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RESEARCH ARTICLE

The Role of Institutional Factors on the Sustainability of Institutional Repositories in Selected Kenyan University Libraries

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ABSTRACT

The study aimed to investigate the role of institutional factors on the sustainability of institutional repositories (IRs) in Kenyan university libraries and propose strategies to improve their sustainability. A positivist approach was employed, using quantitative methodologies with a complement of qualitative elements. The study used a cross-sectional research survey design. Respondents included librarians, postgraduate students, teaching staff, and representatives from research offices from 48 accredited Kenyan universities. Data were collected from six highly ranked universities (University of Nairobi, Kenyatta University, Jomo Kenyatta University of Science and Technology, Egerton University, Strathmore University, and Moi University) using questionnaires, semi-structured phone interviews, and document analysis. Quantitative data was analyzed using Statistical Product and Service Solutions and Excel, while qualitative data underwent thematic analysis. The findings indicated that institutional sustainability factors played a crucial role in the sustainability of IRs. Institutional factors, such as low awareness of IR policy frameworks, lack of management support, lack of stakeholders' involvement, and inadequate technological know-how among IR librarians influenced the sustainability of IRs. To enhance the sustainability of IRs in Kenyan university libraries, the study recommended that university libraries should establish and publicize IR frameworks. Further, all stakeholders should be involved during the formulation of IR policies. The study also recommended that University libraries should seek management support and recruit/train IR staff with the necessary skills to run all the activities of an IR.

Keywords: sustainability, institutional repositories, open access, sustainability of institutional repositories, social sustainability factors, technological sustainability factors, financial sustainability factors, institutional sustainability factors, university libraries, Kenya

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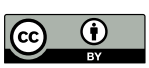

IMPLICATIONS FOR PRACTICE

1) The study helps universities develop better policies to support and sustain their institutional repositories (IRs).
2) It provides insights that help libraries manage their IRs more effectively and ensure their long-term sustainability.
3) It sets a foundation for further research on how institutional factors affect the sustainability of IRs, especially in African universities.
4) By supporting sustainable IRs, the study helps boost the visibility and impact of research produced by universities.

INTRODUCTION

Universities in developing countries are faced with the challenge of accessing scholarly information to support their research and teaching mandate (Ammarukleart, 2017; Saini, 2022). The increased cost of academic publications like books and journals, the significant growth in the overall volume of research, and the long latency in the traditional print publications paradigm have affected research and teaching in institutions of higher learning (Ukwoma & Dike, 2017; Saini, 2018). As such, institutional repositories (IRs) are developing as vehicles to possibly support universities achieve their roles (Jain et al., 2016; Wesolek, 2016). An IR is defined as a digital archive of intellectual output created by the faculty, research, staff, and students of an institution of higher learning and accessible to end users both within and outside of the institution with few, if any, barriers to access (Lynch, 2003; Demetres et al., 2020). Institutional repositories (IRs) are becoming more and more important for scholars to communicate their work, for universities to be recognized, for managing information, and for storing knowledge (Ananene et al., 2017; Kakai, 2018). IRs have made it easier to access research work that has not been published. This includes reports, theses, papers, and other documents presented at seminars and conferences (Ukwoma & Dike, 2017; Kakai, 2018; Nunda & Elia, 2019; Kodua-Ntim, 2020). Despite an increase in the adoption of IRs globally, there is a growing concern regarding the sustainability of Open Access Institutional repositories (OAIRs) (Burns et al., 2013; Nkiko et al., 2014; Francke et al., 2017). Like all new ICT-driven innovations, maintenance and running costs, perceptions or attitudes towards change or innovations, ICT infrastructure, content quality, institutional policies, copyright, and skill sets or competencies of personnel have been identified as critical to the sustenance of IRs (Corletey, 2011; Thompson et al., 2016; Martin-Yeboah et al., 2018; Anyaoku et al., 2019). Addressing these factors offers academic institutions the opportunity to contribute effectively to the scholarly communication process and the country's socio-economic

development, especially in this current information and knowledge economy, where access to information has been identified to be critical to societal development and growth.

LITERATURE REVIEW

Social factors and sustainability of IRs

Institutional sustainability factors refer to factors connected to the university's guidelines and actions that the library cannot control but have a direct impact on the development and implementation of IRs (Wyk & Mostert, 2016). Institutional sustainability can also be called organizational sustainability and relies on how a project is governed in terms of guidelines, independent procedures, leadership styles, internal relationships and practices, and cooperation with external bodies (da Costa, 2012). Institutional factors include policy frameworks, management support, stakeholders' involvement, and IR staff skills.

Stakeholders' involvement

The stakeholder's role is an essential process in ensuring not only the implementation of ICT infrastructure but also the design and development as well as sustaining new ICT-based projects (Aklilu et al., 2020). Repository sustainability mandates that all university stakeholders should be involved in every step of the development and implementation of the IR (Martin-Yeboah, 2018) In a study of two private and two public universities in Ghana, Martin-Yeboah et al. (2018) found that IRs tended to be sustainable when there was acceptance from every group of stakeholders during the initiation, development, and implementation of IRs in a collaborative manner.

Lack of management support

Management support promotes the sustainability of an IR (Njagi & Namande, 2018). IR management support is a collective activity carried out by all staff working in an institution to ensure the preservation and long-term access of electronic publications deposited in IRs (Mensah, 2015).

A sustainable IR relies on how dedicated the top administrators are in terms of planning, development, execution, and adoption of IRs (Chowdhury, 2014). In addition, commitment and support of IR projects influence the organization's efficiency in changing information technology (IT) investments into beneficial outputs, as management promotes sufficient and timely allocation of resources. Best and Kumar (2006) also note that ICT projects collapse due to non-committal and lack of effective collective management. Best and Kumar

(2006) give an example of the SARI project that failed because two managers were relocated, and the incoming managers did not sustain the commitment and determination held by the former managers. Best and Kumar (2006) advise that initiatives should be institutionalized rather than relying on a person's inspiration.

Technical expertise

Bhatti (2017) notes that for one to be a digital library expert, he or she should be able to manage a digital library infrastructure, formulate digitization guidelines and standards, prepare budgets, oversee human resources, offer information literacy skills, and use electronic skills to back up digital content. Sánchez-Alonso (2017) adds that it is necessary to educate indexers on how to enter data in the IR, the application of controlled vocabulary, and Library of Congress subject headings. Kavishe and Dulle (2016) concur that technical digital preservation competencies are required for librarians handling digital information; nevertheless, these needs appear to be lacking among personnel whose job scope is confined to dealing with digital content preservation. Salau and Oyedum (2019) in their study noted that inadequately skilled staff to handle repositories contributed to unsustainable IRS. The researchers observed that some repositories are handled by IT departments and that at certain universities, library employees had no influence in establishing or even managing the repositories.

Policy frameworks

Clear IR guidelines and management matters are important in the functioning and sustainability of IRs because they dictate the kind of publication to be deposited, preserved, and removed from IRs (Lagzian et al., 2015; Kakai, 2018). Kakai (2018) opines that IR policies should be developed using a top-down approach where government and funding bodies are involved in the development of IR policies.

Almost all libraries have come up with detailed policies but lack standalone, detailed IR policies that guide the access of content in the IRs (da Silva & Manuel Borges, 2017). Adeyemi et. al (2017) lament that most repository policies in Africa have metadata reuse policies, full data item policies, content policies, submission policies, and preservation policies that are explicitly undefined.

METHODOLOGY

The study was based on the positivist paradigm, utilizing the quantitative approaches. However, qualitative approaches were incorporated to complement data collected through quantitative approaches. The study employed a cross-sectional survey design.

Electronic questionnaires were used to collect data from academic staff and postgraduate students, whereas semi-structured questions were used to collect data from librarians in charge and representatives of the research directorate. Six universities that were highly ranked in the Webometric ranking were purposely selected. Webometrics ranking takes into consideration the quality and quantity of scholarly publications present on universities' websites and IRs (Cybermetrics lab, 2020). University of Nairobi, Kenyatta University, Moi University, Jomo Kenyatta University of Science and Technology, Egerton University, and Strathmore University were chosen in order of their 2020 Webometrics rating. Further to the criteria above, the universities selected had functional IRs, offered postgraduate courses, and had been functional as institutions of higher learning for more than ten years.

Sampling for postgraduate students and teaching staff was guided by the table for determining sample size in Saunders et al. (2015) based on a 5% error margin. Random sampling was used to select members of the teaching staff and postgraduate students from each university who would participate in the study, and sample sizes were calculated based on the population of each university. Teaching staff and postgraduate students were considered appropriate for this study since they are the main actors in creating and consuming scholarly content. Due to their small numbers, census sampling was used to obtain data from librarians-in-charge representatives from the Directorate of Research. These were considered key informants for the current study since they are directly involved with facilitating and managing research and scholarly communication at the different universities.

The data collection instruments were piloted to verify their usefulness and performance in the actual data collection.

Quantitative data was analyzed using the Statistical Product and Service Solutions version 27. Microsoft Excel version 2019 was also used to carry out descriptive analysis. Descriptive statistics were run on the data to generate frequencies, mean, and standard deviation. Data collected from the interview sessions, together with data collected from documents, were analyzed by means of the thematic analysis method.

RESULTS

Existence of the IR policy framework

The researcher sought to establish the existence of IR policy frameworks in the universities under study. All 6 (100%) librarians reported having an IR policy framework. These results were corroborated by the presence of IR policy frameworks on the universities' library web

page. As a follow-up, the researcher studied the IR policy frameworks from the universities under study and found that all universities had the following policies included in their IR policy frameworks.

i) Submission policies—determine who may publish in the IR, the kind of items they can publish, as well as the format.
ii) Collection policies—guides on the focus on the discipline and the type of materials to be deposited, e.g., thesis and dissertations, journal articles, books, book chapters, etc.
iii) Preservation policies—spell out the period the IR seeks to archive the deposits and in what formats.
iv) Usage policies—states what end-users can do with repository metadata and content, and how publishers' restrictions and embargoes are treated.
v) Selection, Retention, Replacement, and Withdrawal policies that outline the selection procedures for deposits and when deposits can be replaced or withdrawn from the IR.

Awareness of the IR policies

The researcher, through the questionnaire, asked postgraduate students and teaching staff if they were aware of any IR policies and the kind of policies they were aware of. The findings are demonstrated in Table 1.

Results from Table 1 indicate that very few 15 (4%) postgraduate students and 34 (10%) teaching staff were aware of the IR policy frameworks available.

For those respondents who answered positively about being aware of the IR policy, they were further asked to indicate the kind of policies they were aware of. A majority, 13 (87%) of postgraduate students and 33(97%) of teaching staff indicated that they were aware of the submission policy. These respondents were assumed to have interacted with the submission policy as they had presented their work for depositing in their university IRs. Few postgraduate students were aware of the content policy (4; 27%), preservation policy (2; 21%), usage policy (3; 20%), and selection, retention, and withdrawal policy (2; 13%). Almost half (14; 41%) of the teaching staff indicated having knowledge about the content policy, while (4; 27%) had knowledge about the preservation policy (7; 21%), usage policy (11; 32%), and selection, retention, and withdrawal policy (6; 18%).

	Respondent	Response	Frequency (n)	Percentage (%)
Are you aware of any IR policy?	Postgraduate student $n = 334$	Yes	15	4
		No	319	96
		Total	***334***	***100***
	Teaching staff $N = 329$	Yes	34	10
		No	295	90
		Total	***329***	100
Which policy are you familiar with?	Postgraduate student $n = 15$	Content policy	4	27
		Submission policy	13	87
		Preservation policy	2	13
		Usage policy	3	20
		Selection, retention, and withdrawal policy	2	13
	Teaching staff $N = 34$	Content policy	14	41
		Submission policy	33	97
		Preservation policy	7	21
		Usage policy	11	32
		Selection, retention, and withdrawal policy	6	18

N/B: Multiple responses possible.
Source: Field data, 2022.
Table 1. Awareness of IR policy by postgraduate students and teaching staff

Involvement in the formulation of the policies

The respondents were further asked to indicate if they were involved in the formulation of the policies at any stage. The results are indicated in Table 2.

	Respondent	Response	Frequency (n)	Percentage (%)
Were you involved in the formulation of the policies?	Postgraduate student $n = 334$	Yes	0	0
		No	334	100
		Total	***334***	***100***
	Teaching staff $N = 329$	Yes	2	1
		No	327	99
		Total	***329***	***100***

Source: Field data, 2022.
Table 2. Involvement in the formulation of the policies

No (0%) postgraduate students indicated that they had taken part in the formulation of the policy, while 2 (1%) of the teaching staff noted that they had participated in the formulation of the policy. The teaching staff were assumed to be heads of departments or deans of schools. A chi-square test was done to establish whether respondent designation and policy formulation involvement were dependent. The results revealed a non-statistically significant association between the two variables at a 5% significance level ($\chi 2$ (1) = 2.037, P = 0.154) as shown in Table 3.

		Statistic	Were you involved in the formulation of the policies?		Total
			No	Yes	
Designation	Postgraduate student	*N*	334	0	334
		%	100.00%	0.00%	100.00%
	Teaching staff	*N*	327	2	329
		%	99.40%	0.60%	100.00%
Total		*N*	661	2	663
		%	99.70%	0.30%	100.00%

Note: N = 663; Percentages are column percentages (within designation); Chi-square (1) = 2.037, P = 0.154
Source: Field data, 2022.

Table 3. Crosstabulation: Designation and policy formulation involvement

Stakeholders involvement

The involvement of stakeholders is critical in assuring not only the deployment of ICT infrastructure but also the design, development, and sustainability of new ICT-based initiatives (Aklilu, 2020). Sustainability mandates that all university stakeholders be included in all stages of IR creation and implementation (Martin-Yeboah, 2018).

Major IR stakeholders

During interview sessions with librarians, the researcher probed to know who the major stakeholders of IRs were. Responses from librarians are summarized in Table 4 below.

Results in Table 4 above show that all 6 (100%) involved university senior management, library staff, academic staff, staff ICT staff, research directorate, and students. The majority of 4 (67%) of the libraries also involved the office of quality assurance and the finance officer. A few (2; 33%) libraries involved the marketing department, the public relations officer, and other support staff.

Stakeholder	University							
	A	B	C	D	E	F	f	(%)
University senior management	Yes	Yes	Yes	Yes	Yes	Yes	6	100
Library staff	Yes	Yes	Yes	Yes	Yes	Yes	6	100
Academic staff	Yes	Yes	Yes	Yes	Yes	Yes	6	100
ICT staff	Yes	Yes	Yes	Yes	Yes	Yes	6	100
Quality assurance officer	Yes	Yes	Yes	-	-	Yes	4	66
Directorate of research	Yes	Yes	Yes	Yes	Yes	Yes	6	100
Marketing department	-	-	Yes	-	Yes	-	2	33
Public relations officer	-	Yes	-	-	-	Yes	2	33
Finance officer	Yes	-	Yes	Yes	-	Yes	4	67
Other support staff	-	-	-	Yes	-	Yes	2	33
Students	Yes	Yes	Yes	Yes	Yes	Yes	6	100

N/B: Multiple responses possible.
Source: Field data, 2022.
Table 4. IR stakeholders involved

Role of stakeholders in the management and running of IR

As a follow-up question, the researcher asked the librarians to indicate the role of stakeholders in the management and running of their IRs. The responses were as follows:

- Contributing content
- Searching, discovering, and using content
- Funding IR activities
- Staffing
- Controlling the quality of content
- Advocacy
- Approving policies

Skilled IR staff

The staffing needs of a repository differ widely across organizations, based on the repository's mission and current and accessible resources. The technical abilities required will vary based on the hardware platform, operating system, and repository platform used (JISC infoNet, 2013).

Level of skills possessed by IR librarians

The study sought to investigate whether the IR librarians possessed the required expertise to run and maintain an IR. On a Likert scale, IR librarians were requested to rate their degree of IR expertise.

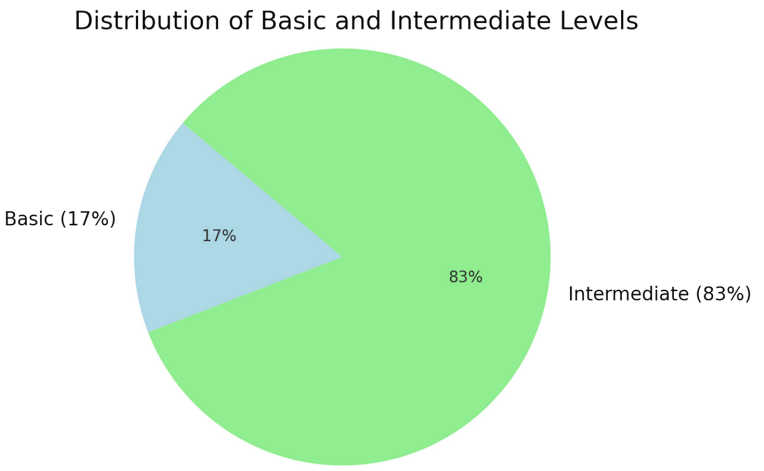

Figure 1. Level of IR skills (Source: Field data, 2022)

As demonstrated in Figure 1, the majority of 5 (83%) of the IR librarians rated their IR skills as intermediate, while the minority (1; 17%) stated that they had basic skills. No IR librarian reported having expert skills. To gain more understanding, the researcher asked the IR librarians to state the skills that they possessed that enabled them to run and maintain their IR. Figure 2 shows the specific IR skills possessed by IR librarians.

A follow-up question on the skills possessed by librarians was asked. The results in Figure 2 show that all (6; 100%) IR librarians had IR management skills. On the other hand, more than half (4; 67%) of the responding IR librarians indicated that they lacked the necessary technical skills required to handle and manage the IR. Only two (33%) IR librarians reported having software management skills.

Areas for IR skills training

The duties of a repository manager and administrator, like any occupation, will require some training, based on one's background and experience. The researcher asked the IR librarians to indicate areas they wished to receive training in to effectively manage their IRs. Table 5 shows areas that were identified.

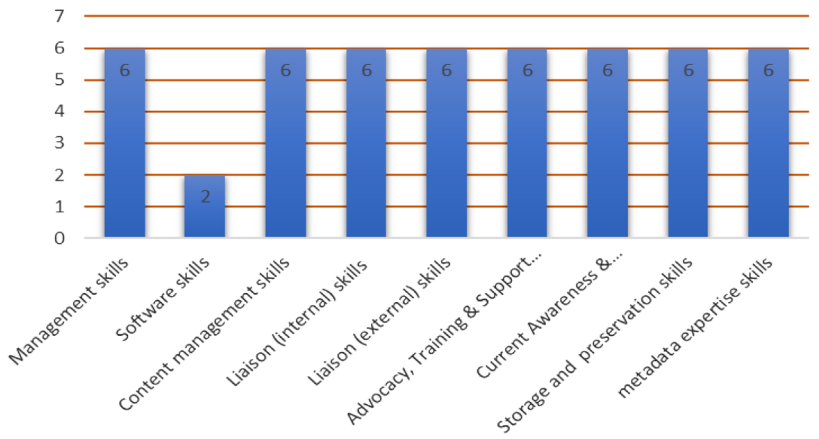

Figure 2. Skills possessed by IR librarians (Source: Field data, 2022)

No.	Area of Training
1	HTML (HyperText Markup Language)
2	Web page design
3	CSS (Cascading Style Sheets)
4	SQL (Structured Query Language)
5	Intellectual Property Rights
6	Licensing
7	Copyright clearance

Source: Field data, 2022.

Table 5. Suggested areas of training

A simple regression model was used to predict the sustainability of IRs based on institutional factors. A statistically significant regression equation was found at a 1% significance level ($F\ [2,\ 535] = 389.735$, $P < 0.01$) as shown in Table 7. Keeping other factors constant, institutional factors were established to account for 42.1% of the sustainability of IRs among university libraries in Kenya (R-squared = 0.421 as shown in Table 6).

R	R Square	Adjusted R Square	Std. Error of the Estimate
.649[a]	0.421	0.42	0.57293

[a] Predictors: (Constant), Institutional Sustainability.

Source: Field data, 2022.

Table 6. Model summary

	Sum of Squares	df	Mean Square	F	Sig.
Regression	127.931	1	127.931	389.735	.000[a]
Residual	175.615	535	0.328		
Total	303.546	536			

[a]Predictors: (Constant), Institutional Sustainability.
Source: Field data, 2022.
Table 7. ANOVA Table

Institutional factors were therefore established to significantly contribute to the sustainability of IRs among university libraries in Kenya at a 1% significance level ($\beta = 0.785$, $t = 19.742$, $p < 0.01$) as shown in Table 8. The findings imply stakeholders' involvement in policy formulation, management support of IRs, and staff competency in IRs enhance the sustainability of IRs among university libraries in Kenya.

	Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
	B	Std. Error	Beta		
(Constant)	**0.83**	**0.152**		**5.468**	**0.000**
Institutional Sustainability	**0.785**	**0.04**	**0.649**	**19.742**	**0.000**

Source: Field data, 2022.
Table 8. Table of coefficients

DISCUSSION OF FINDINGS

Existence and awareness of IR policies

All the (6; 100%) librarians reported having an IR policy framework. These results were corroborated by the presence of IR policy frameworks on the universities' library web page. Findings reveal that university libraries are structured institutions whose businesses are conducted under laid-down guidelines/policies. The initial stage in establishing IRs is to establish content policies, self-archiving procedures, individualized services for consumers, and the implementation of appropriate procedures. This ultimately results in the development of 'best practices' to ensure the repository's successful and broad usage by each member of academia. Similarly, by implementing OA policies, Europe and other wealthy nations have created effective repositories. For IRs to remain sustainable, library supervisors must disseminate information about the IR policy and provide instructions for its execution to educate all parties involved on the policies, procedures, and practices surrounding IRs.

Despite the availability of IR policy frameworks, this study, however, established that very few postgraduate students and teaching staff were aware of the IR policy frameworks available. Poor depositing patterns and low utilization rates of IRs by respondents might be attributable to respondents' ignorance of the IR policies. An IR policy may be considered an enabling condition that can favorably affect the use and acceptance of repositories (Daoutis & Rodriguez-Marquez, 2018). These findings are similar to a study by Tapfuma (2016), research indicated that while some institutions in Zimbabwe had OA policies, they were neither easily accessible nor publicly available digitally for researchers to consult. In addition, according to the study, neither of the rules required researchers to post their academic articles on the IR (Tapfuma, 2016). Consequently, content recruiting at these universities was much lower.

The scholarly communication process involves the following stakeholders: individual intellectuals and researchers, educational organizations and librarians, academic and scientific society publishers, profit-making publishers, state bodies, etc. (Stezano, 2016; Ahmet, 2017). The respondents were further asked to indicate if they were involved in the formulation of the policies at any stage. No postgraduate student indicated having taken part in the formulation of the policy, while two of the teaching staff stated that they participated in the formulation of the policy. The teaching staff who responded positively to having been involved in policy formulation were assumed to be heads of departments or deans of schools. In a study of two private and two public universities in Ghana, Martin-Yeboah et al. (2018) found that IRs tended to be sustainable when there was acceptance from every group of stakeholders during the initiation, development, and implementation of IRs in a collaborative manner.

IRs can be sustained through several strategic initiatives. Awareness campaigns are crucial to enhance the visibility and understanding of IR policies among postgraduate students and teaching staff. Universities should develop targeted sensitization programs, including workshops, seminars, and integration into faculty meetings to ensure comprehensive engagement. Additionally, IR policies should be made readily accessible through multiple platforms, including university websites, library portals, and printed materials, to reinforce their importance.

Management support

Projects that are approved and accepted by management gain management support in defining digital preservation strategies and acquiring resources such as staff and infrastructure for the IR (Corletey, 2011; da Silva and Manuel, 2017). All librarians felt that management was supportive. The majority of the university librarians felt that the management was supportive in the management and running of IRs, while a few librarians felt that management was very supportive.

The findings indicate that it can be challenging for users to utilize IR without proper resources, such as computer hardware and software. This is thus directly related to the distribution of funding to the university library for improved facilities and service delivery. Senior management enthusiasm and backing are regarded as the most significant components in IR project conception, development, execution, and acceptance. Furthermore, the institutions' ability to convert IT resources into valuable outputs is influenced by their commitment to and support for IR initiatives. As a result, top management must guarantee that the ongoing supply of resources is enough and prompt. The findings of this study align with findings from a study conducted by Wakaro (2018), which revealed that the majority (74.0%) rated the support given by university management as good, while 9.1% rated support by university management as poor.

Management support remains a vital component in ensuring the sustainability of IRs. Universities should allocate dedicated funding for digital preservation strategies, infrastructure enhancement, and the hiring of skilled staff to manage IRs effectively. Senior leadership must demonstrate commitment by integrating IR initiatives into the broader institutional strategic plan, ensuring that resources are consistently available for its growth and sustainability.

Stakeholders' involvement

The involvement of stakeholders is critical in guaranteeing not just the deployment of ICT infrastructure but also the design, development, and sustainability of new ICT-based initiatives (Aklilu, 2020). Repository sustainability mandates that all university stakeholders should be involved in every step of the development and implementation of the IR (Martin-Yeboah 2018).

During interview sessions with librarians, the researcher probed to know who the major stakeholders of IRs were. All six universities involved university senior management, library staff, academic staff, ICT staff, research directorate, and students. The majority of the libraries also involved the office of quality assurance and the finance officer. A few libraries involved the marketing department, the public relations officer, and other support staff. According to the findings, the institutions engaged all parties involved in IR issues by establishing a feeling of belonging in an attempt to guarantee the IR's sustainability. All universities formed IR groups or IR management panels, which included academics/scholars, the Pro-Vice Chancellor academic (management), librarians, and ICT workers in certain institutions. As a result of community participation in system development and execution, IR innovation becomes an "our" issue rather than a "their" issue. To enhance the efficacy of IR, Lynch (2003) urged for

partnership among librarians, information technologists, archives and records management, professors and university officials, and legislators.

In a study of two private and two public universities in Ghana, Martin-Yeboah et al. (2018) discovered that repositories are more likely to be sustainable when all stakeholders of a university are involved in the conception, development, and promotion of repositories collaboratively.

Stakeholder involvement plays a significant role in the long-term viability of IRs. Establishing collaborative committees comprising university senior management, library staff, academic faculty, ICT personnel, research directorates, and students can foster collective ownership and participation. Encouraging these stakeholders to contribute to policy formulation and decision-making processes will ensure that IRs meet the diverse needs of the academic community and promote a culture of inclusivity and shared responsibility.

IR staff skills

Digital abilities for handling digital collections, according to Khan and Bhatti (2017), include being able to handle electronic library infrastructure, establish standards and guidelines for digitization, budgeting, supervising workers, training patrons, familiarity with digital library assessment, and digital expertise for backing up electronic content. To effectively promote IRs, librarians must be conversant with the library repository (Katayoon & Abrizah, 2017).

No IR librarian reported having expert skills. To gain more understanding, the researcher asked the IR librarians to state the skills that they possessed that enabled them to run and maintain their IR. All six IR librarians had IR management skills. On the other hand, more than half of the IR librarians indicated that they lacked the necessary technical skills required to handle and manage the IR. Only two IR librarians reported having software management skills. Most libraries relied on personnel from the ICT department to manage the technical side of the repository, as the IR librarians managed the human side of the IR. The current financial crisis in universities with shrinking budgets due to the economic problems facing Kenya could explain why university libraries were unable to employ additional staff with the technical skills to run the IRs. Meanwhile, capacity development is required in technical skills for the library staff in charge of IRs, as the situation of constrained finances is not predictable when the financial status of universities improves.

However, different findings were recorded in a study by Boateng (2022), where the researcher inquired from respondents if they possessed the staff needed for the seamless creation and upkeep of IRs, and the analysis confirmed that the necessary staff was available for the creation

and ongoing operation of IRs. This outcome is consistent with research by Zervas et al. (2019) on the importance of personnel in the implementation of ORCiD in its systems.

Most of the training areas suggested by IR librarians point out ICT-related knowledge. This could explain why libraries relied on staff from the ICT department to manage the technical side of the repositories while the librarians managed the human side of the repositories. The results of this study agree with findings from a study by Anyaoku et al (2019), which revealed that over 50% of the responding institutions reported a shortage of technical employees with the essential expertise to operate and administer the IR.

Building the technical capacity of IR staff is another critical solution. Librarians and IR managers should undergo continuous professional development programs to enhance their digital skills, including software management, metadata curation, and open access publishing. Universities can organize specialized training sessions, collaborate with ICT departments, or seek external partnerships to bridge the technical skills gap. Establishing mentorship programs where experienced IR professionals guide newer staff can also strengthen institutional knowledge and sustainability.

A simple regression model was used to predict the sustainability of IRs based on institutional factors. A statistically significant regression equation was found at a 1% significance level ($F [2, 535] = 389.735$, $P < 0.01$) as shown in Table 7. Keeping other factors constant, institutional factors were established to account for 42.1% of the sustainability of IRs among university libraries in Kenya (R-squared = 0.421, as shown in Table 6). Institutional factors were therefore established to significantly contribute to the sustainability of IRs among university libraries in Kenya at a 1% significance level ($\beta = 0.785$, $t = 19.742$, $p < 0.01$) as shown in Table 8.

The findings imply that stakeholders' involvement in policy formulation, management support of IRs, and staff competency in IRs enhance the sustainability of IRs among university libraries in Kenya.

CONCLUSIONS AND RECOMMENDATIONS

The study revealed that universities in sub-Saharan Africa were implementing IRs but were far from achieving sustainability because a lot of emphasis was laid upon the development of the IRs without much consideration for their sustainability (Martin-Yeboah, 2018). Institutional factors that were identified to influence the sustainability of IRs included low awareness of IR policy frameworks, inadequate management support, and lack of sufficient technological know-how by IR librarians. Low levels of IR policy awareness were linked to the fact that

the major stakeholders were hardly involved during the formulation and revision of the policies. Lack of advocacy could have also contributed to the low levels of awareness.

Only two IR librarians reported having software management skills. It's important to have the right people working on an IR project from the start to create and keep it up to date. Skilled staff are important because they help library users trust the library and continue to rely on the library's services. This helps the library to keep going. Skilled librarians will choose the type of service provided by an established IR and how it will be viewed around the world.

The study's findings revealed that there was inadequate management support, unawareness of IR policy frameworks, low stakeholder involvement, and a lack of skilled IR staff. The study recommends that:

a) The IR must be run and maintained by staff who have technical skills, as opposed to ICT staff who may not be familiar with the facility.
b) University libraries should establish and publicize IR frameworks. Further, all stakeholders should be involved during the formulation of IR policies. An IR policy is necessary to set the rules for how a repository works. This plan helps with managing the repository on a daily basis and also looks toward future plans. (JISC infoNet, 2013).
c) University libraries should work together with the university management to get support from management.
d) There is a need to recruit/train IR staff to acquire the skills necessary to run and maintain an IR.

REFERENCES

Adeyemi, J. A., Appah, H. D., Akinlade, O. O., & Bribena, E. I. 2017. The Nigerian institutional repositories: Opportunities and barriers. *Academia Journal of Educational Research*, *5*(10), 297–305. Available at: https://academiapublishing.org/journals/ajer/pdf/2017/Oct/Adeyemi%20et%20al.pdf

Ahmet, T. A. M. 2017. Investigating factors that affect faculty attitudes towards participation in open access institutional repositories. https://doi.org/10.12794/metadc1062881

Aklilu, A., Lessa, L., & Negash, S. (2020). Understanding the role of stakeholders in fostering sustainability of ICT4D projects: Towards a conceptual framework. *AMCIS 2020 Proceedings*.

Ammarukleart, A. (2017). *Factors affecting faculty acceptance and use of institutional repositories in Thailand (Unpublished doctoral dissertation*, University of North Texas).

Ananene, E., Alegbeleye, G. B., & Oyewole, O. (2017). Factors contributing to the adoption of institutional repositories in universities in South West Nigeria: Perspectives of library staff. *Library Philosophy and Practice (e-journal)*. Available at: http://digitalcommons.unl.edu/libphilprac/1

Anyaoku, E. E. (2019). Digital preservation practices in university libraries: An investigation of institutional repositories in Africa. *Digital Library Perspectives*, *36*(1), 41–64.

Best, M., & Kumar, R. (2006). Impact and sustainability of e-government services in developing countries: Lessons learned from Tamil Nadu, India. *The Information Society*, *22*(1), 1–12.

Bhatti, R. (2017). Digital competencies for developing and managing digital libraries: An investigation from university librarians in Pakistan. *The Electronic Library*, *35*.

Boateng, P. (2022). Technology acceptance in higher education: Examining LMS adoption in Ghanaian universities. *Computers & Education, 181, Article 104478*. https://doi.org/10.1016/j.compedu.2022.104478

Burns, C. S., Lana, A., & Budd, J. M. (2013). Institutional repositories: Exploration of costs and value. *D-Lib Magazine*, *19*(1/2). https://doi.org/10.1045/january2013-burns

Chowdhury, G. (2014). Sustainability of digital libraries: a conceptual model and a research framework. *International Journal on Digital Libraries*, *14*(3–4), pp.181–195. https://doi.org/10.1007/s00799-014-0126-1

Corletey, A. (2011). Institutional repositories for open access: The Ghanaian experience. In *Proceedings of the 14th International Symposium on Electronic Theses and Dissertations*, Cape Town, South Africa.

Cybermetrics Lab. (2020). *Webometrics Ranking of World Universities*. [online] Madrid: Consejo Superior de Investigaciones Científicas (CSIC). Available at: https://www.webometrics.info/en/WORLD?order=University&page=1

Daoutis, C. A., & Rodriguez-Marquez, M. D. M. (2018). Library-mediated deposit: A gift to researchers or a curse on open access? Reflections from the case of Surrey. *Publications*, *6*(2), p. 20. Available at: https://doi.org/10.3390/publications6020020

da Costa, P. (2012). The growing pains of community radio in Africa: Emerging lessons towards sustainability. *Nordicom Review*, *33*, 135–147. https://doi.org/10.2478/nor-2013-0031

da Silva Júnior, L. P., & Manuel Borges, M. (2017). Digital preservation policies of the institutional repositories at Brazilian Federal Universities. *The Electronic Library*, *35*(2), 311–321. https://doi.org/10.1108/EL-09-2015-0170. https://doi.org/10.1108/EL-09-2015-0170

Demetres, M. R., Delgado, D., & Wright, D. N. (2020). The impact of institutional repositories: A systematic review. *Journal of Medical Library Association*, *108*(2), 177–184.

Francke, H., Gamalielsson, J., & Lundell, B. (2017). Institutional repositories as infrastructures for long-term preservation. *Information Research: An International Electronic Journal*, *22*. Available at: https://files.eric.ed.gov/fulltext/EJ1144764.pdf

Jain, P., Bentley, G., & Oladiran, M. T. (2016). The role of institutional repository in digital scholarly communications. Paper presented at *African Digital Scholarship & Curation Conference*, 12–14 May 2009, CSIR Conference Center, Pretoria, South Africa.

JISC infoNet. (2013). *Enhancing curriculum design with technology*. Newcastle upon Tyne: Northumbria University. Retrieved June 5, 2025, http://repository.jisc.ac.uk/5335/

Kakai, M. (2018). Open access institutional repositories in selected East African universities: Achievements, challenges and the way forward. Makerere University, Kampala. Retrieved 27 April. 2022, from https://www.scecsal.org/publications/papers2018/012%20_kakai_2018.pdf

Kamraninia, K. & Abrizah, A., (2017). Librarians' role as change agents for institutional repositories: A case of Malaysian academic libraries. *Malaysian Journal of Library & Information Science*, *15*(3), pp. 121–133. Retrieved June 5, 2025, from https://ajba.um.edu.my/index.php/MJLIS/article/view/6946

Kavishe, G. F., & Dulle, F. W. (2016). Preservation skills and strategies of electronic information resources in digital era: Case of University of Kwazulu-Natal libraries. *Library Philosophy and Practice*. https://digitalcommons.unl.edu/libphilprac/1451/

Khan, S., & Bhatti, R. (2017). Digital competencies for developing and managing digital libraries: An investigation from university librarians in Pakistan. *The Electronic Library*, *35*. https://doi.org/10.1108/EL-06-2016-0133

Kodua-Ntim, K. (2020). *Usage of open access institutional repositories in university libraries in Ghana (Doctoral dissertation*, University of South Africa).

Lagzian, F., Abrizah, A., & Wee, M. C. (2015). Critical success factors for institutional repositories implementation. *The Electronic Library*, *33*(2), 196–209. https://doi.org/10.1108/EL-04-2013-0058

Lynch, C. (2003). Institutional repositories: Essential infrastructure for scholarship in the digital age. Retrieved 3 May 2023, from https://www.cni.org/publications/cliffs-pubs/institutional-repositories-infrastructure-for-scholarship

Martin-Yeboah, E., Alemna, A. A., & Adjei, E. (2018). Scholarly communication via institutional repositories: A Ghanaian perspective. *Library Philosophy and Practice (e-journal)*, 2024. https://digitalcommons.unl.edu/libphilprac/

Mensah, M. (2015). Digital preservation in the context of institutional repositories in public universities' libraries in Ghana.

Njagi, P. R., & Namande, B. (2018). The status of the implementation of institutional repositories in selected newly established universities in Kenya. *Regional Journal of Information and Knowledge Management*, *3*(1), 30–40.

Nkiko, C., Bolu, C., & Michael-Onuoha (Ohaegbulam), H. (2014). Managing a sustainable institutional repository: The Covenant University experience.

Nunda, I., & Elia, E. (2018). Institutional repositories adoption and use in selected Tanzanian higher learning institutions. *International Journal of Education and Development Using ICT*, *15*(1), 150–164. https://doi.org/10.7238/ijedict.v15i1.2583

Saini, O. (2018). Understanding the role of institutional repository in digital preservation in academic libraries: A review of literature. *Library Philosophy and Practice, 2018*. https://digitalcommons.unl.edu/libphilprac/1774/

Saini, O. P. (2022). The emergence of institutional repositories: A conceptual understanding key issues through review of literature. *Library Philosophy and Practice*, *3*, 1–19. https://digitalcommons.unl.edu/libphilprac/1774/

Salau, S. A., & Oyedum, G. U. (2019). Sustainability challenges of electronic theses and dissertations in Nigerian institutional repositories. *Journal of Applied Information Science and Technology*, *12*(2). https://doi.org/10.1108/DLP-01-2020-0001

Sánchez-Alonso, S. (2017). Metadata and Quality in Digital Repositories and Libraries from 1995 to 2015: A Literature Analysis and Classification. *International Information & Library Review*, *49*(3), pp. 176–186. https://doi.org/10.1080/10572317.2016.1278194

Saunders, M., Lewis, P. and Thornhill, A. (2015). *Research methods for business students* (7th ed.). Pearson.

Stezano, L. (2016). A librarian's process for building an institutional repository. Available at: https://libraryconnect.elsevier.com/sites/default/files/ELS-LC_IR_process.pdf

Tapfuma, M. M. (2016). Utilisation of open access institutional repositories in Zimbabwe's public universities (Doctoral dissertation, University of KwaZulu).

Thompson, E. S., Akeriwe, M., & Achia, A. (2016). Communicating the value of an institutional repository: Experiences at Ghana's University for Development Studies. *New Review of Academic Librarianship*, *22*(2–3), 325–336. https://doi.org/10.1080/13614533.2016.1183135

Ukwoma, S. C., & Dike, V. W. (2017). Academics' attitudes toward the utilization of institutional repositories in Nigerian universities. *Portal: Libraries and the Academy*, *17*, 17–32. https://doi.org/10.1353/pla.2017.0002

Wakaro, R. N. (2018). *Assessing institutional repositories as enabler of research output in academic institutions in Kenya: The case of KCA University*. Nairobi: University of Nairobi. Available at: https://erepository.uonbi.ac.ke/handle/11295/105568

Wesolek, A. (Ed.). (2016). *Making institutional repositories work*. West Lafayette, Indiana: Purdue University Press. https://doi.org/10.26530/oapen_626981

Wyk, V., & Mostert, J. (2016). African institutional repositories as contributors to global information: A South African case study. https://doi.org/10.25159/0027-2639/1704

Zervas, M., Kounoudes, A., Artemi, P. & Giannoulakis, S., (2019). Next generation institutional repositories: The case of the CUT institutional repository KTISIS. *Procedia Computer Science*, *146*, pp. 84–93. Retrieved June 5, 2023, from https://www.sciencedirect.com/science/article/pii/S1877050919300882

APPENDIX 1: TEACHING STAFF AND POSTGRDUATE STUDENTS QUESTIONNAIRE

Instructions:

a) Please tick the applicable answers
b) Use spaces provided to write your answers to the questions.
c) Please do not leave blank spaces. If the question does not apply, please indicate "N/A"

An institutional repository is an electronic storage of the research work produced by the faculty members, researchers and students of an institution and disseminated online to all users globally with little or no restriction at all.

INSITUTIONAL FACTORS

Policies

1) Are you aware of any policies that govern the access and use of the IR?

- Yes [ ]
- No [ ]

2) Which policies are you familiar with that are in place? (Please tick all that apply).

- Content policy [ ]
- Submission policy [ ]
- Preservation policy [ ]
- Usage policy [ ]
- Selection, retention and withdrawal policy [ ]

3) Were you involved in the formulation of the policies?

- Yes [ ]
- No [ ]

4) If yes, at what stage were you involved?

- Formulation [ ]
- Implementation [ ]
- Revision [ ]
- Others (Please specify)

To what extent were you involved during the IR policy formulation?

Management support

5) How would you rate the support of management in facilitating the access and use of your IR?

- Very supportive [ ]
- Supportive [ ]
- Not supportive [ ]
- Lukewarm [ ]

6) In what ways does the management support your IR activities?

- Providing funds for research [ ]
- Providing technological equipment and facilities [ ]
- Favorable IR policies [ ]
- Others (Please specify)

7) In what other ways do you feel that the management should support your IR activities?

Stakeholders' involvement

8) Does the library and publishers liaise with you regarding the depositing of your content in the IR?

- Yes [ ]
- No [ ]

9) How would you describe the relationship between you and the stakeholders?

- Very supportive [ ]
- Supportive [ ]
- Not supportive [ ]

Skills

10) In your opinion, which skills do you possess that are necessary to access and use the IR?

- Computer literacy skills [ ]
- Information literacy skills [ ]

11) Which areas would you wish to be trained on to improve your skills?

(Please specify)