digital preservation initiatives.
- To assess the adequate of capacity to undertaking digital preservation initiatives in the target institutions.
- To find out what challenges were affecting digital preservation initiatives in Malawi.

5. Justification for the study

In recent years libraries and cultural heritage institutions across the world have changed the way they used to manage and preserve their collections. Significant volumes of collections have been changed into digital format, and are being made available to users in a more engaging way. In Malawi, a number of libraries and cultural heritage institutions are involved in a wide range of digital preservation initiatives. Ironically, available literature indicated that only the University of Malawi Libraries, Mzuzu University Library, Malawi National Library Service, and the National Archives of Malawi were undertaking digitisation activities. Apart from these institutions, other institutions that were undertaking digitisation initiatives were not known. Similarly, details about models of success in digital preservation in Malawi were scanty. The importance of this study could therefore not be over-emphasized as it was meant to bridge the information gap on digital preservation initiatives in Malawi.

6. Delimitation of the study

The study was conducted in selected public and private libraries and cultural heritage institutions in the cities of Blantyre, Zomba, Lilongwe, and Mzuzu; and also in the districts of Chiradzulu, Dedza, Karonga, Rumphi, and Thyolo. The choice of these institutions was purposefully made in order to have a more representative population from across Malawi.

7. Ethical considerations

Prior to conducting the study, arrangements were made with relevant authorities requesting their consent to participate in the study, and respondents were informed that participation in the survey was voluntary. Issues of confidentiality were also discussed at the onset, and 95% of the respondents gave consent to have names of their institutions mentioned in the report because they felt that the subject under investigation was not very sensitive, and those that gave consent have been listed in **ANNEX I** of this report.

8. Literature review and theoretical framework

In this paper terms and expressions of libraries, cultural heritage institutions, and digital preservation have extensively been used. For purposes of clarity, the term Library has been used to mean an organized collection of books, periodicals, audio visual materials, and other information resources that are physically or virtually made available to users for their general reading, home use, and reference purposes. In this regard, the plural form (Libraries) has been adopted instead of the singular form. Likewise, the expression Cultural Heritage Institutions has been used as an umbrella expression for arts galleries, archives, museums, antiquities, and heritage foundations.

The expression, Digital Preservation has been used to mean a process of maintaining digital collections across different generations of technology over time, irrespective of where they reside, as discussed in the International Research on Permanent Authentic Records in Electronic Systems (2012). The International Research on Permanent Authentic Records in Electronic Systems (2012) explains that Digital Preservation, as a process, entails that an organisation plans to implement a set of activities that are designed to ensure that digital information, collections,

or objects are kept in readable and usable condition. Angevaare … *et al* (2012) also stresses that the process of Digital Preservation combines issues of policy formulation with strategic actions which are designed to ensure long-term access to the digital content over time.

Bailey (2014) states that successful digital preservation initiatives are best achieved where projects are designed in tandem with recommended standards of best practice and established models. Furthermore, Bailey (2014) argues that where digital preservation projects are designed outside the established theories and models, there is a lot of inconsistency and uncertainty in the way digital preservation projects are designed and implemented. As a result organisations spend a lot of time and effort in trying to do right things. Eventually, organisations end up wasting a lot of resources on collections that are in most cases rendered useless.

Available literature also indicates that the field of digital preservation is replete with sound theories and models that can be used as benchmarks when designing and implementing digital preservation projects. Some of the theories and models as cited in Levy & Catherine (1995) and Bailey (2014) include the OAIS Reference Model – which is ISO 14721 certified, Digital Preservation Maturity Model, Capability Model for Digital Preservation, NDSA Levels of Digital Preservation, Five Organizational Stages of Digital Preservation Model, and You've Got to Walk Before You Can Run: First Steps for Managing Born-Digital Content Received on Physical Media Model. These models and theories provide sound insights on how organisation should approach digital preservation initiatives.

This study was guided by digital preservation principles that are set out in the OAIS Reference Model. In this model, the Consultative Committee for Space Data Systems (2012) defines six functional elements which provide practical guidance on how to approach digital preservation initiatives. The six functional elements are ingest, preservation planning, archival storage, data management, administration, and access. An overview of the model shows that these functional elements are intertwined in such a way that departure from the recommended steps would render the project unsuccessful. For this reason, this researcher made every effort to link what the model says against what the target institutions were doing in undertaking their digitisation initiatives.

9. Research methodology and approach

This study was designed to collect both qualitative and quantitative data. The philosophy adopted for the research was deductive approach, and survey strategy was used to realize the research design. A target population of 80 institutions was identified from selected public and private libraries and cultural heritage institutions in Blantyre, Chiradzulu, Dedza, Karonga, Lilongwe, Mzuzu, Rumphi, Thyolo, and Zomba. A sample size of 55 respondents was selected from the target population through purposive sampling technique. The researcher used triangulation method to collect data and settled for a combination of various data collection tools, with the questionnaire being the principal instrument. The questionnaire was complemented by interviews with key officials, observations and literature review.

The questionnaire was also used in evaluating the response rate so as to avoid biasness arising from non-responses by some respondents. In evaluating the response rate Fox, Hunn & Mathers (2009) advises that in a survey type of research like this one, a 50% response rate is adequate for data analysis and reporting, whereas 60% is good, and 70% is considered as very good response rate. For this survey, a total of 55 questionnaires were distributed, and 42 of them representing

76% were fully completed and returned, while 13 representing 24% were not returned. This means that if the recommendations in Fox, Hunn & Mathers (2009) are anything to go by, this study achieved very good response rate (76%). The researcher, therefore, felt justified to proceed with data analysis, and presented below are the findings of the study.

10. Findings and discussion

10.1 Typical digital preservation initiatives

In the first place, the study sought to establish the different types of libraries and cultural heritage institutions that were actively involved in digitisation of their collections. The findings revealed that 62% of the 42 responses were indeed digitizing their collections, while 38% indicated that they had not yet started. **Figure 1** below provides an overall picture on digital preservation initiatives in the target institutions. A detailed list of the institutions that were identified is provided in **ANNEX I** of this report.

As shown in **Figure 1** above, most libraries and cultural heritage institutions in Malawi had adopted digital technologies for digitisation of their collections. Apart from preservation purposes, the collections were being digitized for various reasons. Joshua (2013) observed that most organisations digitize their collections not necessarily preservation purposes but also for promotion of their offerings and provision of online access.
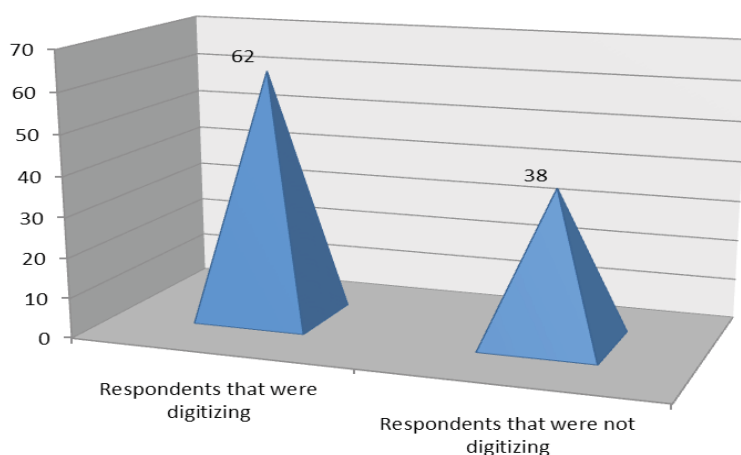

Figure 1: Digital preservation initiatives in Malawi

The study also investigated the different types of institutions that were undertaking digitisation initiatives. The findings showed that broadcasting houses were dominating the initiatives with 42% of the responses, followed by museums and other cultural heritage institutions with 27% responses, while libraries had 23%. Archival institutions had 8% as shown in **Figure 2** below.

From **Figure 2**, the dominance by broadcasting houses may not be considered as the models of success at this stage, considering the principles of digital preservation highlighted in the OAIS Reference Model.
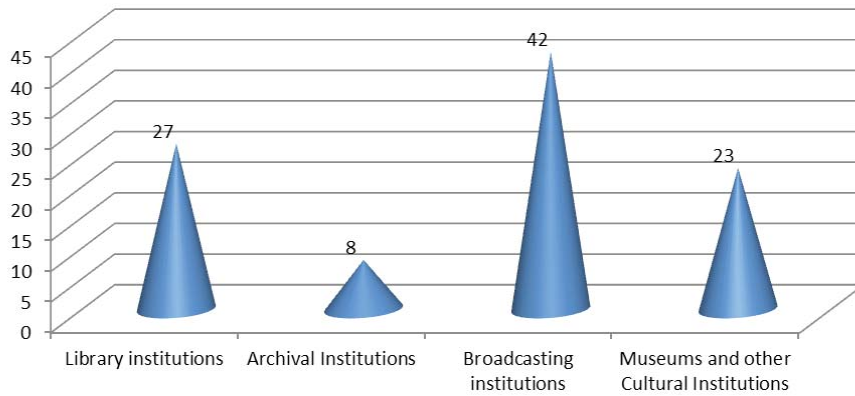
Figure 2: Digitisation initiatives by types of institution

The study also investigated about the different types of collections that were being targeted for digitisation. The findings revealed that a wide range of collections were being digitized as shown in **Figure 3** below. From **Figure 3** below, the study established that 48% of the collections were photographs, 42% were institutional reports, 39% were audio and video recordings, and 38% were vital records, while 36% were comprised of thesis and dissertations. Furthermore, 35% were historical archives, 22% were monuments/ artifacts, 18% were rare vernacular books, and 13% were rock art / paintings, while 10% were old newspapers and magazines.
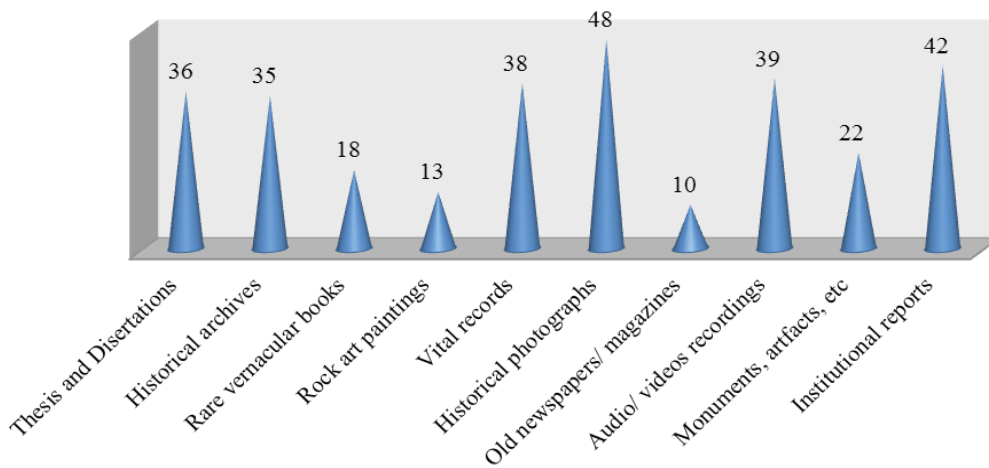

Figure3: Different types of collections being digitized

The target institutions were also asked to indicate how much of their collections were digitized. Out of the 26 institutions that were undertaking digitisation activities, 98% indicated that they had digitized less than 5%, and only 2% said that had digitized between 5% and 10% of their collections. Asked to indicate the status of digitisation projects in their institutions, 18 respondents representing 72% said that they were carrying out digitisation activities as *ad hoc* projects, and

6 representing 24% said that they were carrying out pilot projects, while 2 representing 4% indicated that they had established projects. An analysis of the situation is provided in **Figure 4** below.
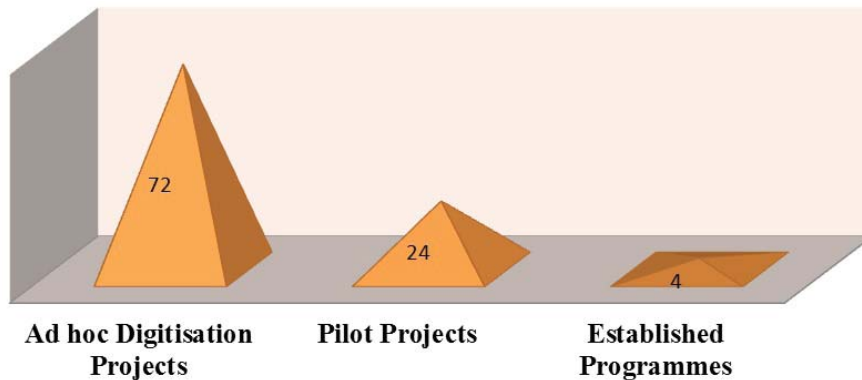

Figure 4: Status of Digitization Projects

From **Figure 4**, with only 4% of all the institutions carrying out digitisation initiatives, it means that libraries and cultural heritage institutions were not yet ready to design and implement fully-fledged digital preservation programmes for their collections. In other words, the high number of institutions implementing ad hoc digitisation initiatives symbolizes that libraries and cultural heritage institutions in Malawi were lacking confidence in digital preservation.

10.2 Organizational policies and strategies

The study also sought to establish whether the target institutions had any guiding policies and strategies on digital preservation or not. 96% of the respondents indicated that they had no formal policies and strategies on digital preservations, and only 4% said that they had some policies. **Figure 5** below gives an overview about the existence of policies.
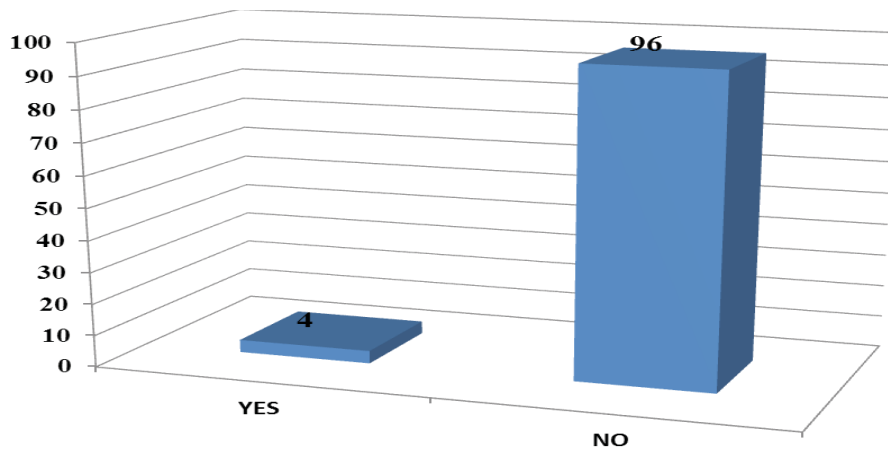

Figure 5: Existence of policies and strategies

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From **Figure 5** it shows that digital preservation policies in Malawi were under-developed. According to the International Research on Permanent Authentic Records in Electronic Systems (2012) the success of any digital preservation programmes largely depends on the existence of sound policies which articulates and institutionalizes the commitment of the organisation and its strategic actions. Angevaare... et al (2012) also states that digital preservation policies and strategies are very important because they provide clear direction on what to do, and also enables an organisation to be more focused and consistent in its approach to digital preservation. The absence of such policies and strategies in Malawi demonstrates that libraries and cultural heritage institutions were not focused in their approach to digital preservation initiatives.
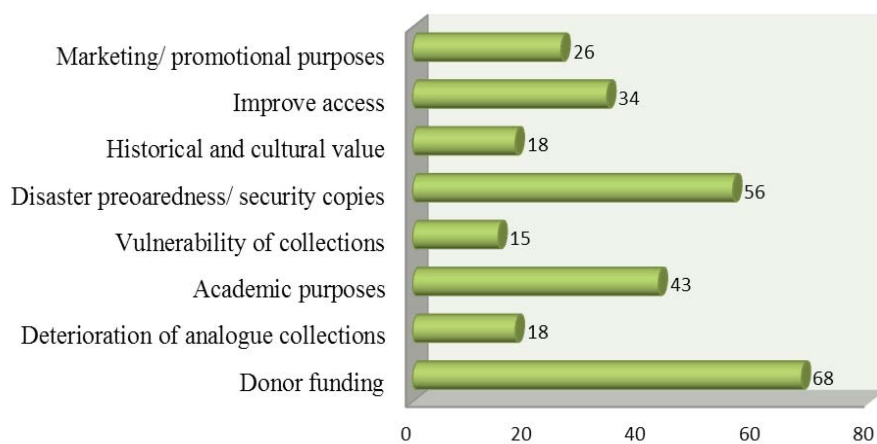

Figure 6: Factors influencing digital preservation initiatives in Malawi

10.3 factors driving digital preservation initiatives

The investigation went furthermore to find out what factors were influencing digitisation activities in the target institutions. For this purpose, some of the predominant factors were provided in the questionnaire based on suggestions from available literature, and respondents were requested to choose from the list provided or provide additional ones that were relating to their specific situations. **Figure 6** provides a synopsis of some of the driving factors.

From **Figure 6** above, it was quite clear that most of the digitisation activities that were taking place in Malawi were driven by the availability of donor funding as confirmed by 68% of the respondents. In this state of affairs, Angevaare... *et al* (2012) cautions that in digital preservation overreliance on external funding is not the best approach. Angevaare... *et al* (2012) suggests that the best way forward for sustainable digital preservation is by incorporating digitisation initiatives in organisational policies and strategies.

10.4 Capacity to undertaking digital preservation programmes

The study also sought to establish whether the target institutions had adequate capacity in undertake digital preservation projects or not by looking at adequacy or inadequacy of institutional policies and strategies, IT infrastructure, human resource, knowledge and skills of staff, and funding as main indicators. **Table 1** below provides a synopsis on how respondents rated their overall capacity.

Indicative measures of capacity	Measure of capacity	
	Adequate	Inadequate
Adequacy of institutional policies and strategies	4%	96%
Adequacy of it infrastructure	38%	62%
Adequacy of human resource	3%	97%
Adequacy of knowledge and skills of staff	12%	88%
Ability to organize/ manage digital collections	12%	88%
Availability of funding	1%	99%
Aggrevate capacity	11.67%	88.33%

Table 1: Institutional capacity to undertake digital preservation

With an aggregate of 11.67% as shown in Figure 6 above, conclusions can be drawn that the institutional capacity for libraries and cultural heritage institutions in Malawi to design, implement, and manage meaningful digital preservation projects is very low. In this state of affairs, there is need to explore other approaches to digitisation than handling the projects at individual institution level.

10.5 Success stories and the need for collaboration

The study also sought to establish some possible models of success in digital preservation in Malawi, and also find out if the target libraries and cultural heritage institutions were willing to collaborate with others institutions in designing and implementation of digitisation projects.

In the first instance, respondents were requested to mention libraries and cultural heritage institutions which they could describe as their models of success in digitisation initiatives. The findings revealed that out of 26 institutions that were involved in digitisation activities, only 8 representing 19% were described as models as indicated in **Figure 7** below.
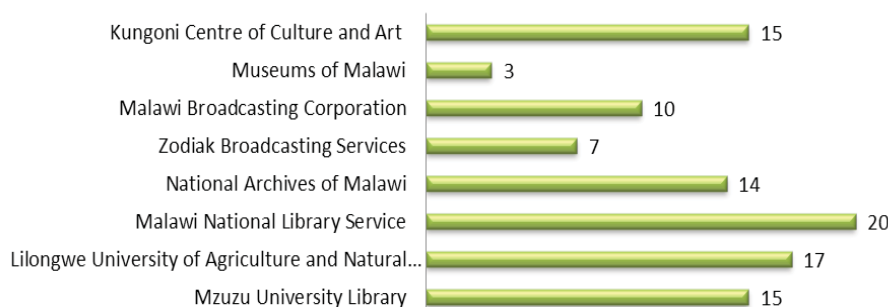

Figure 8: Models of success in digital preservation

As shown in Figure 7 above, Malawi National Library Service was rated highest with 20%, followed by Lilongwe University of Agriculture and Natural Resources at 17%. Kungoni Centre for Culture and Arts and Mzuzu University Library were both at 15%. National Archives of Malawi was rated 14%, followed by Malawi Broadcasting Corporation at 10%, Zodiak Broadcasting Services at 7%, and Museums of Malawi at 3%.

The investigation went further to establish the evidence of success for the selected models. **Table 2** below provides some sources of evidence for the selected institutions.

Name of institution	Available evidence of success
Malawi National Library Service	http://community.eldis.org/.59b4c2fc/Files/
Lilongwe University of Agriculture and Natural Resources Library	Link not available online, but have good digital collections
Kungoni Centre for Culture and Arts	http://www.kungoni.org
Mzuzu University Library	Link not available online, but have good collections
National Archives of Malawi	http://eap.bl.uk/database/overview_project. a4d?projID=EAP427;r=41
Malawi Broadcasting Corporation	http://nedland-kultur.no/index.php/1548623
Zodiak Broadcasting Services	Link not available online, but have good collections
Museums of Malawi	http://www.museum.mw/

Table 2: Sources of evidence of success

The target institutions were also asked to indicate if they were willing to collaborate with other institutions in undertaking digital preservation projects or not. The findings established that 95% were willing to do so. For instance, Salanje (2011) reported that in 2007 the Lilongwe University of Agriculture and Natural Resources Library, with financial support from International Network for the Availability of Scientific Publications (INASP) conducted training for selected librarians and archivists from other institutions on Greenstone – an open source software suite for building and distributing digital library collections. Likewise, Lihoma (2012) also reported that the Office of the President and Cabinet had collaborated with the National Archives of Malawi in digitizing cabinet papers dating from 1964 to the middle of 1970s. Apart from these two milestones, Malawi has so far not registered major collaboration initiatives in digital preservation.

10.6 Major challenges of undertaking digitisation projects

In addition to the areas examined above, the study also looked at the challenges affecting the effective and sustainable implementation of digital preservation programmes in Malawi. **Table 3** below provides an overview of the major challenges that were identified by the respondents.

Major challenges	Overall ratings
Poor funding characterized by frequent budget cuttings	97%
Lack of appropriately trained and qualified personnel to take lead in digital preservation initiatives	68%
Absence of locally established standards and proven models of success	62%
Lack of formal policies and strategies that could be used to lobby for funding for digital preservation initiatives	51%
Inadequate institutional capacity to design and implement digital preservation projects	50%
Continued tendency of undertaking digitisation initiatives on experimental basis	33%

Table 3: Challenges affecting digital preservation

11.Conclusion and recommendations

11.1 Conclusion

In conclusion, the findings of this study have revealed that although the adoption of digital technologies was becoming common practice for libraries and cultural heritage institutions in managing and preserving their collections, Malawi has not yet registered much progress in undertaking digital preservation initiatives. As at the time of conducting this study, only 19% of the total sample had registered meaningful success stories. 72% of the digital preservation activities were carried out on ad hoc basis, 24% were pilot projects, and only 4% were established programmes. 96% of the initiatives were not driven by organizational policies and strategies, and 68% of the projects were driven by availability of donor funding.

In terms of capacity, over 88% of the target institutions did not have adequate capacity in undertaking digital preservation projects. A snap survey of the available digital collections indicates that most digital initiatives were not adequately informed by standards of best practice. This could be the more reason that digital preservation initiatives were being carried out on *ad hoc* basis, and mainly driven by the availability of donor funding.

In this state of affairs, digital preservation initiatives for libraries and cultural heritage institutions in Malawi could best be described as under-developed and unsustainable. Libraries and cultural heritage institutions in Malawi should therefore put in place appropriate measures and ensure that any future digital preservation initiatives are well-designed, implemented, monitored, and are sustainable.

11.2 Recommendations

As a way forward, libraries and cultural heritage institutions in Malawi should make deliberate efforts to develop organizational policies and strategies to demonstrate their commitment and institutionalize digital preservation programmes, rather than depending on the availability of donor funding.

Libraries and cultural heritage institutions should also consider adopting collaboration strategy for the implementation of digital preservations programmes. This is in view of the fact that digital preservation can very expensive, and with the meager resources libraries and cultural heritage institutions in Malawi can achieve more. Enabling institutions are therefore called upon to facilitate the process of collaboration.

Further research should be conducted to identify skills gaps in digital preservation so that appropriate training programmes should be developed to address the existing knowledge gaps in digital preservation, and also help in developing capacity for libraries and cultural heritage institutions to be able to carry out sustainable digital preservation programmes in Malawi.

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ANNEX I

List of Libraries and Cultural Heritage Institutions Undertaking Digital Preservation Initiatives in Malawi

Angaliba Foundation	Chancellor College Library
Chewa Heritage Foundation	Department of Antiquities
Department of Arts and Crafts	Department of Tourism
E-Government Department	Film Unit in the Department of Information
High Court of Malawi Library	Kamuzu College of Nursing Library
Karonga Museum	Kungoni Centre of Culture and Art
Law Commission Library	Law Society of Malawi Resource Centre
Library and Archives of the Reserve Bank of Malawi	Lilongwe University of Agriculture and Natural Resources Library
Luntha Television	Malawi Broadcasting Corporation
Malawi Human Right Commission Library	Malawi National Library Service
Museums of Malawi	Mzimba Heritage Association
Mzuzu University Library	National Archives of Malawi
Office of the President and Cabinet	Society of Malawi Library and Historical Archives
Times Group of Companies	University of Livingstonia Library
Zodiak Broadcasting Services	