The status of the digital preservation policies and plans of the institutional repositories of selected public universities in Kenya

Institutional repositories (IRs) have a leading role in providing long-term access to the research output of universities. This study assessed the capabilities of institutional repositories in Kenya to support long-term preservation of digital content by reviewing digital preservation policies and plans. Data was collected through face-to-face interviews from 19 respondents drawn from three public universities that were identified by their registration in OpenDOAR, ROARMAP and the number of items in their repositories. Additional data was acquired through analysis of documents such as open access policies and mandates, as well as institutional websites. Findings revealed that the organizations were poorly prepared to support long-term digital preservation. Policies were inadequate and plans to support the implementation of the policies were lacking. The study concluded that although the IRs were to undertake digital preservation, they lacked clearly defined actions from plans and policy. This article offers recommendations, including identifying digital preservation goals that will guide policy formulation and multi-stakeholder involvement in the policy-making process. Effort should also be made to create awareness of the relationship between digital content selection and its successful long-term preservation.

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Introduction

Institutional repositories (IRs) have existed since 2002 when research-intensive universities in the UK and US launched IRs.[1] Since then, IRs have been established throughout the world, with the Directory of Open Access Repositories (OpenDOAR) registering 5,645 repositories by April 2021. Moseti[2] notes that although universities have invested in digital repositories, the key aspect of digital preservation still lags behind due to lack of commonly agreed best practices. The Digital Preservation Coalition[3] underscores the importance of organizational preparedness and declares it as critical since preservation costs in a digital environment are greater than for traditional paper collections.

The Digital Preservation Coalition's Rapid Assessment Model (RAM)[4] identifies policies and strategies as key elements in successful long-term digital preservation. Dresser[5] describes policy as a document that has been drafted by a group of individuals who are looking to provide a scope of definitions, responsibilities and a set of actions or procedures for a given purpose or subject. Shiloba and Mohammed[6] define a digital preservation policy as a plan of action for the safekeeping of digital objects that addresses the questions of what needs to be preserved, why, for what purpose and for how long.

A preservation plan has been described as, 'a series of preservation actions to be taken by a responsible institution due to an identified risk for a given set of digital objects or records called collection'.[7] Kool, Werf and Lavoie[8] differentiate between preservation polices and plans by saying that a policy provides guidance and sets the framework for planning but a plan provides actionable steps for ensuring long-term access. Preservation planning has been identified as one of the core capabilities in digital preservation in order to effectively safeguard, protect and sustain digital artefacts authentically and to ensure that the means to access them are available to the designated community.[9] Preservation policy planning is also at the heart of the Open Archival Information System model[10] that provides a reference point for institutions wishing to establish digital repositories with preservation in mind.

'a policy provides guidance and sets the framework … a plan provides actionable steps for ensuring long-term access'

A digital preservation plan and policies are both deemed to be essential for digital preservation as they provide the public with proof that it is being handled in a professional manner.[11]

Review of literature

Digital preservation policies

According to Dell and Shultz,[12] most organizations have the mistaken belief that digital preservation occurs without conscious intervention. The presence of a digital preservation policy shows that an organization has made a conscious effort to practice digital preservation. Madsen and Hurst[13] underscore the role of a digital preservation policy by describing it as a connective tissue between preservation strategies and operations.

Organizations seeking to practise digital preservation are advised to develop digital preservation policies as soon as possible in order to secure organizational buy-in.[14] Policies are vital for ensuring compliance with procedural and legal requirements within an organization. They define procedures, roles and responsibilities in order to promote accountability as well as ensure that preservation activities are formalized and included in strategic plans.[15]

Researchers have identified gaps in digital preservation policies within institutions. For example, Waller and Sharpe[16] and Beagrie, Rettberg and Williams[17] highlighted the lack of digital preservation policies in libraries. On the other hand, Sinclair et al.,[18] citing a survey by the Planets Project: Preservation and Long-term Access through Networked Services, indicated that only about 43% of libraries who responded to a survey had a digital preservation policy. However, those who had the policies were able to budget for digital preservation and to even include it in their organizational planning, as well as to have solutions for it. Summing up earlier concerns about digital preservation policies, Beagrie et al.[19] argued that the lack of a policy led to the lack of consideration of digital preservation issues in other institutional strategies. This they termed as a major drawback to preserving digital information. Coonan and Sannet[20] had earlier pointed out that preservation policies indicated the organization was accountable and increased trust that funding will be utilized for the long-term benefit of the organization. Beagrie et al.[21] were also of the opinion that preservation procedures could only be implemented wholly with adequate funding, with the Digital Preservation Coalition (DPC)[22] adding that a policy could be used to seek funding to achieve this adequacy. Beagrie et al.[23] further underscored the need to integrate digital preservation into business drivers, activities and functions such as regulatory compliance, staff development, applied technology and academic excellence.

To alleviate challenges in policy development, Ismail and Affandy[24] recommend the inclusion of collaborations and partnerships as part of digital preservation strategies in several areas. These include working with government agencies to develop legislation and procedures and developing policies that support long-term preservation with creators and users.

Poor collection development has been identified as one of the drawbacks to successful digital preservation.[25] Owens proposes that digital preservation policies should be linked to collection development policies while Nemati-Anaraki and Tavassoli-Farahi[26] advocate for clear IR content policies.

The need to frequently review digital preservation policies cannot be overstated. Cloonan and Sannet[27] acknowledge that policies need to revolve rapidly since the policy owners may encounter new and unanticipated features requiring new policy decisions. The literature advocates for the specific digital preservation review cycle to reflect the current state of affairs, such as technological changes,[28] but leaves the actual period to the discretion of each digital repository. Although Madsen and Hurst[29] advocate for a specific shelf life for a policy of between three and five years, the literature shows variations in digital preservation policy review cycle length among organizations, with some even lacking consistency in their policies. For example, commenting on a digital preservation task force formed by the Ohio State University Libraries, Noonan[30] observed that of all the digital preservation policies evaluated by the task force, only one had a statement to maintain the currency of the digital preservation policy through regular reviewing. However, there are libraries that were doing well, as noted by Friese,[31] who, when developing digital preservation guidelines for the Network of Expertise in Long-term Storage and accessibility of Digital Resources in Germany (nestor), recognized the Marriot Library of the University of Utah for revising its policy three times in three years in order to take into consideration the rapid changes in technology. Friese[32] goes on to argue that when an organization revises its policy regularly, it shows that it actively watches technology and developments in digital preservation and keeps the preservation policy up to date. Differences were noted in the length of time a policy should be in use. The UK National Archives[33] recommended a period not exceeding three years while Brown[34] gave a timeline of two years. Owens[35] was of the opinion that since digital preservation was only possible if aligned to what people did on a day-to-day basis, it was important for any institution serious about digital preservation to review it at least annually to accommodate new developments and changes in what it was practising.

> 'The need to frequently review digital preservation policies cannot be overstated'

Digital preservation planning

The relationship between digital preservation policy and digital preservation plans (DPPs) cannot be under-estimated. Bountouri et al.[36] aptly underscore this relationship by noting that a digital preservation plan 'defines and documents the vision and strategy of long-term digital preservation and provides important definitions that make the implementation of the digital preservation policy accurate and complete'. Digital preservation planning has been hailed as an important component of digital preservation, especially when embedded within the overall mission of the organization.[37] The availability of digital preservation plans was identified as a major requirement for the publication office of the European Union to be considered as trusted custodians of digital resources.[38] According to Becker and Rauber,[39] digital preservation planning impacts on different levels of management and supports decision-making about digital preservation. It identifies the criteria for preservation within the organizational context and defines the workflow for evaluating and defining preservation plans. Planning enables formulation, evaluation and execution of high-quality and cost-effective preservation plans that suit the organization's needs and support the ongoing evaluation of the results of executing those plans. It also provides a feedback mechanism.

Organizations accrue a number of benefits from planning, such as: enabling preservation actions to be carried out, documenting any actions undertaken on digital objects at a point in time and the context, reasons, criteria, choices and decisions for or about preservation actions for a given set of digital objects. This enables accountability for those actions as well as for the authenticity and integrity of digital objects and ensures consistent and ongoing management of digital objects when they practise digital preservation planning.[40]

Rationale and methodology of study

According to Frank,[41] digital preservation involves more than simply avoiding loss. Rather, it propels digital repositories to develop a sustainable organizational structure, financial stability and to create robust processes to ensure the viability and accessibility of the digital resources in the long term. Digital preservation cannot succeed without policies and strategies.[42] As noted by Moseti,[43] one of the major challenges facing digital preservation within the IRs of Kenyan universities is poor adoption of best practices. Such a situation is undesirable and calls for remedial action. Maemura et al.[44] put forth the need to assess an organization's ability to achieve its digital preservation goals, with Donaldson[45] proposing a systematic and independent audit to determine the details of the process and identify potential weak points in order to make improvements.

The current study focuses on assessing the status of digital preservation in institutional repositories, with an emphasis on their digital preservation policies and plans. Few studies have been conducted in this area in Kenya. Moseti[46] as well as Erima, Masai and Wosyanju,[47] concentrated on identifying the digital preservation practices but failed to indicate whether these practices were adequate to preserve the digital resources for long-term access. Similarly, there are no studies that evaluate the adequacy of digital preservation policies and plans developed by IRs within Kenya's public universities to support long-term digital preservation.

In a bid to address this dearth of knowledge, the study seeks to address two objectives:

• to establish the extent of adoption and effectiveness of digital preservation policies within selected public universities in Kenya

• to audit digital preservation plans within IRs of selected public universities in Kenya.

Qualitative data was collected from three public universities with the highest number of items their IRs and registered in both OpenDOAR and the Registry of Open Access Repository Mandates and Policies (ROARMAP). The emphasis on the size of their repositories' content was based on the argument that poor preservation would mean more losses and a motivation to engage in active digital preservation. Nineteen respondents were identified purposively from the University of Nairobi (UoN), Kenyatta University (KU) and Jomo Kenyatta University of Science and Technology (JKUAT), comprising university librarians (UL), deputy university librarians (DUL), repository administrators (RA) and ICT personnel tasked with supporting the library. Unstructured interview schedules were used for face-to-face interviews, while a document analysis guide was used to analyse the contents of the policies and plans. Conventional content analysis was used for data analysis where codes were derived directly from the text data collected. The entire data analysis process of identifying similar data units, categorizing them and clustering them into categories that shared some commonality was done manually. Code names were used in identifying individual responses.

Presentation of findings

Digital preservation policy

The research sought to find out whether the universities being studied had a digital preservation policy and if the policy was adequate to support long-term digital preservation.

All the respondents acknowledged the existence of a digital preservation policy.

A look at the policies indicated that the universities had articulated their commitment to long-term preservation of the digital resources:

> 'The Digital Repository shall be the means for the long-term archiving, preservation and retrieval of materials deposited within it and otherwise provides a permanent record of the University's scholarly activity by employing the latest technology to aid that objective.' UoN – Open Access Policy (OAP)

> 'JKUAT Digital Repository will: Provide free, searchable access to this output and make possible its long-term archiving and preservation as well as provide a permanent record of the intellectual output of JKUAT.' JKUAT – OAP

> 'Items Will Be Retained Within Kenyatta University Digital Repository Indefinitely and that Kenyatta University Will Endeavour to Provide Continued Readability and Accessibility of All Items Deposited in the Repository.' KU – OAP

The digital preservation section of the university open access (OA) policies was found, in all cases, to be very basic with no information as to how the digital preservation would be enabled. The quotes above summed up the extent of their digital preservation sections.

It was also clear that although the IRs acknowledge the existence of a digital preservation policy, what they had was not comprehensive enough to support digital preservation proactively.

Replies to a question about how well the existing policy was adhered to were eye-opening. Respondents indicated that to a large extent they acted within the policy, since they performed backups every now and then, but in some instances deviated from it where the repository accepted materials not indicated in the acquisition policy. From these findings, it can be deduced that the IRs being studied lacked policies suitable to guide them in ensuring the digital resources in their custody were safeguarded to support long-term preservation.

'the IRs being studied lacked policies suitable to guide them'

Replies to a further question about how often the policies were reviewed indicated that all the IRs being studied had not yet reviewed them. Checking on the policies themselves showed that two IRs had considered a period of five years between reviews while one was not specific, indicating that 'review will be done from time to time' as need arises. The dates of adoption were indicated in the policies as: April 2012 and January 2014. These dates indicated a period of almost a decade with no review in mind. Respondents attributed this situation to the 'newness' of the IR and the fear of committing themselves in case of failure. Based on the dynamic nature of technology, this proved a major weakness in the effectiveness of the IRs to preserve digital resources in their care for the long term.

Responsibility for the digital preservation policy was articulated in a general way and was included within the open access policy of all three IRs. Open access committees that directly reported to the senate and the vice-chancellor were responsible for policy development. The policy also gave responsibility for the day-to-day administration of the repository to a repository administrator who was to report to the university librarian. Since the digital preservation policy was only a small section of the respective OA policies of the universities concerned, they lacked a section defining the roles and responsibilities for digital preservation with the assumption that any preservation actions will be undertaken by the same procedure.

The study sought to find the role of policy in rights management and its effectiveness to support digital preservation. It established that all IRs had ensured that depositors gave rights to the repository staff so that they can undertake long-term preservation actions without seeking permissions from them. Depositors were required to sign deposit agreements granting repository staff permission to store, copy and format and/or manipulate the materials in order to ensure that they can be preserved and made available in the future. Specifically, they granted them the right to: without changing the content; 'translate the submission to any medium or format for the purpose of preservation and keep more than one copy of this submission for purposes of security, back-up and preservation'.

All the respondents indicated a wish to develop a comprehensive digital preservation policy, but they could not give a definite timeline since it was something they had not thought about before. They acknowledged that this research had given them food for thought, see Table 1.

		UoN	JKUAT	KU
1.	Does your repository have a digital preservation policy?	✓	✓	✓
2.	If yes, does the repository adhere to it?	Deviations noted: Content not defined in the policy was ingested into the repository as well as file formats not defined in policy	Deviations noted: Content not defined in the policy was ingested into the repository as well as file formats not defined in policy	Deviations noted Content not defined in the policy was ingested into the repository as well as file formats not defined in policy
3.	Is the intention of long-term preservation well-articulated in the policy?	✓	✓	✓
4.	How often is it revised and by whom?	Has not been revised	Has not been revised	Has not been revised
5.	Is the policy clear about the review cycle?	No specific timeline given	5 years	5 years
6.	Who is responsible for the policy?	University Open Access Committee reporting to Senate and the vice-chancellor	Office of the vice-chancellor	Office of the DVC Academic
7.	Does the policy address rights management issues in relation to digital preservation?	Yes: depositors to sign a depositor agreement	Yes: depositors required to sign a depositor agreement	Yes: depositors required to sign a depositor agreement
8.	If no to 1 above, do you plan to have a digital preservation policy?	N/A	N/A	N/A
9.	If yes, what is your timeline?	N/A	N/A	N/A

Table 1. Summary of responses on policy

Digital preservation plan

The research sought to find out whether the selected public universities had a digital preservation plan in place formalizing the preservation actions to be undertaken in support of their commitment to long-term preservation. There was a major challenge in evaluating this aspect as all the IRs being studied lacked digital preservation plans. However, some aspects of planning were established through various channels such as budgets and minutes of meetings. Respondents believed that whatever the plan should contain was already provided for by their open access plans, as indicated by the following statements:

> 'all the IRs being studied lacked digital preservation plans'

> 'The depositors' agreement allows us to copy or migrate resources when need be.' A – RA

> 'We have already committed ourselves to preserve the resources.' C – UL

All the same, respondents acknowledged the need for the development of a clear roadmap on how digital preservation was to be undertaken in order to ensure consistency and sustainability.

Replies to a question about whether any preservation actions were outsourced indicated that, due to the lack of a documented digital preservation plan, all preservation actions undertaken were done in-house. The respondents argued that the repositories were still establishing themselves and with time they may consider more complex preservation actions requiring external services.

Regarding finance, there was no budget set aside specifically for digital preservation. The institutional repository did not have its own budget but was included in the library budget. With limited budgetary allocations to public universities in Kenya, the lack of a budget for the IRs, and by extension digital preservation, could prove detrimental to the IRs' goal to provide access to the resources under their care. Digital preservation is a resource-intensive activity that requires money for personnel, media and other technologies. Respondents agreed that the implications of poor financing were catching up with them. For example, CDs deposited by postgraduate students with copies of their thesis and dissertations were dumped in a room with neither organization nor concern for their vulnerability to the elements due to a lack of storage equipment.

> 'there was no budget set aside specifically for digital preservation'

There were no documented plans for technology sustainability and technology monitoring, although respondents maintained that the activities were carried out. Lacking documented evidence, the evaluation could not ascertain whether this was true or not. Plans outlining procedures and responsibilities for technology monitoring are needed to ensure that the different aspects of technology affecting digital objects are not ignored. Being machine dependent makes accessibility of the digital object vulnerable due to hardware, software and format obsolescence. Selection of repository platforms that support digital preservation was done by benchmarking from IRs all over the world. All three IRs studied had adopted the dSPACE platform, which they acknowledged was good enough for them. It was also noted that the lack of planning limited the use of dSPACE's preservation tools, such as checksum, that none of the IRs had performed so far.

Plans for skills development were contained in the overall library personnel development plans that assumed a generalized view and which, in essence, failed to identify skills specific to digital preservation. Repository staff attended seminars and workshops, but these were on the aspects of populating the repository, managing copyright, developing open access polices but none, so far, on digital preservation. Statements like:

> 'Currently, we are under pressure to increase the content in the IR to improve our ranking in the next webometrics ranking.' B – DUL

> 'Last time we dropped in the rankings and the VC is on our necks. For now, we are working on numbers.' A– RA

> 'these findings indicate that any digital preservation activity undertaken was being done in a haphazard manner'

indicated that the although the IRs' open access policies indicated commitment to preserve, their main focus at the time of the research was to grow their collections.

Deductions from these findings indicate that any digital preservation activity undertaken was being done in a haphazard manner, with no plans to guide them, see Table 2.

Discussion of findings

Ismail and Affandy[48] described policy development as one of the most vital digital preservation strategies, as it stipulated what needed to be preserved as well as guiding decision-making for digital preservation. The digital preservation policies of the IRs studied were inadequate since they were not comprehensive enough for fully active digital preservation programmes. Da Silva and Borges,[49] in a study within Brazilian IRs noted similar cases where repositories committed to long-term preservation but failed to have

		UoN	JKUAT	KU
1.	Does the repository have a digital preservation plan?	No	No	No
2.	If yes, does it spell out the responsibilities for preservation?	N/A	N/A	N/A
3.	Is the preservation done in-house or the services are outsourced	In-house	In-house	In-house
4.	Does the plan provide for financial sustainability?	There is no specific plan for the IR. Budgeting done overall for the library	There is no specific plan for the IR. Budgeting done overall for the library	There is no specific plan for the IR. Budgeting done overall for the library
5.	Does the budget have a vote dedicated to digital preservation?	No	No	No
6.	Does the plan provide for technology sustainability and technology monitoring?	Although there is no plan, technology monitoring is done though no documentation to support this	Although there is no plan, technology monitoring is done though no documentation to support this	Although there is no plan, technology monitoring is done though no documentation to support this
7.	Does the plan provide for skills development?	No plan but staff attend seminars though not on digital preservation	No plan but staff attend seminars though not on digital preservation	No plan but staff attend seminars though not on digital preservation
8.	Are there mechanisms in place to change the preservation plan, as user needs and technology needs change?	N/A since there is no plan	N/A since there is no plan	N/A since there is no plan

Table 2. Summary of responses on digital preservation plan

programmes to guide this commitment. Policy statements set clear priorities, and ensure stakeholder collaborations, by making it the responsibility of the organization to safeguard its digital resources for future generations while ensuring organizational roles and (funding) responsibilities. Ismail and Affandy,[50] citing the National archives of Georgia (2007), recommend the inclusion of collaborations and partnerships as part of digital preservation strategies in several areas, such as working with government agencies to develop legislation and procedures and in developing policies that support long-term preservation with creators and users. The consequences of missing or inadequate policies exposed the IRs to poor strategic planning and in consequence poor funding.[51]

The research indicated that, although the policies were almost a decade old, none of the IRs had revised them. It was also noted that one IR policy did not give a clearly defined review cycle. This was attributed to uncertainties of IR implementation and fear of failure. Although the literature advocates for the specific digital preservation review cycle to reflect the current state of affairs, such as technological changes,[52] the actual period is left to the discretion of the digital repository concerned.

There are no clearly defined roles and responsibilities for digital preservation in all cases under study. The lack of comprehensive digital preservation policies has been identified as a major challenge among institutional repositories as reported by Roy et al.[53] who, in their study among repositories within the Confederation of Open Access Repositories (COAR), found that most of the repositories lacked a formal digital preservation policy. A comprehensive digital preservation policy facilitates active preservation of digital objects throughout their life cycle.[54]

Policies under study were found to be strong on the aspect of rights management. Depositors were required to sign deposit agreements provided in the open access policy appendix granting repository staff permission to store, copy and format or manipulate the materials. The ISO 14721:2012, OAIS reference model requires that digital repositories negotiate for their content with the creators. Hoeren et al.[55] argued that the exclusive rights given by copyright such as the right to copy and the right to alter or modify were crucial to digital preservation. This underpins the need for IRs to negotiate for the right to undertake preservation actions without permissions from the creators.

Digital preservation plans define and document the vision and strategy for long-term digital preservation as well as all the important definitions that will make the implementation of the digital preservation policy accurate and complete.[56]

None of the IRs studied had a documented preservation plan. The lack of a plan stemmed from a lack of a comprehensive digital preservation policy. Corrado and Sandy[57] described digital preservation policies as high-level, reflecting the organization's mission and useful in developing action plans and best practices. Dressler[58] acknowledges the interrelationship between them and digital preservation plans by noting that having meaningful, intelligent policy, without the strategy and action to support it is merely a document with no actionable function and, on the other hand, action without strategy or policy lacks documentation to help understand the concept. The findings indicate a general lack of awareness of preservation planning which, according to the International Records Management Trust,[59] resulted in failure by stakeholders within organizations to include digital preservation in their planning processes.

> 'The findings indicate a general lack of awareness of preservation planning'

It was also evident that were no formal financial plans and budgets for the digital preservation programme as the finances were lumped together with the whole library. ARMA[60] recognizes the importance of financial sustainability by arguing that long-term digital preservation is expensive, not only due to the infrastructure required but also the funds for staffing and monitoring changes in technology, and therefore an institution committed to digital preservation must be able to demonstrate long-term financial viability. Finance has been identified as one of the major risks affecting digital preservation due to uncertainty about funding sources and the lack of stable long-term funding.[61]

The study found the IRs had currently invested in hardware and software, with all three IRs utilizing the dSPACE platform. Rosa et al.,[62] described dSPACE as software created with digital preservation in mind that allows repositories to perform all the functions outlined in the OAIS reference model. dSPACE as an IR platform provides repository administrators with tools to monitor 'bit rot' as the software provides a checksum functionality,[63] but none of the IRs had utilized this function. On the other hand, preservation experts view dSPACE unfavourably because of its failure to support versioning that may result from article publishing and its failure to implement metadata standards like PREMIS.[64] Mukherjee and Das felt that, although its use of Dublin Core™ Metadata schema is inadequate, it is flexible and can be customized to accommodate more comprehensive metadata schemas.

Although the IRs had good technology infrastructure, they fell short on technology planning, however, as they all lacked a policy and plan that stipulated future directions for maintenance and replacement of the technology. McGovern and McKay[65] acknowledged that technology planning was critical in digital preservation as it assisted organizations to anticipate needs as well as plan for infrastructure with the full support of top-level management. Major activities critical to digital preservation, such as monitoring changes in technology indicating danger of obsolescence, are overlooked because of poor technology planning.

> 'There were no specific strategies for skills development in relation to digital preservation'

There were no specific strategies for skills development in relation to digital preservation, but rather formed part of the overall library personnel development plans. Repository staff attended seminars and workshops mostly on open access and licensing, but none related

to digital preservation. This is in agreement with Engelhardt,[66] who states that little was being done to equip staff with digital preservation skills although it was highly technical and complex. There have been recommendations for libraries to invest in skills development and upskill the IR staff through workshops and seminars[67] as well as through information exchange[68] so that IRs can meet this need.

Conclusion

Preservation policies and plans enhance IR capabilities to preserve digital resources in their care. The study concluded that although IRs within public universities in Kenya indicate willingness to provide long-term access to their resources, their actions spoke otherwise. Lack of institutional mandates for digital preservation increased the vulnerability of open access resources and led to inadequate digital preservation policies, which consequentially resulted in minimal or no digital preservation planning. Strong digital preservation policies are required to create a conducive environment for digital resources. Digital preservation is expensive and as such, the development of selection policies was identified as being critical for successful digital preservation since it identifies digital objects that could be preserved long term. Successful digital preservation ought to be guided by comprehensive policies outlining their scope and aim, content and formats as well as authority for staff to carry out digital preservation activities.

> 'Successful digital preservation ought to be guided by comprehensive policies'

Recommendations

The repository management in Kenyan universities should evaluate the whole concept of the institutional repository by identifying and defining their goals, after which a policy framework should be developed. The policy should support the goal identified and should be able to state whether the repository will do short-, medium- or long-term preservation. Digital preservation policy development should be a multi-stakeholder activity with the involvement of archivists, information technologists, librarians and university management. Comprehensive acquisition and selection policies should be developed and linked to the overall mission and vision of the universities so that they can be formalized and be part of any strategic plans the universities undertake.

> 'Digital preservation policy development should be a multi-stakeholder activity'

There is need to incorporate digital preservation in the universities' overall strategic plans. This would ensure proper budgeting. Problems like lack of digital preservation skill development opportunities that arise due to lack of plans would be eliminated. Good policies without plans are bound to fail as plans outline the actions needed to actualize the digital preservation policy.

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