

LIBSENSE Survey on Open Access Repositories & Librarians' Roles - Ubuntunet Alliance Region

Final Report for the LIBSENSE Repository Workshop I

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EXECUTIVE SUMMARY

This report is the first in a set of three which will document the results of awareness-raising surveys about the institutional support and capabilities of higher education librarians to support the development and maintenance of open access repositories (OARs) in the three major regions of Africa in which regional research and education network (REN) organisations operate. This document reports on the results of the first survey which was undertaken in the Southern and Eastern African region where the Ubuntunet Alliance (UA) REN operates. The interim report of this survey (results as at 25th October 2018) formed part of the first LIBSENSE OAR workshop at the 2018 UA conference in Zanzibar and was discussed amongst the delegates there. This report updates the findings that were discussed in Zanzibar (up to 31st October 2018).

The survey was distributed to a targeted list of 338 information professionals in the region. 95 usable responses were finally analysed for inclusion in this report. Descriptive analysis of the demographics of the sample indicate a skew towards proportionally more respondents who were: from the *management* function of the library (74%); representative of relatively young working ages (26-35 [30%] and 36-45 [28%]); males (70%); educated to at least a Master's level (60%); more experienced (over 10 years [58%]) and located more in the Eastern African countries of the region than the Southern African ones (71%:28%).

The main highlights of the findings were:

1. The survey confirmed that the majority of the library *management* function respondents are appropriately making decisions regarding critical digital information management activity.
2. The survey revealed a lack of sufficient information about OA policy at the national level and lack of implementation of OA repositories at the national level.
3. While demonstrating adequacy of institutional activity in OAR development and operation, policy related to this activity seemed to lag behind.
4. Expectations of the library management function regarding decision-making towards information governance and infrastructural resource allocation was skewed towards the latter.
5. The vast majority of the responses indicated a lack of sufficient funding for management of digital information resources.
6. The majority of the respondents saw the higher education library's role as that of a "traditional" office manager, providing critical, necessary resources and support to the organisation. Few saw the library as truly innovative.
7. The survey confirmed a variety of digital resources are being managed within the surveyed institutions, with digital repositories having a high percentage of occurrence.
8. Digital skills and literacy training were highly represented but institutionally there was insufficient support for external expertise on digital skills and funding for digital repositories.
9. Regarding institutional support for OARs, this was proportionally low on all categories queried, with policy training being the lowest.
10. Regarding institutional support for the *technical* function, which would be the main function expected to support OAR development and maintenance, the main areas lacking were support for network and telecoms management, digital imaging and information architecture.
11. Training needs were better supported than in the *operational* function; however, the lack of external expertise was again highlighted as a problem.
12. Where institutional repositories exist, they are most likely to be built on Dspace software platforms and to be customised and maintained locally.

13. There is just enough support institutionally for the development of librarianship skills, but some improvement is needed in the level of awareness and access to training in open movement initiatives.
14. In open text responses, participants were mostly concerned with the development of their human and technical capabilities to deal with digital technology developments and with the extent to which their institutions supported them in developing this capability.
15. Although technology is identified as an issue to deal with, respondents see a number of other issues a pivotal to deciding how technology would influence change in their profession, e.g. power and politics.

A few potential areas for improvement will be explored further in the upcoming LIBSENSE workshops looking at ways in which RENs, NRENs and information professionals can collaborate to bring about sustainable change in this area. These are structured around the three main themes of:

- Institutional support for technical training and external expertise
- Institutional support for targeted training in open movement initiatives
- Awareness of and setting of policy targeting the development and maintenance of OARs.

INTRODUCTION

The OECD calls open science “the next frontier” in scientific communication¹, and we are seeing a widespread adoption of Open Science policies and practices in the research community around the world². Librarians (information or knowledge professionals) in higher education institutions around the world play a crucial role in providing access to information, which is often in digital format. Access to information underlies all of the United Nation’s sustainable development goals³ (SDGs) contributing to, especially “promoting more socially and economically inclusive societies” in the context of developing countries⁴. In fact, the role of libraries is often seen as a prerequisite to the success of Open Science initiatives⁵. For example, libraries often manage and provide access to the valuable content created through research, and librarians play an important liaison role bridging the gap between the local researcher and the infrastructure provider. Identifying appropriate information management skills and roles for librarians in this changing context is therefore an important enabler of the above. Identifying key institutional enablers to support such initiatives is also important given the historical context of failure of sustainable ICT initiatives to support development outcomes in lower middle income countries (LMICs).

Given this background, WACREN has commissioned a series of workshops under the LIBSENSE initiative in three key African regions in which Research and Education Networks operate, viz. Ubuntunet Alliance (UA) – Southern and Eastern Africa, WACREN – West and Central Africa and ASREN – Northern Africa. With assistance from the Confederation of Open Access Repositories⁶ (COAR) and Electronic Information for Libraries⁷ (EIFL), the workshops will convene library and NREN stakeholders to explore how open access repositories (OARs) can operate embedded in NREN e-infrastructure and provide a foundation for an innovative, open, distributed and networked resource for scholarly communication and open science in Africa.

This survey, led by researcher/academic, Dr Pamela Abbott, from the Information School, University of Sheffield, UK, forms part of these workshops by capturing a landscape view of librarians’ roles in managing/operating Open Access repositories in the particular region of interest. The results of these surveys and the discussions emerging from the workshops will, together, form the basis for a framework of key policy and capacity building actions and agreements on principles and requirements for federation of open access repositories across the African regions. The workshops will also produce a viable core of key institutional focal points in HEI institutions who will become the key influencers in open access repository creation, management and maintenance across these regions.

¹ For more information about the OECD’s outlook for Open Science, see <https://joinup.ec.europa.eu/news/oecd-sti-outlook-2016-open-s> and <http://www.oecd.org/sti/inno/open-science.htm>

² For more information on making Open Science policies a reality see <https://www.oecd-ilibrary.org/docserver/5jrs2f963zs1-en.pdf?expires=1546598449&id=id&accname=guest&checksum=816AFD0B66CFAE150F9B1A2C6B88BBB0>

³ See <https://www.un.org/sustainabledevelopment/> for a list of the 17 goals drawn up by the UN for implementation by 2030

⁴ For more information, read IFLA’s report on DA2I at <https://da2i.ifla.org/> and specifically the role played by libraries in attaining sustainable development - <https://da2i.ifla.org/sites/da2i.ifla.org/files/uploads/docs/da2i-2017-chapter2.pdf>

⁵ See e.g. <https://www.zbw-mediatalk.eu/2018/05/fostering-open-science-in-european-countries-the-crucial-role-of-libraries/>

⁶ COAR website: <https://www.coar-repositories.org/>

⁷ EIFL website: <http://www.eifl.net/>

SURVEY AIMS AND OBJECTIVES

Currently, according to OpenDOAR, there are 165 existing open access repositories in Africa⁸ and a search of the Registry of Open Access Repositories (ROAR) reveals 152⁹. To address a project of federating open access repositories (OARs) across the multiple African regions in which they operate, the identification of key capabilities and training needs for African HEI librarians is needed.

The survey aimed to produce a rounded picture of how higher education sector librarians view the enabling and constraining factors of their practice as information resource managers especially regarding the development, implementation and maintenance of OARs.

The survey thus sought to accomplish following objectives:

1. **Understand the evolving role of the library function** in contemporary African higher education institutions (HEIs). This will especially mean understanding the role of librarians vis-à-vis digital resources, especially open access repositories (OARs).
2. **Understand how institutions affecting the higher education sector support or constrain the roles of librarians**, especially where these are concerned with digital resource management and implementation. These institutions could include national librarian consortia/organisations within the sector directly supporting capacity-building initiatives etc.
3. **Determine how NRENs can work with librarians to support their roles**. This includes eliciting service requirements that librarians need to support their roles and other ways in which NRENs can support librarian groups.
4. **Gather demographic information** that would be useful in categorizing the librarian communities of practice in African regions so as to understand this evolving field better.

SURVEY DEVELOPMENT AND METHODOLOGY

The survey instrument was piloted during June/July 2017 to a community of higher education institution (HEI) librarians who were part of a WACREN email mailing list set up specifically to increase information sharing amongst the HEI librarian consortia in that region. The results of that survey were presented at the 2017 UA conference in Addis Ababa¹⁰. The pilot instrument broadly considered HEI librarians' digital skills and the institutional enablers and hindrances they were experiencing in evolving their roles, but without reference to any specific initiative. The pilot study revealed, among other findings, that: *"Technology is used mainly as a support to traditional roles, not as a creator of innovative practices"* and that *"more librarian involvement in Open movement initiatives would help to catalyse change"*.

Given the current focus on federated OARs across the African regions as a targeted initiative between NRENs and HEI libraries, the survey has been modified to specifically focus on the support librarians in their evolving roles could give to such an initiative with a view to identifying potential constraints and enablers within their work settings. Several stakeholders including EIFL, COAR and WACREN representatives were invited to help craft questions specific to OAR in an African HEI context. The survey was thus modified with the new focus and launched to the UA mailing lists on 1st October 2018. This final report provides the results of a download of information from the survey as of 31st October 2018.

⁸ From: http://v2.sherpa.ac.uk/view/repository_by_country/002.html

⁹ From: <http://roar.eprints.org/view/geoname/>

¹⁰ See the abstract for this presentation in - <https://events.ubuntunet.net/event/10/book-of-abstracts.pdf>

SAMPLE, PARTICPANTS & DISTRIBUTION

Participants in the survey were sourced by WACREN from library consortia contacts and open access country representatives in Southern and Eastern Africa which were part of EIFL's network of contacts in the area. Additional sources of contacts came from the African Library and Information Association and Institutions¹¹ (AfLIA) filtered for Southern and Eastern Africa and other librarians known to WACREN in the region who had been part of previous engagements. The sample were contacted via an e-mail invitation sent from WACREN's survey engine describing the survey, its intent, plans for the workshop etc. and other constraints as agreed by WACREN regarding the ethical collection and use of the data. A total of 338 email invitations were sent with 178 responses returned. Of these, 83 were incomplete, leaving 95 actual usable responses from the sample. This translates into an effective response rate of 28% for this region.

SURVEY CONSTRUCTION AND QUESTIONS

The final survey questionnaire contained 54 questions consisting of a mixture of closed and open types, split into 6 sections. Sections A to D related respectively to questions about the management, operational, specialist subject and technical library functions of an HEI.

The *Management* function targeted, for example, those with responsibility for any of the following: budgeting, staffing, policy development, planning, training, supervision, resource management, and similar roles. The *Operational* function was meant to be for those with responsibility for carrying out librarian functions such as providing support services for staff, procurement, building library collections and similar activities. The *Subject Specialist* function was aimed at those with responsibility for developing library collections in a specific subject area, providing support services for staff in that specific subject area and liaising with research and teaching staff in that specific subject area. The *Technical* function was meant to capture those who saw their roles as mainly supporting technical areas of the library's function. For example, those with responsibility for operating, maintaining and securing the infrastructure and applications supporting technical library services such as computer networks, storage, communication channels, information systems, digital collections, etc., would have been included in that category. The online version of the survey was designed as to allow only those who identified themselves with one or more of these functions to answer questions in their defined sections.

Section E of the survey posed questions about the sufficiency of the librarian's digital skills sets and the respondents' opinions about the evolving roles of the library and librarian. Section F captured the demographics of the sample including variables such as age range, gender, educational level, years' experience in the field, job designation, and country of origin of the institution. While the initial part of the survey concentrated on capturing data relevant to the functional areas of the library, the latter part concentrated more on the individual respondent.

ANALYSIS AND PRESENTATION OF RESULTS

The data were analysed by a team of data analysts from the University of Lagos, under the direction of the research associate on this project, Mrs Kokui Appiah, a Ghanaian research consultant contracted to WACREN for this purpose. The data were mostly nominal, consisting mainly of "Yes", "No", "Don't Know" and "N/A" categories and other categorical data, together with some open-ended qualitative responses. Descriptive statistics, including basic bivariate analyses were performed on the data by the data analysts and submitted to the research associate for further processing for accurate presentation. The qualitative data were similarly categorised and classified using typical

¹¹ See <https://www.aflia.net/web/>

thematic analysis procedures. The exercise of collecting, analysing and presenting the data was therefore a collaborative, capacity-building exercise between the research lead expertise in Sheffield, UK and the associate/analysts operating out of Nigeria and Ghana. All of these activities were coordinated by WACREN.

OVERVIEW OF RESULTS

PARTICIPANT COVERAGE

This full report captures data collected at the end of the survey (31st October 2018) from the WACREN online survey database. Of the 95 achieved responses,

- nearly three-quarters (74%) were in management roles
- an average 53% in technical roles
- 45% in operational roles
- with only 26% in subject specialist roles

This is graphically represented below in Figure 1.

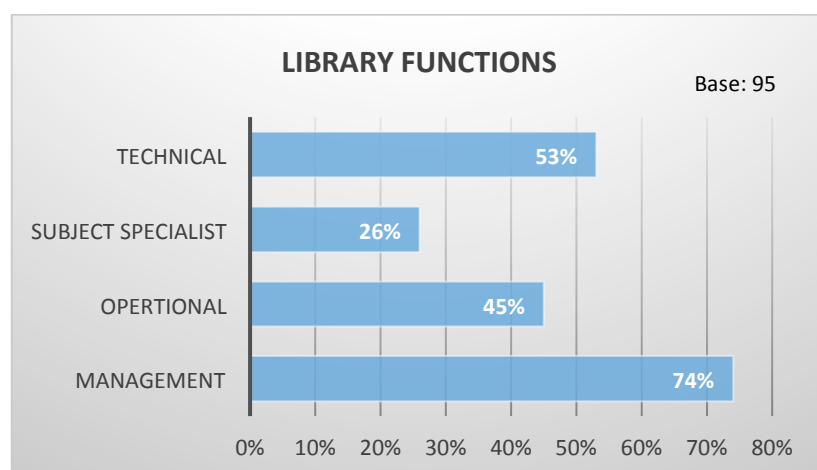


Figure 1. Library functions

Notably, as you will see in Table 1 below, and in line with many contemporary HEI libraries, many of the respondents also identified themselves with multiple roles.

Function Combination(s)	Function	Percentage (%)
Only One Library Function	Management	26
	Operational	3
	Subject specialist	1
	Technical	16
	Total	46
Two Library Functions	Management*Operational	10
	Management*Subject specialist	0
	Management*Technical	8
	Operational*Subject specialist	0
	Operational*Technical	2
	Subject specialist*Technical	3
	Total	23

Function Combination(s)	Function	Percentage (%)
Three Combinations	Management*Operational*Subject specialist	6
	Management*Operational*Technical	9
	Management*Technical*Subject specialist	0
	Operational*Subject specialist*Technical	1
	Total	17
All four combinations	Management * Operational * Subject Specialist * Technical	14

Table 1. Percentage occurrence of single and combined functional roles

23% play dual roles, 17% are in three functions and 14% in all four functions. While this gives credence to the versatility of the participants, it is also perhaps suggestive of a human capacity issue with ripple effects in overall efficiency as a result of work overload. This is worth highlighting and addressing if the latter is true.

DEMOGRAPHICS

AGE DISTRIBUTION

Overall, the bulk of responses – nearly 60% of them – fell within a fairly youthful segment of the working age (26 – 45), a possible indication of a good future for an evolving contemporary library function in this region:

- 30% within the 26 – 35 age bracket and
- 28% within the 36 – 45 age bracket

A significant 30% of them also fall within the 46 – 55 age bracket. Only 11% represented the older age bracket of 55+ years with an almost negligible 1% representing the very youthful age bracket of 18-25. See Fig 2 below.

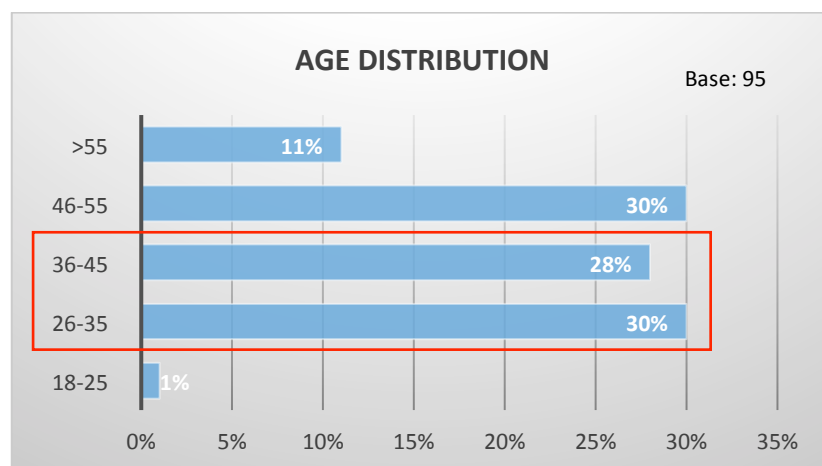


Figure 2. Age distribution

As observed from Table 2 below, the predominant age band for the 'management' function is 46-55 (35%), reflecting potentially more years of service/experience. In line with the perception that younger people are more technologically literate, this survey reports 26-35 as the predominant age band for the 'technical' function; 45% of those in the technical function fall within this age band. While 'operational' appears polarised - either significantly falling within a younger age band (32% in the 26-35), or much older age band (36% in the 46-55), 'subject specialists' seem more clearly tilted

towards the more matured age bands (36-45 and 46-55). Nearly two-thirds (66%) of subject specialists fall with these two age bands.

FUNCTION/BASE	AGE RANGE (YEARS)				
	18-25	26-35	36-45	46-55	>55
Management (74%)	2%	21%	27%	35%	15%
Operational (45%)	3%	32%	24%	36%	5%
Subject Specialist (26%)	0%	29%	33%	33%	4%
Technical (53%)	2%	45%	22%	20%	11%

Table 2. Age distribution by function

Across all functions, as shown in Table 2, there is very minimal to negligible representation of the 18-25 age band in this survey, suggestive of the fact that either the library function does not easily admit younger employees or that by itself, it does not seem to appeal to this age band until a little later. Or perhaps, this age band was simply not sufficiently reached in this survey. Given the observation related to younger people and technology, it may be worth exploring ways of attracting more interest in the profession from people in this age range.

GENDER DISTRIBUTION

Participation in the survey was skewed in favour of males with more than two-thirds of participants being male (70%) versus less than a third female representation (30%). This almost inadvertently introduces some bias in some outputs shared further on. See Figure 2 below:

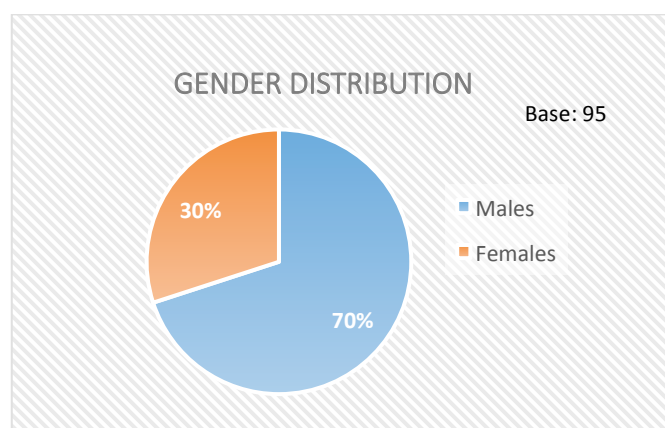


Figure 2. Gender Distribution

Interestingly and perhaps not surprisingly, as we see in Table 3 below, all functions seem to be dominated by males. A greater proportion of females were represented within the 'management' function versus other functions.

FUNCTION/BASE	GENDER	
	Female	Male
Management (74%)	36%	64%
Operational (45%)	32%	68%
Subject Specialist (26%)	24%	76%
Technical (53%)	23%	77%

Table 3. Gender distribution by function

DISTRIBUTION BY EDUCATIONAL LEVEL

The majority of the sample achieved are educated above the bachelor's degree level as Figure 4 below shows. 60% are masters' degree holders and 15% doctoral degree holders – both categories of which make up three-quarters of the sample. Even the majority of 'other educational' levels recorded are equally post-bachelor's degree holders. Only 18% reported having bachelor's degrees only.

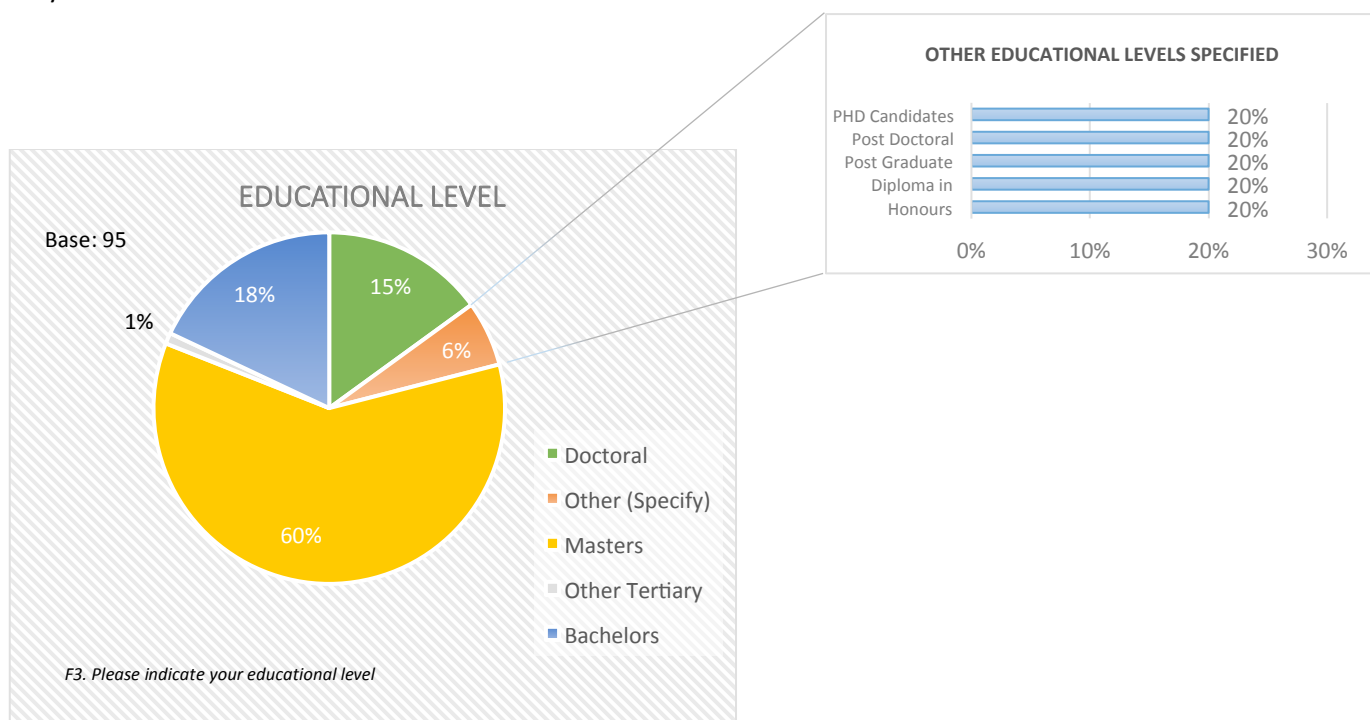


Figure 4. Distribution of Educational Level

Further details on educational levels across functions are shown in Tables 4a and 4b below. Not surprisingly, the 'technical' function appears to be mostly represented by Bachelor's and Master's degree holders while doctoral degree holders are more prevalent in the other functions. Similarly, a greater proportion of the 'subject specialists' are educated to the Bachelor's level as compared with the other functions. This significant level of academic achievement throughout the functional areas suggests considerable potential for benefits to accrue from continuous professional education targeted towards new developments in the various functional areas, e.g., developments related to digital technologies.

FUNCTION/BASE	EDUCATIONAL LEVEL				
	Bachelors	Doctoral	Masters	Other Tertiary	Other (Specify)
Management (74%)	12%	18%	66%	0%	5%
Operational (45%)	18%	13%	62%	3%	5%
Subject Specialist (26%)	27%	13%	51%	0%	9%
Technical (53%)	26%	4%	60%	0%	9%

Table 4a. Distribution of educational level by function

FUNCTION/BASE	OTHER EDUCATIONAL LEVELS SPECIFIED				
	Diploma in Librarianship	Honours	PhD candidate	Post-doctoral	Post Graduate
Management (5%)	0%	33%	33%	0%	33%
Operational (5%)	50%	0%	50%	0%	0%
Subject Specialist (9%)	0%	0%	50%	50%	0%
Technical (9%)	0%	25%	25%	25%	25%

Table 4b. Distribution of 'other specified' educational levels by function

DISTRIBUTION BY YEARS OF EXPERIENCE

More than half of the sample (58%) have spent over ten years in the field. Just about 16% have 5 or less years of experience. Figure 5 below refers.

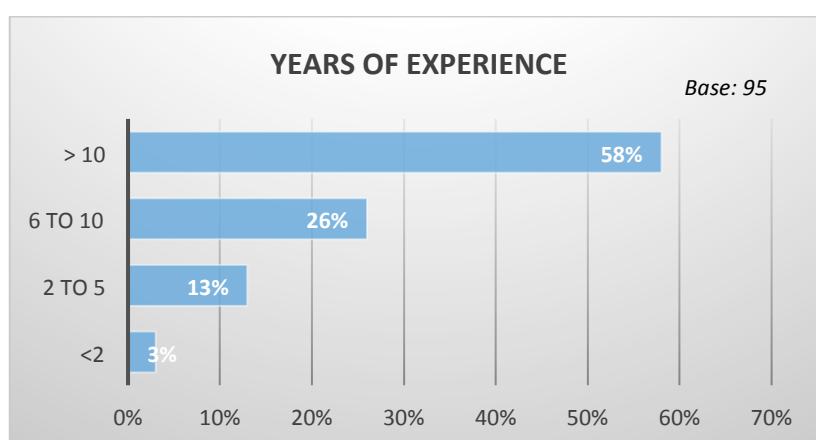


Figure 5. Distribution by years of experience

Interestingly, this seems to be the case regardless of function as shown in Table 5 below:

FUNCTION/BASE	YEARS OF EXPERIENCE			
	<2	2 to 5	6 to 10	> 10
Management (74%)	3%	9%	23%	64%
Operational (45%)	5%	15%	23%	56%
Subject Specialist (26%)	4%	11%	27%	58%
Technical (53%)	7%	13%	31%	49%

Table 5. Distribution by years of experience by Function

By implication, this suggests that some significant years of experience – possibly 5 years and above – are required to establish some stability and progress within the library function in these regions.

DISTRIBUTION BY COUNTRY

Overall, nearly three-quarters (71%) of the survey responses came from Eastern Africa. As shown in Figure 6 below, the bulk of responses from Eastern Africa came from Kenya (27%), Tanzania (17%) and Uganda (16%). The dominant countries from the Southern African hub were South Africa (12%) and followed at a distance by Zimbabwe at 7% (Figure 6 below):

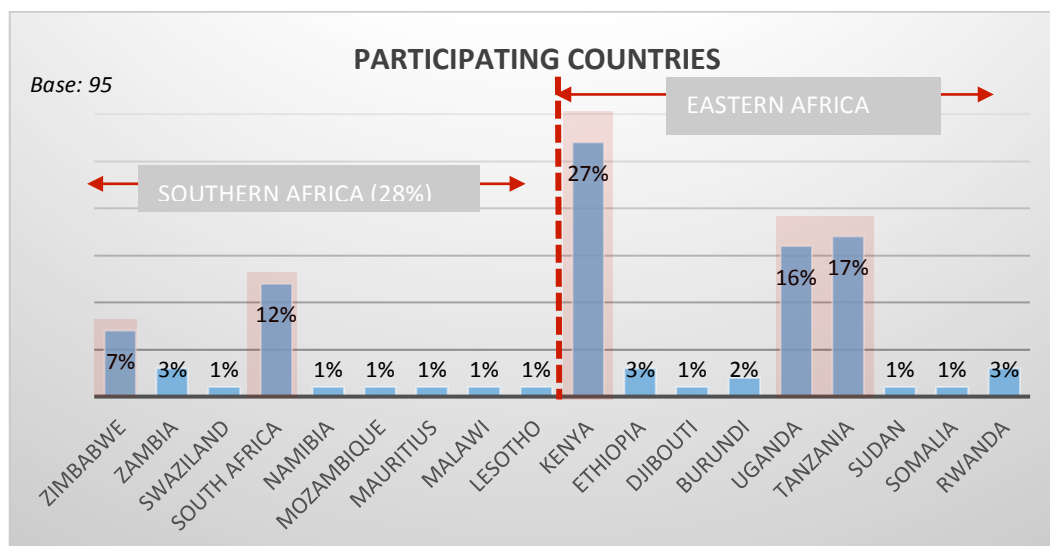


Figure 6. Distribution by country/region

Analysis of the incidence of participation across functions (Table 6 below) also shows that for each function, there were more responses from the east than there were from the south:

FUNCTION/ BASE	REGIONS	
	Eastern Africa	Southern Africa
Management (73%)	66%	34%
Operational (44%)	76%	24%
Subject Specialist (27%)	67%	33%
Technical (56%)	76%	24%

Table 6. Regional distribution by function

Still cross-tabbing by function (Table 7 below), the majority of responses from Kenya came from the technical (32%) and management (23%) functions. While the operational function was more strongly represented in Tanzania (21%), the technical function had more representation from Kenya (32%) and Uganda (21%). The majority of subject specialist responses came from Kenya (20%).

	COUNTRIES																	
FUNCTION/ BASE	Burundi	Djibouti	Ethiopia	Kenya	Lesotho	Malawi	Mauritius	Mozambique	Namibia	Rwanda	Somalia	South Africa	Sudan	Swaziland	Tanzania	Uganda	Zambia	Zimbabwe
Management (74%)	2%	2%	3%	23%	2%	2%	2%	2%	1%	5%	2%	14%	1%	2%	14%	15%	2%	9%
Operational (45%)	3%	3%	3%	19%	3%	3%	3%	0%	0%	5%	3%	4%	1%	3%	21%	19%	6%	4%
Subject Specialist (26%)	4%	0%	0%	20%	4%	0%	4%	0%	0%	4%	4%	9%	0%	4%	16%	18%	4%	7%
Technical (53%)	2%	0%	4%	32%	2%	2%	2%	0%	0%	4%	0%	11%	0%	0%	12%	21%	3%	3%

Table 7. Country distribution by function

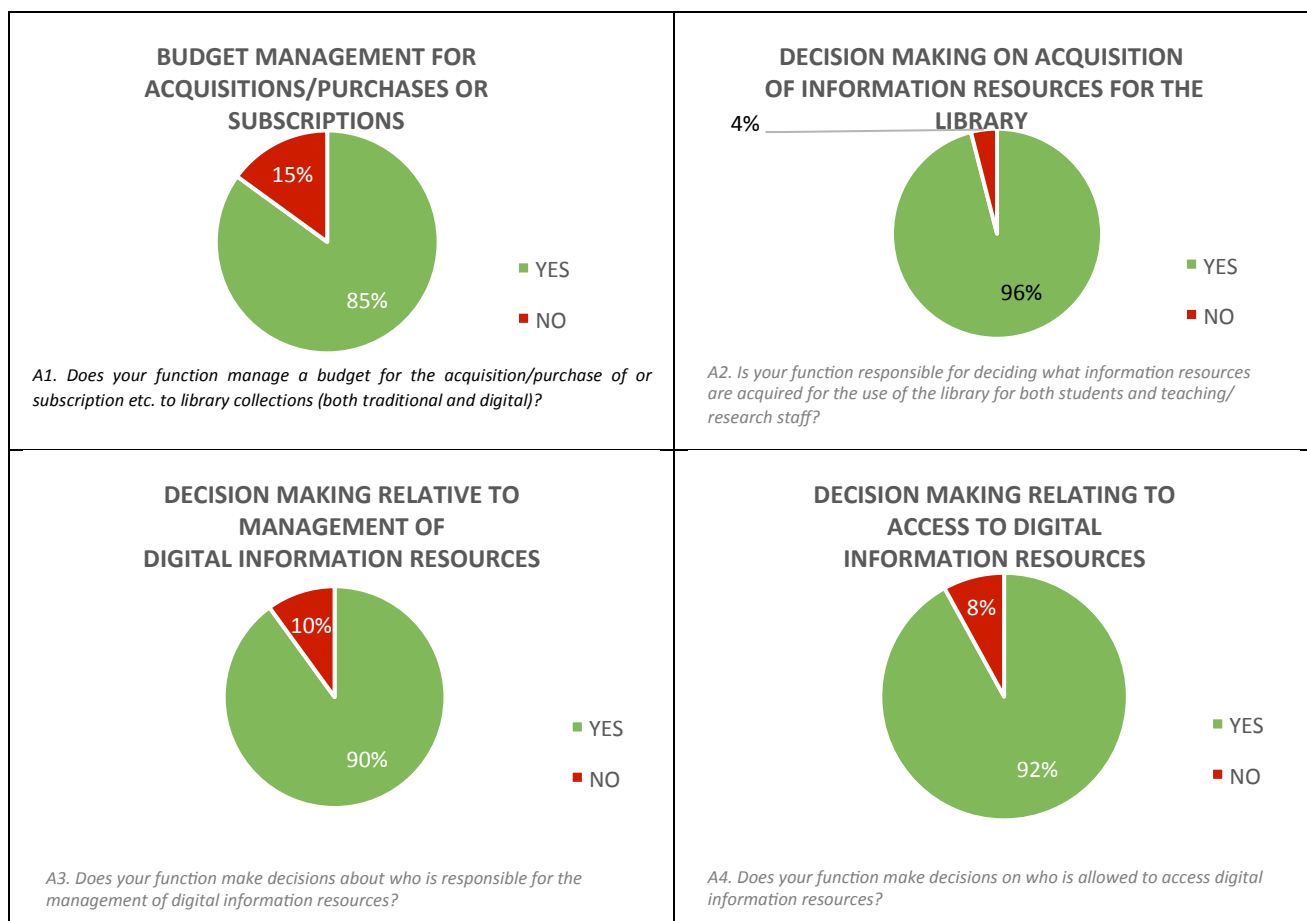
With respect to non-participation from Eastern Africa, the only country which did not record any responses was Eritrea whereas from Southern Africa, slightly more countries did not take part in the survey. These were Angola, Botswana and Madagascar. This potentially accounts for the strong skew in favour for Eastern Africa versus Southern Africa.

FOCUS ON THE MANAGEMENT FUNCTION

This section reports on matters relating specifically to the *management* function. As reported above, this function represents 74% of the total sample size of 95 responses.

INFORMATION RESOURCE MANAGEMENT CAPABILITY

Questions 1 to 4 of the *management* function sought to establish the extent to which those respondents who identified with this function were sufficiently charged with responsibility for budgets, decision-making and managing access to information resources. These questions specifically sought to establish these responsibilities with respect to digital resources. The figures below demonstrate that across the board, most respondents from the management function were tasked with: managing budgets related to resource acquisition (85%) and making decisions related to information resources (the acquisition of – 96%, the management of – 90%, the access to – 92%). These results suggest that, overwhelmingly, the capability for ensuring the appropriate management of information resources lies squarely with the appropriate function across the representative institutions involved in the survey. The charts below (Figures 7a, 7b, 7c, and 7d) demonstrate these results:



Figures 7a, 7b, 7c, 7d. Responses related to information resource management capability

OPEN ACCESS REPOSITORIES & GUIDING POLICIES

Regarding the existence of a national policy on the management of research outputs as shown in Figure 8 below, only 30% of the sample confirm that their respective countries have such a policy in place. As many as 44% say they do not have any such thing. Meanwhile, a significant 23% are also ignorant about the existence of a national policy, exposing the gaps in advocacy, particularly for countries which have such policies. This is because by implication, the less people know about it, the higher the incidence of violating usage guidelines and thereby increasing the vulnerability of research outputs.

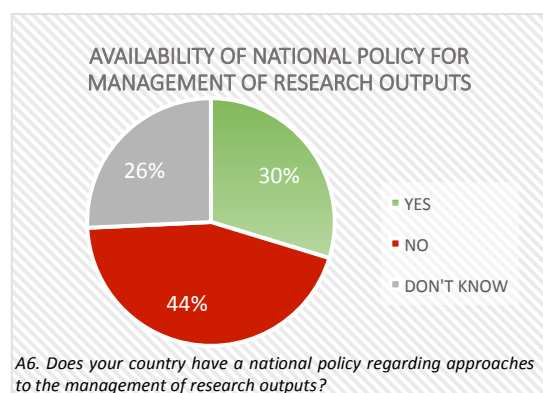


Figure 8. National Policy on management of research outputs

As a reality check we compared the results relating to the existence of national policies for the management of research outputs against statistics from the Registry of Open Access Repository

Mandates and Policies (ROARMAP¹²) and found that similarly, two types of policy seemed to exist in African countries (one related to institutions and one related to funders) and the incidence of the latter was non-existent in Eastern African countries and not too significant in Southern African countries. The charts below illustrate (Figures 9a and 9b).

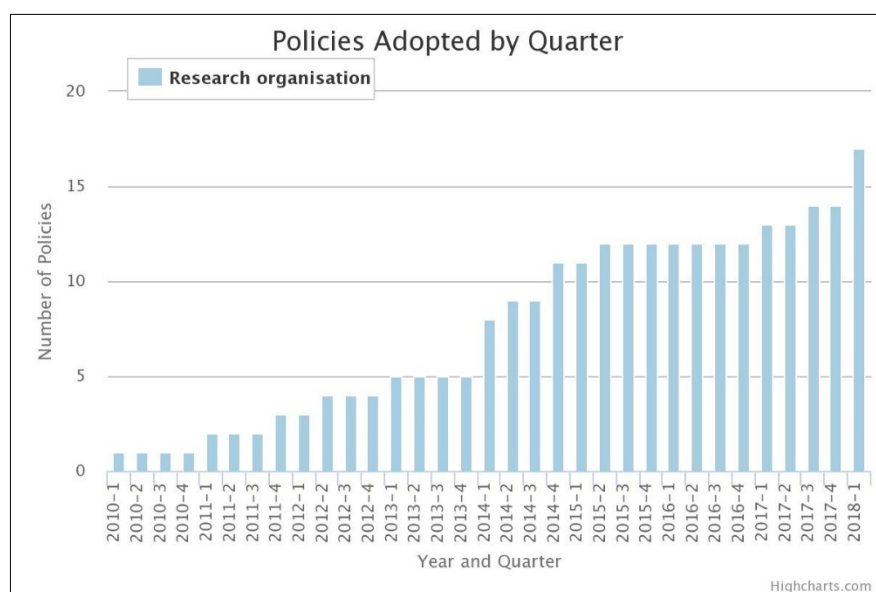


Figure 9a. Chart demonstrating number of policies recorded by ROARMAP for Eastern African countries. Source: ROARMAP - <http://roarmap.eprints.org/view/country/014.html>, [accessed: 14/11/2018]. Countries represented - Burundi (1); Kenya (13); United Republic of Tanzania (1); Zimbabwe (2)

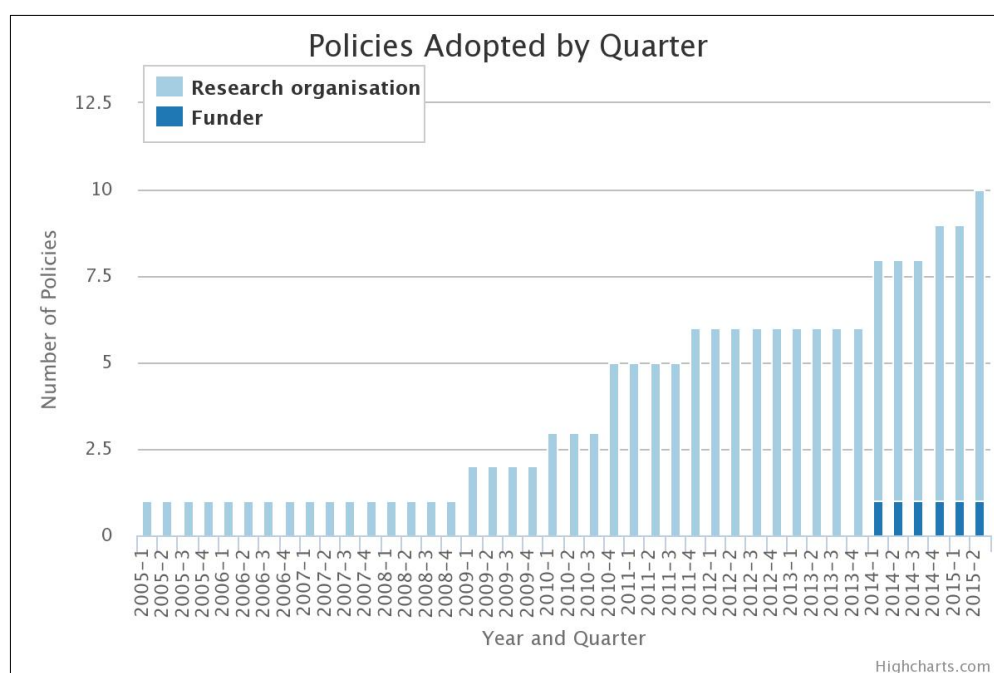


Figure 9b. Chart demonstrating number of policies recorded by ROARMAP for Southern African countries. Source: ROARMAP - <http://roarmap.eprints.org/view/country/018.html>, [accessed: 14/11/2018]. Countries represented - South Africa (10)

¹² See <http://roarmap.eprints.org/view/country/un=5Fgeoscheme.html>

Drawing from the low record of the existence of national policies for the management of research outputs, it is perhaps not surprising that the survey records an equally low incidence on the existence of national open access repositories (Figure 10 below refers) – only 20% of respondents say they have national repositories in their countries. 63% do not have OARs and some 17% are ignorant about the existence of such in their countries.

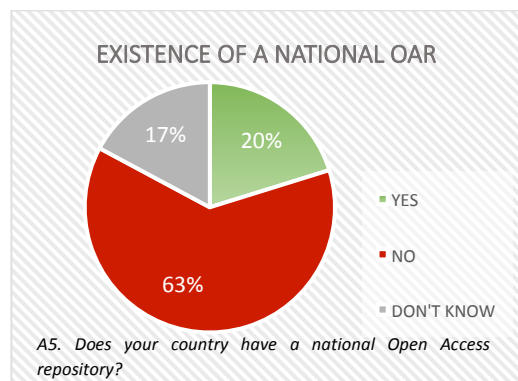


Figure 10. Existence of national OARs

From Figure 10 above, we may deduce that the awareness on the availability of policies for the management of research outputs is also possibly low because many countries do not have national open access repositories, as policies are typically formulated because OARs exist?

While the low incidence of national OARs is indicative of existing opportunities to create national repositories, it also underpins the importance of awareness and advocacy to drive optimum usage of the repositories.

At an institutional level however, it is worthy to note that the awareness on the existence of OARs and guiding policies on the deposit of materials in these OARs is high among the library management function. Very few respondents – 2% and 4% respectively – are ignorant about either as shown in figures 11a and 11b below.

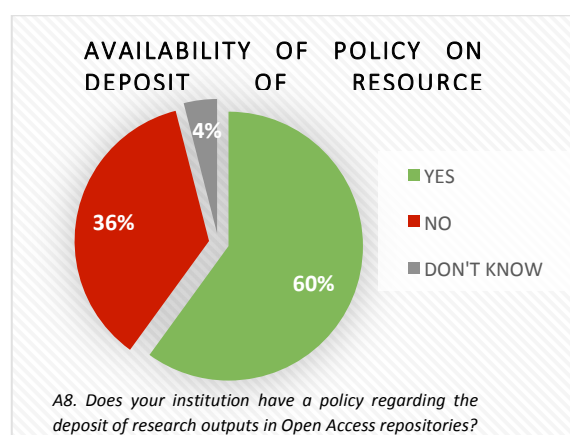


Figure 11a. Existence of institutional OAR policies

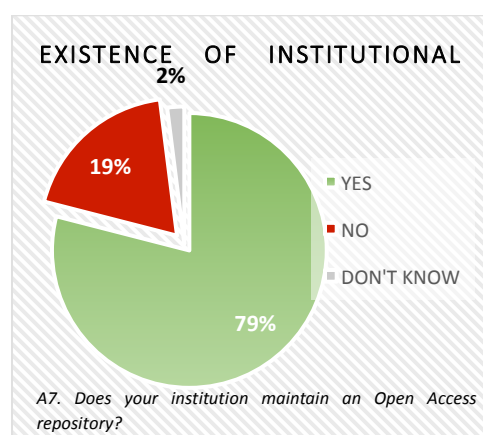


Figure 11b. Existence of institutional OAR

However, on the other hand, while a lot more institutions (79%) appear to have the open access repositories, fewer (only 60%) have policies in place to guide the deposit of research outputs on these platforms. It may however be in the best interest of all stakeholders to have relevant policies in place to guide the proper use of such platforms in order to optimize their benefits.

MANAGEMENT ROLES

Questions 10 and 11 of the survey were posed to determine the level of involvement of the library *management* function in decision-making regarding (a) the allocation of digital infrastructure resources and (b) the policies around data security and privacy (i.e. information governance). The first question tried to capture how much influence the library management function has over the amount and type of digital infrastructure they need and use for their main service activities. It follows that in order to participate in the provision and maintenance of a major digital resource such as an OAR, there should be adequate influence over how the resources used to create, deploy and maintain these assets are allocated to the library. In those institutions where digital resources such as Internet broadband are at a premium, such influence could make or break activity around OAR development.

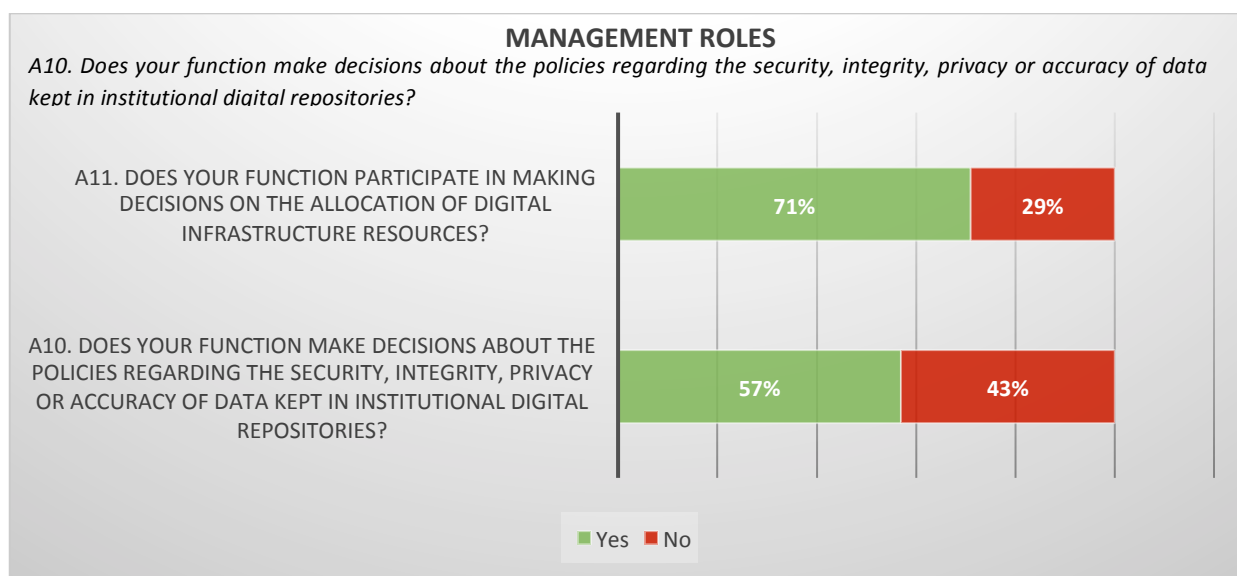


Figure 12. Role of library management in digital infrastructure allocation and information governance policy making

Quite clearly as depicted in Figure 12 above, a greater percentage of respondents in management roles are involved in making decisions regarding the allocation of digital resources (71%) than they are when it comes to decisions around policies regarding the security, integrity, privacy or accuracy of data kept in institutional digital repositories (57%). So, as it appears, a significant number of the respondents have much influence over the physical infrastructure underlying their service provision. However, information governance policies are not as strongly in place and managed by information professionals. This points to the need to negotiate points of cooperation between ICT management and Library management functions in these institutions more widely.

The general consensus on the insufficiency of funding for the management of digital information resources is quite disturbing (see Figure 13 below). Expectations on the efficiency and availability of information resources is likely to be low if as many as 84% say that funding is inadequate as this impacts resourcing as well as training and skills development needed for properly managing digital resources.

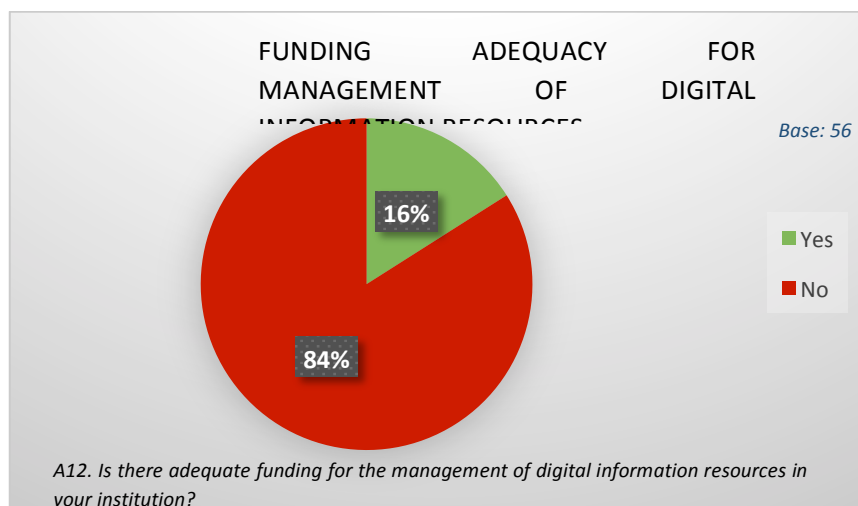


Figure 13. Opinion of library management on adequacy of funding for digital information resources

On the role of the library, impressively, a good 67% of people in the library management function consider the library as influential – central – to the running of their institution, though a significant 30% still see the library as only playing supportive/ peripheral roles as illustrated in Figure 14 below. However, in spite of its perceived influential role, notice that from Figure 15 also below, only 30% see the library as becoming transformational (service designer) enough to lead the needed innovation.

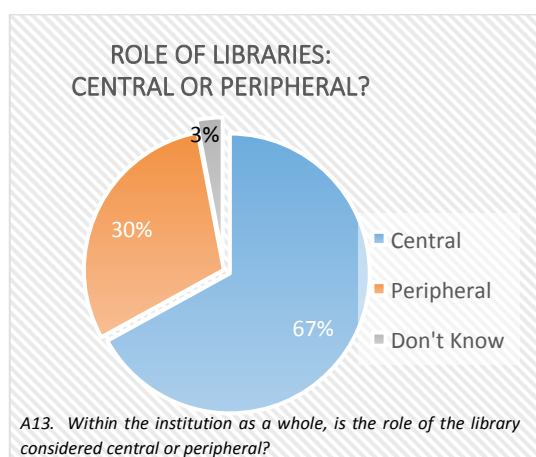


Figure 14. Opinion on the perception of the library as an influencer in the institution

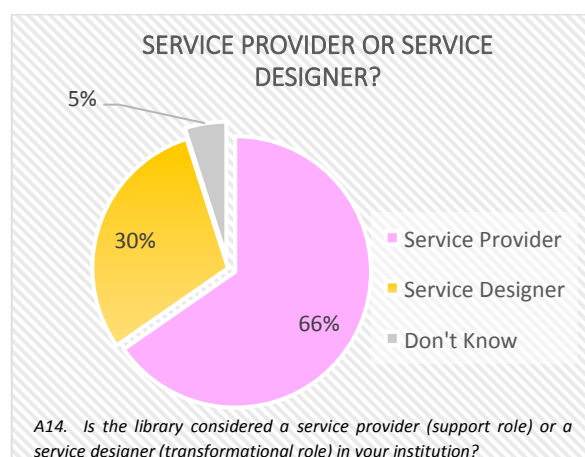


Figure 15. Opinion as to the perception of the library as service provider or service designer

Mapping both questions A13 and A14 in a matrix that correlates the opinions on whether the library is perceived as central or peripheral with whether it is seen as a service provider or service designer (Figure 16 below), reveals that the strongest combined perception is that while the library is undoubtedly strongly pivotal, it is still more engaged in the provision of services rather than leading innovation (53% of respondents' opinions). Only few see the library as using its influence to drive the needed innovation. Each section of the matrix has been labelled with role analogies similar to a typical office work setting to exemplify the relevant perception for that section. Hence, 'traditional manager' has been used to depict the majority opinion above, while the 'visionary leader' section of the matrix would be those libraries that are at the forefront of innovative services, having both a central influential position in the institution as well as a means to introduce innovations such as OARs (33% of respondents' opinions). The 'personal assistant' type library as seen by another 31% of respondents would be one which provides an important supportive role but is not seen as

influential. Finally, the 'creative influencer' type of library received the lowest response (4%) and this would be a highly creative, innovative type of library but not at the forefront of policy and change.

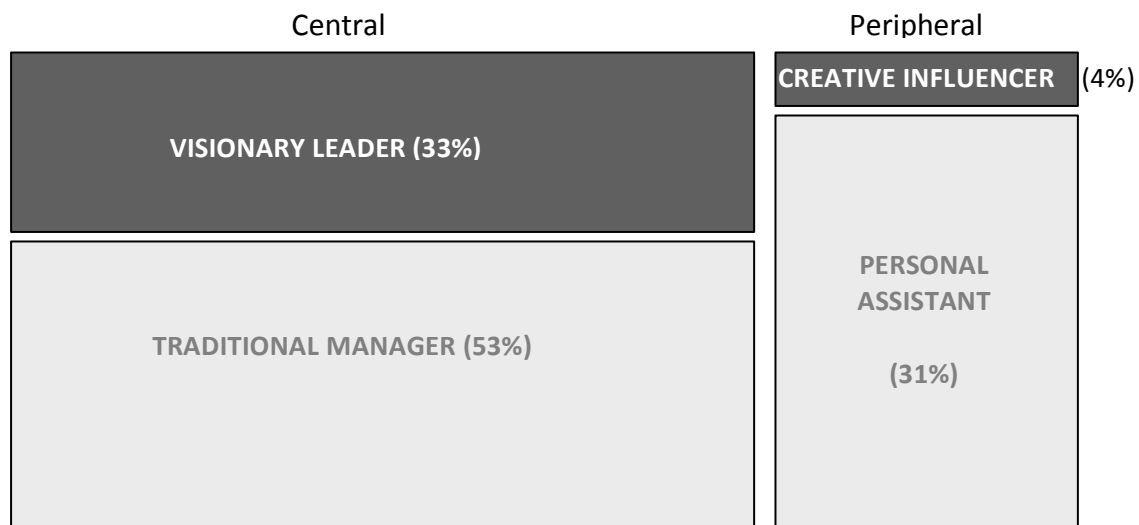


Figure 16. Matrix representing the typologies of the library's role analogous to roles in a typical office work setting

OTHER FUNCTIONS

RESPONSES FROM THE OPERATIONAL FUNCTION

Some selected responses were taken from the data collected about the *operational* function of a library; for example, those with responsibility for carrying out librarian functions such as providing support services for staff, procurement, building library collections, etc. As noted before, just under half of the sample (45%) classed themselves as being a part of the operational function.

As it turns out, from Figure 17 below, 86% of the operational function say that their work involves managing digital resources. This means that their role could give them oversight of digitally operated open access repositories.

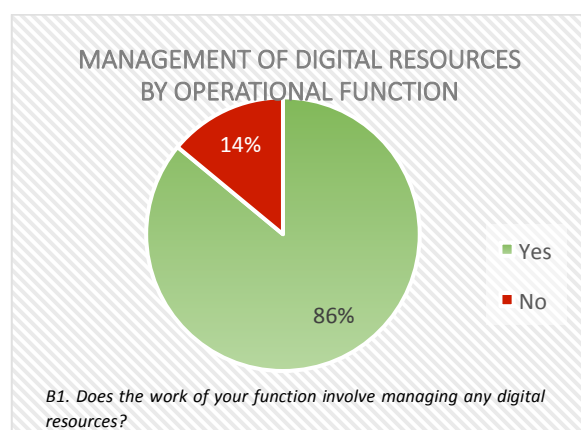


Figure 17. Management of Digital Resources

Further to the above, Figure 18 below provides a breakdown of the specific digital resources managed by the *operational* function. Clearly, digital collections form the biggest part of resources managed by this function (94%), with the least being image data (15%).

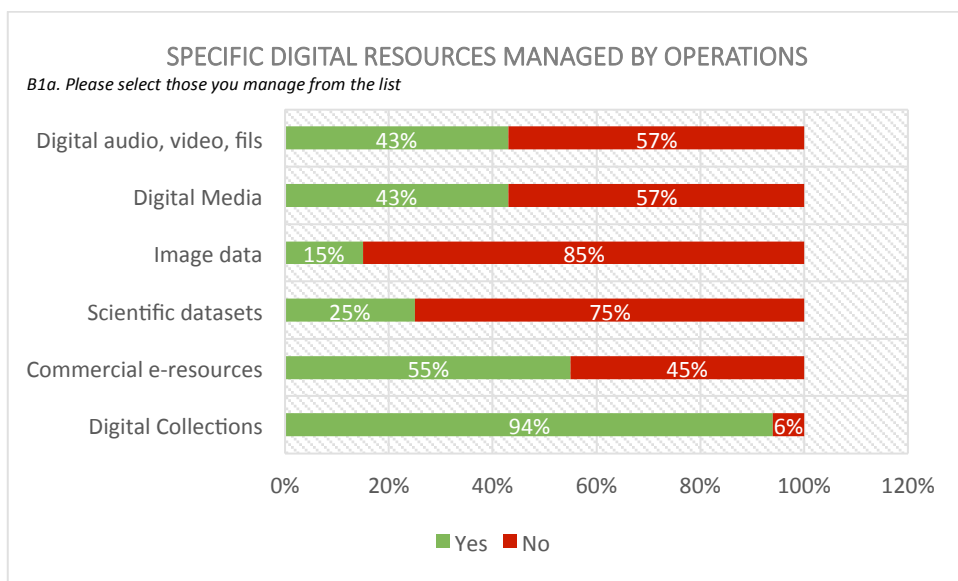


Figure 18. Specific Digital Resources managed by Operations

The degree of digitalisation of library services is further evidenced by a good 86% of participants within the *operations* function confirming that their function uses integrated library automation systems, as Figure 19a below illustrates.

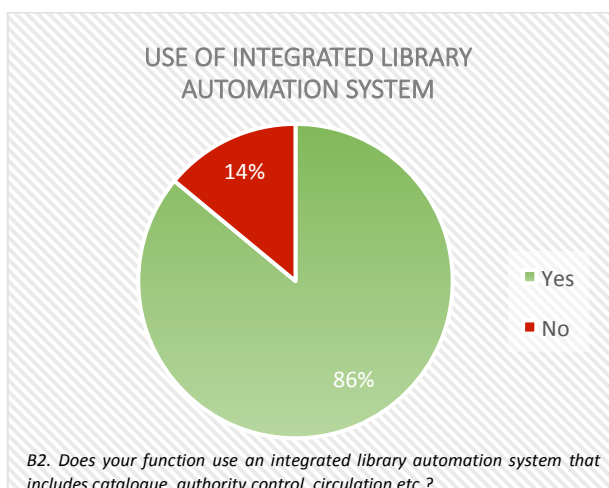


Figure 19a. Use of Integrated Library Automation Systems

More specific to the management of digital repositories, per Figure 19b below, a majority (73%) of the respondents from the operational function confirm that they manage digital repositories in their institutions.

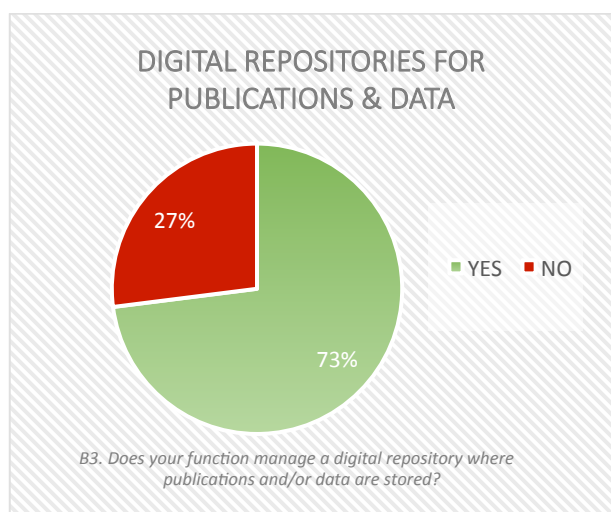


Figure 19b. Proportion of operational function who manage digital repositories

As noted from Figure 11b above, there is a high existence of institutional OARs - 79% as reported by the management function. It would have been expected that operationally, the figures would be similar. However, the response in this section is 6 percentage points lower than the reported percentage of institutional OARs reported. The reason for this discrepancy is unclear and could be attributed to how the repositories are organised or classified within an organisation.

Yet another good observation is the high percentage of libraries that offer or support training in information literacy. 91% of participants in operations confirm the existence of this training type as shown in Figure 20 below.

On the flip side though, per Figure 21 below, less than half of the operational function personnel (46%) say that their function supports or delivers taught modules via distance learning, e-learning or any learning platform using the Internet or computer networks. In fact, nearly half (49%) say that they neither support nor deliver taught modules via such media, thereby exposing the gaps in technology adaptation.

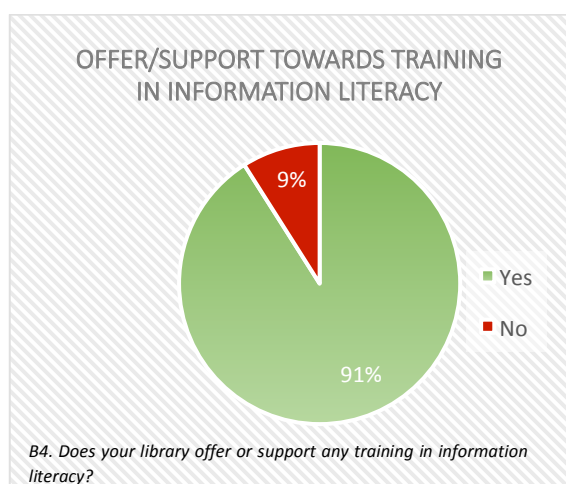


Figure 20. Proportion of operational function who manage digital repositories

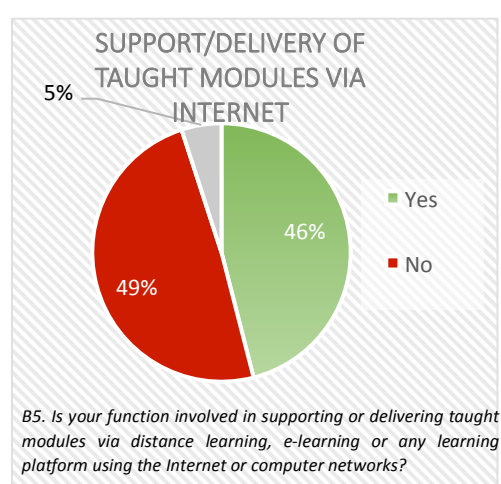


Figure 21. Proportion of operational function who support/deliver taught modules

According to those in the operational librarian function, institutional support for digital resources is most evident in the funding for digital collections (79%), provision of adequate Internet access (72%)

and training in digital skills (70%), which are fundamental to a library's traditional service role (Figure 22 below). The resources least identified by respondents as being institutionally supported were provision of external experts/consultancy in digital areas (31%) and funding for digital repositories (38%). This latter response represents a critical problem for those librarian staff concerned with supporting and developing more functionality in digital repositories. Lack of external influence from experts in the area would likely stunt the introduction of innovation and new ideas. The relative lack of funding for digital repositories would likewise stunt new work and innovation in this area.

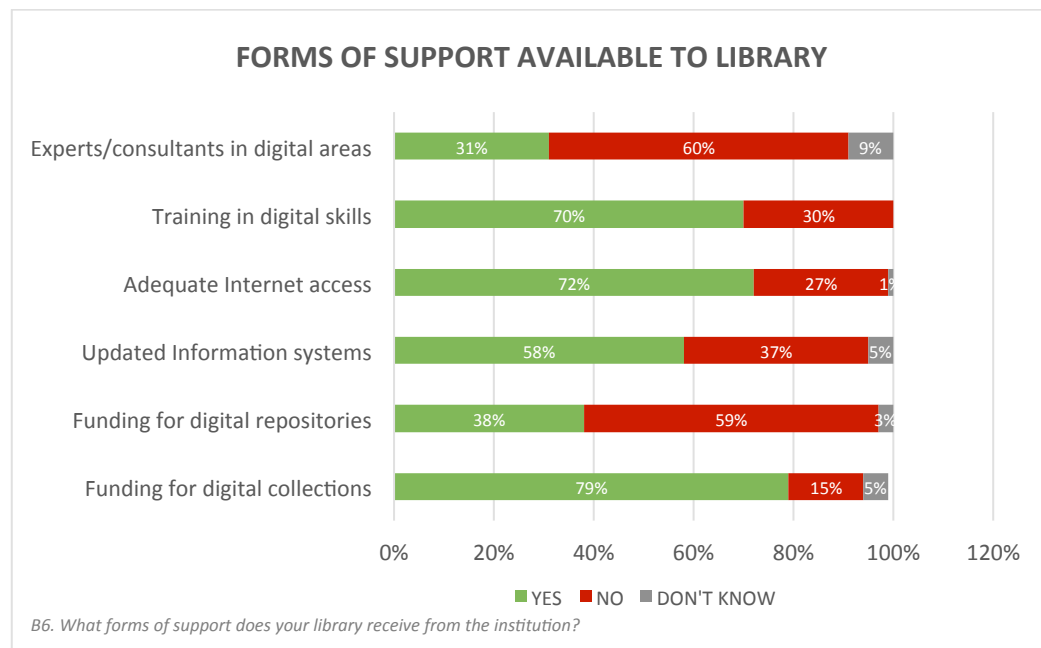


Figure 22. Comparative proportions of institutional support for digital resources and skills development

Regarding institutional support specific to OA (refer to Figure 23 below), the levels reported are consistently lower than 50% with a specific policy on OA registering the lowest percentage at 36%. Support for training is better though at nearly 50%. Clearly institutional support for OA needs improvement.

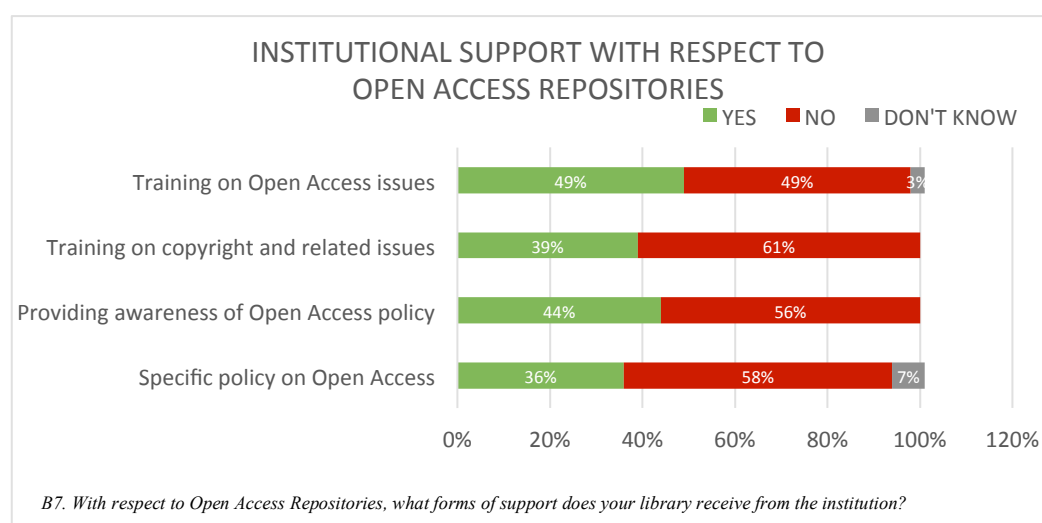


Figure 23. Comparative proportions of institutional support specific to OA development and policy

A further breakdown by country in Table 8 below demonstrates that this problem is more pronounced in southern African institutions than eastern African institutions.

FORMS OF SUPPORT	REGIONS		
	Total Africa	Eastern Africa	Southern Africa
Specific policy on Open Access	36%	77%	32%
Providing awareness of Open Access policy	44%	70%	30%
Training on copyright and related issues	39%	76%	24%
Training on Open Access issues	49%	76%	24%

Table 8. Forms of institutional OA support by country

RESPONSES SPECIFIC TO THE SUBJECT SPECIALIST FUNCTION

Selected responses taken from the data collected on the *subject specialist* function of a library covered for instance, those with responsibility for developing library collections in a specific subject area, providing support services for staff in that specific subject area and liaising with research and teaching staff in that specific subject area. As noted before, only about a quarter of participants in this survey (26%) classed themselves as being a part of the *subject specialist* function.

Very impressively, as seen in Figures 24 & 25, all participants in this function (subject specialist) say that their roles involve providing services to both research and academic staff involving internet resources or computer networks, attesting their preparedness to supporting the open access agenda.

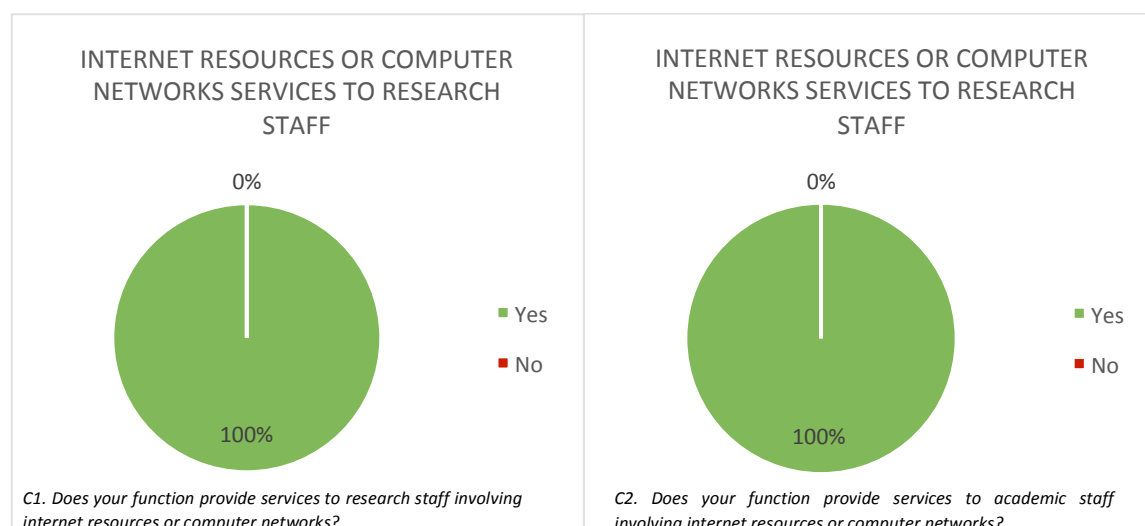


Figure 24. Proportion of subject specialist function who provide internet resources to research staff

Figure 25. Proportion of subject specialist function who provide internet resources to academic staff

RESPONSES SPECIFIC TO THE TECHNICAL FUNCTION

Some selected responses were taken from the data collected about the *technical* function of a library, for example, those with responsibility for carrying out librarian functions such as operating, maintaining and securing the infrastructure and applications supporting technical library services such as computer networks, storage, communication channels, information systems, digital

collections, etc. As noted before, a little more than half of the sample (53%) classed themselves as being a part of the technical function.

As Figure 26 shows, the work of the technical function is more strongly centred around integrated library systems (89%), digital repositories (84%) and web-based services and collections (81%). The least of their focus seems to be network/telecoms management (only 20%), digital imaging (only 28%) and information architecture (only 29%)

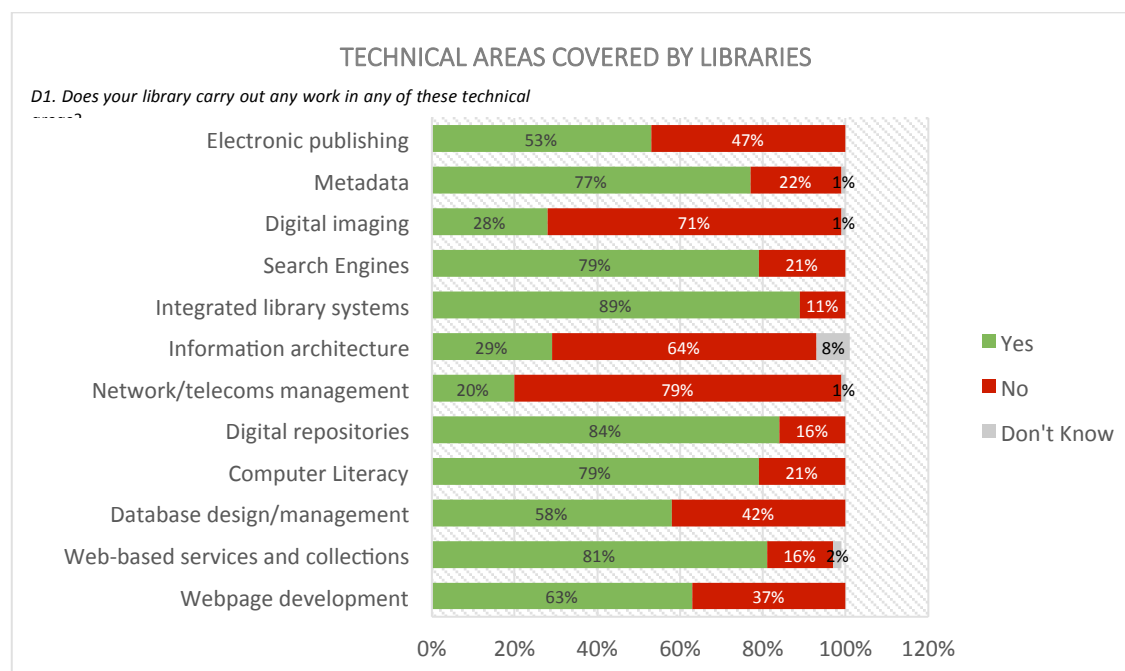


Figure 26. Work covered by Technical function

Broadly, institutional support for libraries, as reported by the technical function and as shown in Figure 27 below shows that, with the exception of the provision of adequate bandwidth, all other forms of support investigated are average. Similar to responses from the operational function, respondents also report that external expertise (technical experts/consultants) is the least supported institutional provision for their technical roles – only 42% receive such support.

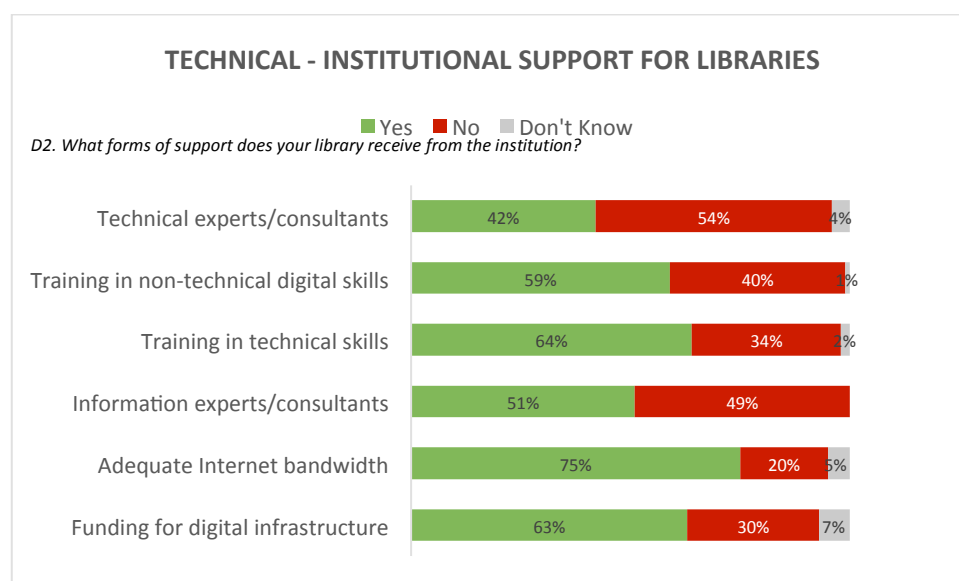


Figure 27. Institutional support for libraries as reported by the technical function

Once again, split and analysed on regional lines, this institutional support is reported to be worse in the southern African institutions than the eastern African counterparts.

FORMS OF SUPPORT	REGIONS		
	Total Africa	Eastern Africa	Southern Africa
Funding for digital infrastructure	63%	80%	20%
Adequate Internet bandwidth	75%	74%	26%
Information experts/consultants	51%	75%	25%
Training in technical skills	64%	74%	26%
Training in non-technical digital skills	59%	74%	26%
Technical experts/consultants	42%	69%	21%

Table 9. Forms of institutional OA support by country

Relating to the maintenance of OARs, three-quarters of the technical function confirm that their institutions do maintain open access repositories as illustrated by Figure 28. This however exposes the one-quarter who do not maintain such and calls for efforts to fill this gap.

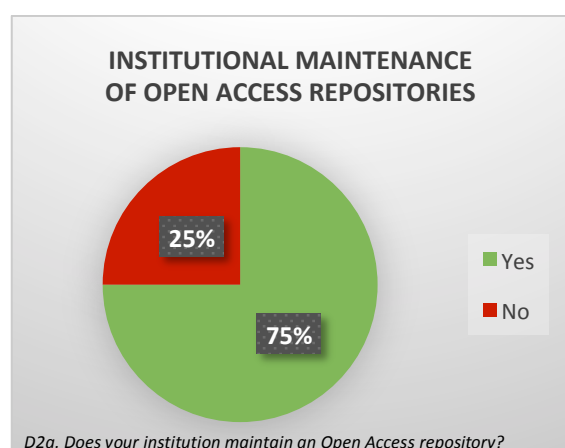


Figure 27. Institutional Support for Libraries as reported by Technical

Tables 10 and 11 list the URLs of institutions' repositories and the software used to support them. The most popular software is the Open Source Dspace¹³ (88.2% of respondents report usage).

D3.1. With respect to the Open Access repository, please indicate the Repository URL:

SN	Repository URLs	
1	192.168.16.225:8080:xmlui (Not yet public)	1
2	192.168.2.5.7:8080/xmlui	1
3	http://192.168.10.15:8080/xmlui/	1

¹³ Information available at: <https://duraspace.org/dspace/>

SN	Repository URLs	
4	http://192.168.16.226:8080/xmlui/	1
5	http://41.89.51.173:8080/xmlui/	1
6	http://dir.muni.ac.ug	1
7	http://dspace.unza.zm:8080/xmlui/	1
8	http://elibrary.pu.ac.ke/ir/	1
9	http://erepository.uonbi.ac.ke	1
10	http://erepository.uonbi.ac.ke/	1
11	http://etd.aau.edu.et	1
12	http://iiespace.iie.ac.za/	1
13	http://ir.bsu.ac.ug/	1
14	http://ir.gzu.ac.zw:8080/xmlui/	1
15	http://ir.kiu.ac.ug	1
16	http://ir.kiu.ac.ug/	1
17	http://kp.stumis.net/admin/admin_panel/kp_lms/users/online.php	1
18	http://repository.tml.nul.ls/	1
19	http://scholar.ufs.ac.za:8080/xmlui/	1
20	http://ucudir.ucu.ac.ug	1
21	http://ucudir.ucu.ac.ug/	1
22	https://karuspace.karu.ac.ke/	1
23	https://monash.figshare.com	1
24	https://www.ul.ac.za/index.php?Entity=Online%20Repository	1
25	ir-library.egerton.ac.ke	1
26	ir.busitema.ac.ug	1
27	ir.mu.ac.ke	1
28	Not yet public	1
29	repository.suza.ac.tz	1
30	repository.udom.ac.tz	1
31	scholar.mzumbe.ac.tz	1
32	Udsm dspace	1
33	uir.unisa.ac.za	1
34	www.luanar.ac.mw/library	1

Table 10. Listed URLs of institutional repositories

D3.2. With respect to the Open Access repository, please indicate the Software used:

Software	No. of Respondents	%
Dspace	30	88.2
Figshare	1	2.9
Internet browser	1	2.9
Koha	1	2.9
Linux-Ubuntu	1	2.9

Table 11. List of software used to develop OARs

In response to the question on how the software is managed, i.e. the governance arrangements in place, as Figure 28 below shows, the majority of the respondents in the technical function indicate

that the software is both administered and customised locally (91% claim for each). Crucially and importantly, there is little reliance on external sources for this critical function. This, however, underlines the importance of providing adequate training and development of local capacity to support this activity.

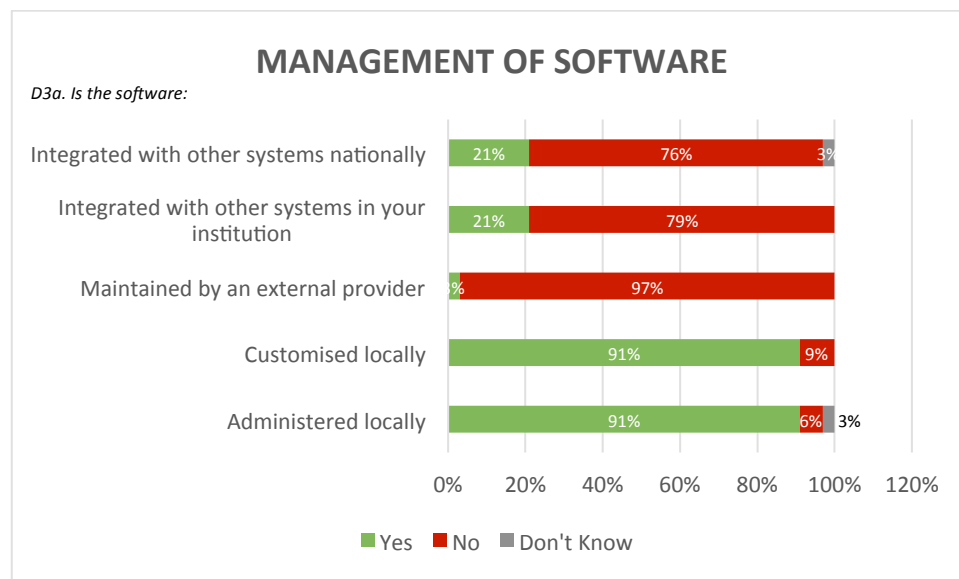


Figure 28. Comparative proportions of how software is managed institutionally

LIBRARIAN SKILLS DEVELOPMENT

This section specifically looked at how skills and training particularly related to digital and OA capacity building were being approached at the institutional level.

As Figure 29 below attests, only an average 57% of reported institutions teach librarianship as a formal course.

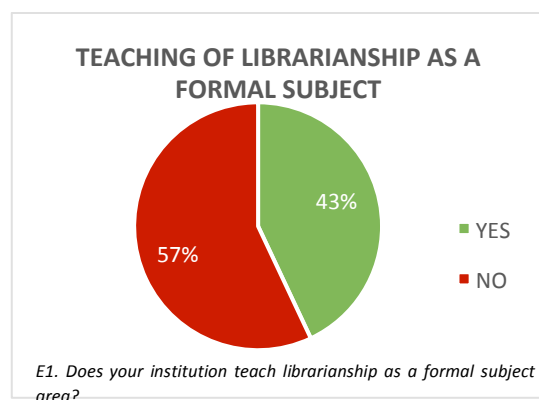


Figure 29. Teaching of librarianship as a formal subject

This notwithstanding, access to continuing professional development (CPD) in librarians' particular skill area is slightly higher at 67% as demonstrated in Figure 30 below. As expected, this access is evidently stronger in Eastern Africa than in the South as seen in Table 12 below:

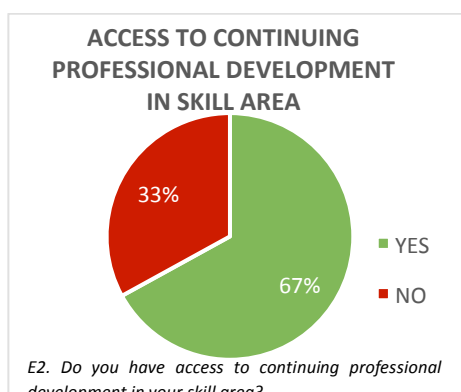


Figure 30. Access to CPD in skill area

	REGIONAL SPLIT		
	Eastern Africa	Southern Africa	Total Africa
Do you have access to continuing professional development in your skill area?	69%	31%	67%

Table 12. Access to CPD in skill area by region

Again, access to CPD in digital skills is also not as extensive as it should be to support the development of digital skills in the librarian staff who responded to the survey. With 44% of the respondents not being able to access this training, a significant deficiency exists in capacity building in this area as shown in Figure 31 below.

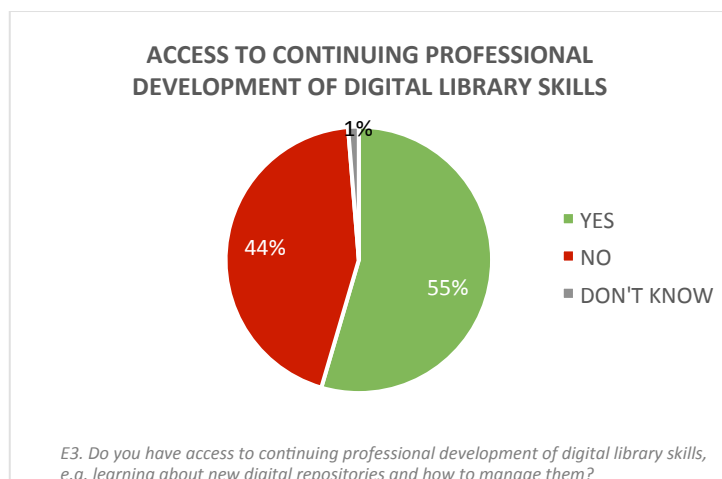


Figure 31. Proportion of respondents claiming access to development of digital skills

On a similar tangent, Figure 32 below now illustrates the corresponding chart for access to training in “open” movement initiatives such as Open Access, Open Data and Open Science. The proportion unable to access appropriate training in this area is even higher at 52%. Although close to negligible, it is worrying that there are even librarians (however minimal; 1% in this case) who not to know about these potential areas of training.

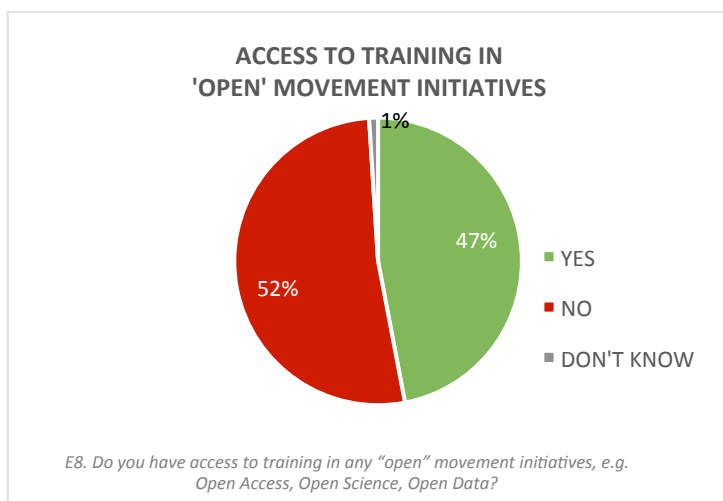


Figure 32. Proportion of respondents claiming access to training in Open Movement initiatives

Figures 33 and 34 illustrate librarians' reported experience with actual usage of both Open Science platforms that are not just repositories (54%) and Open Data repositories, i.e. dedicated to storing data outputs rather than publications related to the data (51%). Although this represents quite good familiarity with end-user perspectives on Open Science and Open Data, more should be done to encourage active usage of these platforms by librarians so as to increase their knowledge and ability to advocate further usage by end-users.

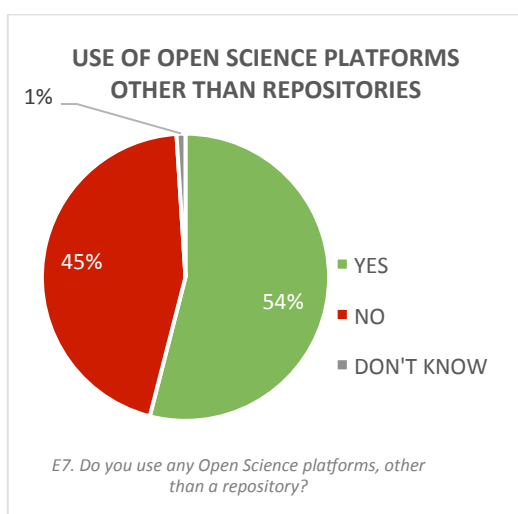


Figure 33. Proportion of respondents who use Open Science platforms, which are not considered only to be repositories

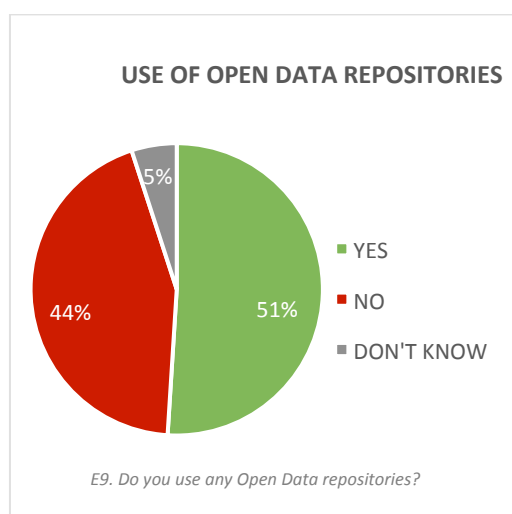


Figure 34. Proportion of respondents who use Open Data repositories

Table 13 lists in terms of themes, the major issues/challenges raised by librarians. They have been colour-coded according to those which were most mentioned by the respondents (**RED**), those in the middle in terms of frequency of occurrence (**YELLOW**) and those of lower priority (**GREEN**). The highest priority concerns are thus related to capabilities (human and technical capacity for maintaining digital competence) and institutional provision (the extent to which the institution supports the resourcing, and capability development for improving digital skills). Other quantitative responses in the survey support these qualitative responses.

Main Theme	Meaning	Importance to Participants
Capability	Related to the human or technical resources needed to maintain digital competence	High to Medium
Institutional Provision	Related to the extent to which the institution and its structures are able to support resources or initiatives to create capability and/or capacity	High to Medium
Professional Issues	Related to the profession itself, its reputation, its evolution, the opportunities for development that people can access	Medium to Low
Technology and Change	Related to the use, adoption or relevance of technology in the work setting and to the effects of change in technology in this work setting	Medium to Low
Power and Politics	Related to aspects of the organisational culture which lie outside of the direct control of the librarian staff or functions but which are related to how the organisation works informally and who has power and influence over organisational decisions/direction	Medium to Low
Vision and Strategy	Related to aspects of strategy formulation, thinking ahead, positioning of the organisation, thinking regarding innovation and change and so on	Low

Table 13. List of themes relating to major issues/challenges faced by librarians in implementing OARs

As to how these main concerns relate to each other, the schematic in figure 24 illustrates. Capability and Institutional Provision were seen as major issues by the respondents, however, they are affected by organizational issues such as the institution's vision and strategy and the direction of the librarians' evolving profession. These in turn are affected by organizational cultural issues such as power and politics. Interestingly, technological change is shown as tool to be acted on rather than an initiator of change. Respondents' views, however, reflect fairly frequently their concerns with the rate of technological change and the need to keep evolving and improving skills.

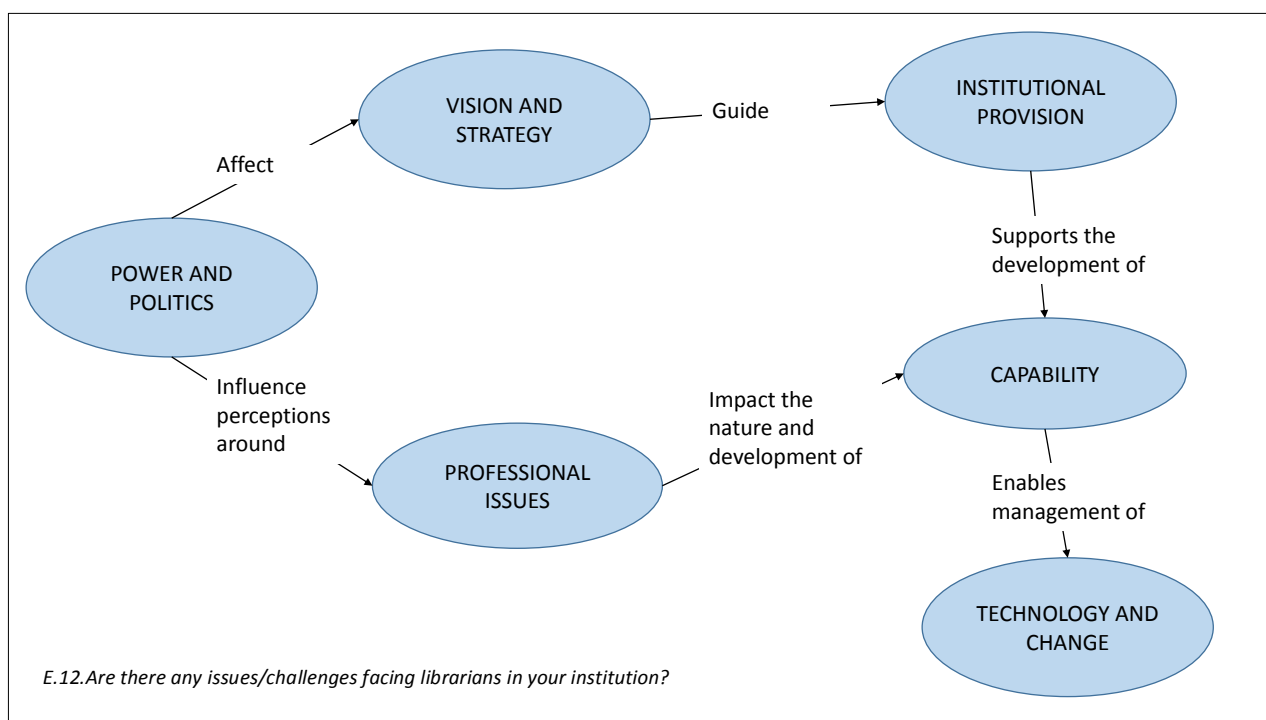


Figure 35. Schematic of relationship between main themes identified as issues/challenges to librarians

CONCLUSIONS

One of the main purposes of convening the LIBSENSE workshops is to bring together more technical expertise (professionals who understand infrastructural and platform issues) and information expertise (professionals who understand information literacy, management and provision issues). In raising awareness through this survey and exploring the issues arising from it, novel solutions could be constructed that would involve both sets of experts. From this initial survey, some areas of potential collaboration can be discerned and proposed for discussion in ongoing dialogues that will be part of the LIBSENSE initiative. These occur around 3 major themes:

Institutional support for technical training and external expertise. Identified as inadequate from various sections of the survey, this is a prime area in which RENs, NRENs and information professionals could collaborate to ensure sustainable capacity building in digital skills expertise to manage and to innovate new services built on digital platforms.

Institutional support for targeted training in open movement initiatives. Identified as insufficiently supported, this is an area in which some collaborative work between RENs, NRENs and information professionals from HEIs could bring some tangible and quick benefits. The areas covered would include simple to more complex awareness training and software/platform training. External expertise from organisations linked to REN activities would help to expose librarian professionals to up to date information similar to the mode adopted in this workshop.

Awareness of and setting of policy targeting the development and maintenance of OARs. Once again as a way of going forward, policy development towards OARs could be seen as a collaborative and iterative effort between RENs, NRENs, information professionals and influential policymakers. An understanding of how all three key stakeholders stand to benefit or lose from policy development and implementation would help propel the most useful and helpful policy changes.

These ideas will be further explored in the upcoming workshops to engender more useful dialogue for seeding further workshops in this area.

The writers of this report heartily thank all of those who contributed to this first survey and the lively discussions held at the first LIBSENSE OAR workshop in Zanzibar. We look forward to further fruitful engagement in the future planned workshops and webinars on this topic.