

Open access Institutional Repository a vehicle for Research Dissemination: Implications for University Education.

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ABSTRACT

The aim of this study is to ascertain performance of open access institutional repositories in Africa. The study was guided by five objectives; the study adopted content analysis to analyze the functional repositories available in Directory of Open Access Repository (OpenDOAR). From the study it was discovered that there are thirty functional repositories in Nigeria as at 2021. Majority of these repositories are owned by institutions, the most frequently archived contents are journal articles, theses and dissertations. It was discovered that there is constant growth rate for repositories in Nigeria. The implication is that these repositories constitute rich database for researchers in Nigeria, the government on their own part will be in the know of the nature of research produced by institutions within their countries which if the results are implemented will contribute a lot to the social and economic development of the country.

Keywords: Institutional Repository; Tertiary Education; Research Dissemination; Africa; Open Access

Introduction

Research is an integral part of tertiary education; while most institutions are research orientated and devote a greater percentage of the universities' resources to support research and development. In many universities in Nigeria, especially the premier universities, the National Universities Commission (NUC) expects them to admit more of research students than undergraduate students, in the percentage of 60% of postgraduates, and 40% of undergraduates. The aim is to give more attention to research and discovery of new knowledge. In Nigeria and Africa as whole, lots of research have been carried out in different fields, these research findings explore mostly Nigerian and African situations with a view to proffer possible solutions or way forward for such challenges. Such research findings are published in journals or books to enable other researchers have access to them. Although some of these journals may be in

open access or closed access, depending on the access type of the journal. To create more visibility other academic platforms like research gate, google scholar etc, may be used to archive the content. These platforms support open access to resources, open access publication has been on the increase by many researchers, research funders etc, this could be attributed to the level of research and development.

Open access to research outputs creates more visibility and enhances research collaboration. Many institutions support open access to research findings. The World Health Organization (WHO) created HINARI, an initiative that provides free access to journals for Low- and Medium-Income Countries (LMIC) (Chu et.al., 2014). This effort has contributed a lot to the development of research in the affected counties, many institutions in countries with low GDP have access to these resources free of charge. The open access movement has contributed a lot to

solving the challenges created by budget cuts in many institutions which affected the acquisition of serial materials. Institutions have also keyed into projects like Open Education Resources (OER), and institutional repositories as an avenue to create open access to their research outputs. To African researchers and librarians, archiving contents in open access institutional repository would result in paradigm shift for them to become part and parcel of the international research community (Ejikeme and Ezema, 2019).

An Institutional repository (IR) plays significant role in research preservation and dissemination, it is created and managed by the institution itself. The contents are mainly research results which create traffic to such sites by students and researchers. IR has features that enable metadata harvesting and searchability of the contents. Archiving in open access IR also benefits the author, the university and the publisher of the archived articles. Harnad cited in Nyambi (2012) stated that both publishers and universities benefits from open access publishing, publishers' benefit from the wider access given to the publication which increases the journal impact while the university benefits from the authors increased impact. Although the challenging issues may be with these benefits of IRs are there many IRs in Nigeria, has institutions keyed into it and are they properly developed and managed to enhance access and visibility. It is based on these questions that this paper explored the repositories in Nigeria to provide a global framework of the repositories.

Research Objectives

This research is guided by the following objectives, to:

1. Identify the repositories available in Nigeria.
2. The most frequently archived content in the institutional repositories in Nigeria.
3. Ascertain the most prevalent software used in the development of IR.
4. To assess the growth and development of IR in Nigeria.
5. Highlight the implications of Institutional repository to the

development of higher education Nigeria.

Literature Review

At present, Nigeria is contributing immensely to the growth of research globally through Institutional Repositories (IR's) which consists of the local contents and intellectual outputs of the researchers in the universities. The quest for the creation, dissemination and preservation of knowledge generated in academic institutions led to the creation of IR's (Uzuegbu, 2012). These materials appear in different formats such as articles, reports, books, book chapters, datasets, theses, unpublished books, learning objects, and multimedia. They may be in different languages, the IRs are created in digital formats, organized, managed, for visibility and knowledge dissemination. In addition, many of these IRs includes RSS feeds in order to alert users of new contents.

Some of them use Dspace, Eprint, or Greenstone as software for developing the IR. Ukwoma and Okafor (2017) stated that many universities in Nigeria developed their IR using Dspace software. IRs have features like Uniform Resource Locator (URL), the organization, country, location, language etc. Although one may say that many institutions have keyed into IR development (Jain, Bentley and Oladiran, (2009), and Moahi, 2009) stated that IR development is very slow, Jain, Bentley and Oladrin (2009) noted that the highest concentration and better developed IRs were in South Africa.

Paradoxically, Ivwighreghveta (2012) noted that the development of IR in Africa is an issue that deserves quick attention as it is still at the embryo stage of development. Ezema (2011) attributed the little contributions of African academic institutions to IR to slow rate of socio-economic and political development due to paucity of information to facilitate knowledge and development. Similarly, the author further highlighted that many African academic institutions generate relevant research on Africa in their different institutions but these problem-solving research data generated are not visible globally for some reasons such as inability to create and develop

a functional IR to disseminate research findings in African institutions.

Ejikeme and Ezema (2019) stated that the universities in Nigeria have not actually found out the potentials of institutional repositories in respect of disseminating their research and scientific outputs. However, the authors challenged the stakeholders including the government to develop sustainable framework in order to enhance the development of country's repositories. Similarly, Iheanacho-Kelechi and Uche (2020) highlighted that awareness to the contents of the institutional repositories studied is negative and by implication, their respondents are not aware of the importance and benefits including the components of their repositories.

Types of material and subject coverage of the institutional repositories

The institutional repositories in Nigeria cover wide range of subjects some of the subject coverage depends on the courses or curriculum of the university. Thus, for clarity of purpose, the subjects are arranged according to the different countries, institutions, organizations or research communities that hoist the institutional repositories. Repositories in Nigeria are furnished with diverse information materials, these materials are archived permanently as a means of preserving them and as well as providing a platform where research outputs will be disseminated and accessed globally. Most of the materials include: articles, reports, past question papers, books, book chapters, datasets, theses, unpublished books, learning objects, references, conferences, theses and multimedia (Opendoar, 2021). Nyambi (2012) highlighted that the contents in institutional repository include journal articles, published conference papers, universities' projects and dissertations and past exam questions. Journal articles, theses and dissertations, conference proceedings, conference/seminar papers, are part of the content of IR in universities in Nigeria (Ukwoma & Okafor, 2017; Ukwoma, Osadebe & Dim, 2019). Libraries in Malaysia have initiated innovative services for their researchers by creating open access IRs for wider dissemination of scholarly works (Kiran,

and Yip ping cited in Jain 2012). Rosenblum cited in Moahi (2009) noted that materials archived in IRs differ from one institution to another.

The Challenges of Institutional Repository Development in Nigeria

The development of IR in Nigeria is confronted with numerous problems: poor electricity supply, inadequate funds, lack of open access, inadequate ICT connectivity and infrastructures, inadequate bandwidth to host digital repositories (Ivwhighrehweta, 2012; Ejikeme & Ezema, 2019), content management (Ukwoma & Ngulube, 2019; Ukwoma, Osadebe & Dim, 2019). Others are lack of awareness (Adetunji, Appah, Akinlade, Bribena, (2017), perception and availability of funds (Oguche, 2018). This shows that African institutions have a lot of problems to resolve in order to have well developed institutional repositories that will make significant input to global research.

The attitude of scholars or academics is one of the challenging factors concerning the development of IR. Moahi (2009) observed that scholars chose to publish their research in reputable journals where many researchers cannot access easily instead of archiving them in the IR which is open for accessibility. Other challenges identified are intellectual property difficulties, software usage, phobia for plagiarism, theft of ideas and other uncertainties about publishing in IR (Davis & Connolly as cited in Moahi, 2009).

Unresolved copyright issues militate against the development of IR in Nigeria. In relation to that, Iwundu and Iwundu (2011) revealed that copyright and license issues are major challenges that hinder academic staff in higher institutions to submit their contents and research papers in IR. Utulu and Akadri (2010) stated that African scholars are inquisitive concerning the ownership of archiving already published works in IR except thesis and dissertation that belong to academic institutions. Ezema (2011) pointed out that copyright must be harnessed and well defined by the academic institutions' legal unit. Moreover, the author advised that the fear of litigation from journal publishers should not

hinder academics from publishing, as many journal publishers are at home with self archiving of scholar's publications. Other challenges identified by Iwundu and Iwundu (2011) are poor application of IR policy, financial inadequacy, poor staffing, uncomfortable environment, inadequate awareness creation and promotion of repositories in academic institutions, inadequate staff training and retraining programmes on IR management. Jain (2012) highlighted that despite the interest in institutional repository by academic institutions and publishers there is still reluctance in depositing content this can be attributed to misconception and lack of the understanding of IR, copyright issues, publishers' policy, lack of incentives and the time constraint involved in self-archiving by the authors.

Methodology

The methodology adopted in this study is qualitative content analysis, since the study is interested on the assessing the content of IR in Nigeria to ascertain the ease of the platform as a vehicle to knowledge dissemination. The database of repositories (DOAR) constituted the population of the study. Directory of open access repositories (DOAR) is a database that captures open access repository globally, although we have registry of open access repositories (ROAR). DOAR seems to be more inclusive as it captured a greater number of repositories in Nigeria than ROAR. This informs the use of DOAR database for the study. Data extraction was done manually from the site it is only the statistics on the growth of IR in Nigeria, and the statistics on the software frequently used in archiving that was automatically generated by the system. Others were extracted from the database for analysis, this lasted for a period of three days. To ensure reliability of the data the two researchers extracted the data independently and afterwards their results were compared to ensure consistency. The data extracted include the number of repositories in Nigeria archived in DOAR, the software used, the type of contents archived, the domain name of the IRs and the name of the organization that own the IR. The data collected were exported to excel

for coding and analysis, the results were presented in charts and tables based on the objectives of the study.

Results

Repositories Available in Nigeria as Registered in DOAR

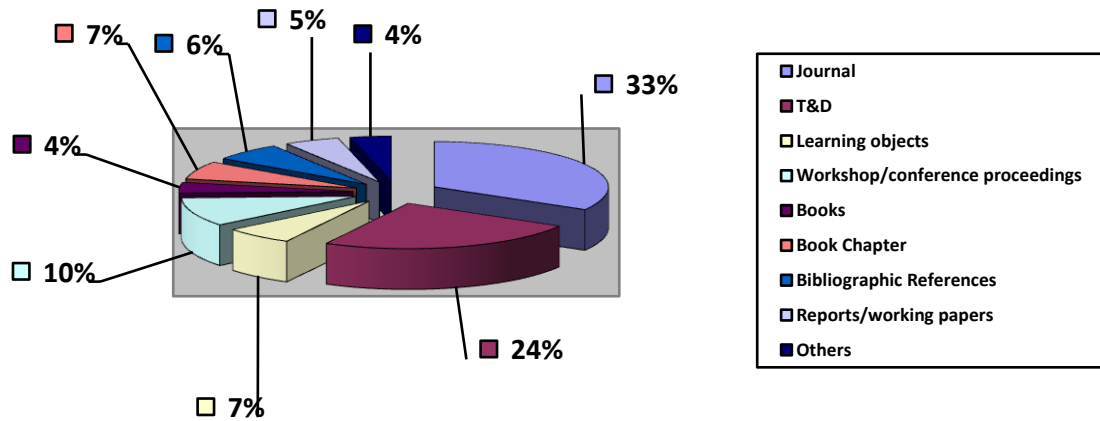
Table 1 shows the number of repositories captured in the directory of open access repositories in Nigeria. It shows that a total of 30 institutional repositories from different institutions were captured. Out of the thirty repositories one belongs to a bank while twenty-nine belongs to universities. This aligns with the statement of Adetunji et al (2017) that IR should be seen as digital collections capturing and preserving the intellectual output of any institutions where research outputs are generated. Some institutions have more than one repository, some archived different contents (Journals and theses and dissertations) it is only in few cases that an institution had more than one repository having the same content in them. On the URL on these repositories only one institution is yet to resolve the domain name of their repository to have their institutions domain name. This show that it is easy to identify the institution that owns the IR, this is important for the visibility and citation of the IR.

Table 1: Repositories available in Nigeria as registered in DOAR

S/N	Institution	Name of Repository	Software	Type/ URL	Contents
1	Ahmadu Bello University	ABU DSpace	DSpace	Institutional http://kubanni.abu.edu.ng/jspui	Journal Articles
2	Afe Babalola University	Afe Babalola University Repository	EPrints	Institutional http://eprints.abuad.edu.ng/	Journal Articles
3	University of Ibadan	African Digital Health Library	Dspace OAI-PMH	Institutional http://adhui.com.ui.edu.ng/	Theses and Dissertations
4	University of Ibadan- college of Medicine	African Digital Health Library- University of Ibadan	Dspace	Institutional http://adhui.com.ui.edu.ng/	Theses and Dissertations
5	Ahmadu Bello University	Ahmadu Bello University Institutional Digital Repository	Dspace	Institutional http://kubanni.abu.edu.ng/jspui/	Conference and Workshop Papers Theses and Dissertations
6	Ambrose Alli University Ekpoma	Ambrose Alli University Ekpoma Institutional Repository	Dspace	Institutional http://154.68.224.61:8080	Journal Articles Theses and Dissertations
7	American University of Nigeria (AUN)	American University of Nigeria (AUN) Digital Repository	Dspace	Institutional http://digitallibrary.aun.edu.ng:8080/xmlui/	Journal Articles Theses and Dissertations Books, Chapters and Sections Other Special Item Types
8	Covenant University	Covenant University Electronic Theses and Dissertation Repository	Unspecified	Institutional http://www.covenantuniversity.edu.ng/~/clr_cu/library/readonline/docsExplorer/#	Theses and Dissertations
9	Covenant University	Covenant University Repository	Eprint	Institutional http://eprints.covenantuniversity.edu.ng/	Journal Articles
10	Federal University Ndufu- Alike Ikwo	dspace.funai.edu.ng	Dspace	Institutional http://dspace.funai.edu.ng/	Journal Articles Conference and Workshop Papers Theses and Dissertations
11	Elizade University	EUSpace	Dspace	Institutional http://repository.elizadeuniversity.edu.ng	Journal Articles Books, Chapters and Sections
12	Ebonyi State University	Ebonyi State University Institutional Repository	Dspace	Institutional http://ir.ebsu.edu.ng:8080/	Journal Articles Theses and Dissertations
13	Federal University Ndufu- Alike Ikwo	Federal University Ndufu-Alike Ikwo Repository Archive	Dspace	Institutional http://dspace.funai.edu.ng/xmlui/	Journal Articles Reports and Working Papers
14	Federal University of Technology, Akure	FUTAspace	Unspecified	Institutional http://196.220.128.81:8080/xmlui/	Journal Articles Bibliographic References Theses and Dissertations
15	Federal University Dutsin-ma	Federal University Dutsin-ma Institutional Repository	Dspace	Institutional http://dspace.fudutsinma.edu.ng/jspui/	Journal Articles Bibliographic References Conference and Workshop Papers Theses and Dissertations Books, Chapters and Sections
16	Federal University Lokoja	Federal University Lokoja Institutional	Dspace	Institutional http://repository.fulokoja.edu.ng	Journal Articles

		Repository		/	
17	Federal University Oye Ekiti	Federal University Oye Ekiti Repository	Dspace	Institutional http://www.repository.fuoye.edu.ng/	Journal Articles Reports and Working Papers Learning Objects Other Special Item Types
18	Federal University Oye Ekiti	Federal University Oye-Ekiti Institutional Repository	Dspace	Institutional http://repository.fuoye.edu.ng/	Journal Articles
19	Federal University of Technology, Minna	Federal University of Technology, Minna Institutional Repository	Dspace	Institutional http://dspace.futminna.edu.ng/jspui/	Journal Articles Theses and Dissertations Learning Objects
20	Landmark University	Landmark University Repository	Eprint	Institutional http://eprints.lmu.edu.ng/	Journal Articles
21	Landmark University	Landmark University Repository	Eprint	Institutional http://eprints.lmu.edu.ng/	Journal Articles Bibliographic References Conference and Workshop Papers Theses and Dissertations
22	University of Nigeria Nsukka	Open Resources	Other	Institutional http://unn.edu.ng/chart/repo	Journal Articles Theses and Dissertations Reports and Working Papers
23	Central Bank of Nigeria	Repository of the Central Bank of Nigeria	Dspace	Institutional http://library.cbn.gov.ng:8092/jspui/	Journal Articles Reports and Working Papers
24	Covenant University	Theses & Dissertations	Dspace	Institutional http://theses.covenantuniversity.edu.ng/	Journal Articles Conference and Workshop Papers Theses and Dissertations Learning Objects
25	University of Ilorin	UILSPACE	Dspace	Institutional https://uilspace.unilorin.edu.ng	Journal Articles Theses and Dissertations
26	University of Ibadan	University of Ibadan Repository	Dspace	Institutional http://ir.library.ui.edu.ng/	Journal Articles Bibliographic References Conference and Workshop Papers Theses and Dissertations Books, Chapters and Sections
27	University of Ilorin	University of Ilorin Institutional Repository	Dspace	Institutional http://uilspace.unilorin.edu.ng:8081/jspui	Journal Articles Theses and Dissertations
28	University of Jos	University of Jos Institutional Repository	Dspace	Institutional http://irepos.unijos.edu.ng/jspui	Bibliographic References Conference and Workshop Papers Learning Objects Other Special Item Types
29	University of Lagos	University of Lagos Institutional Repository	Dspace	Institutional https://ir.unilag.edu.ng/	Journal articles Conference and Workshop Papers Theses and Dissertations Learning Objects
30	University of Nigeria Nsukka	University of Nigeria Nsukka Institutional Repository	Dspace	Institutional http://www.repository.unn.edu.ng	Journal Articles Theses and Dissertations Books, Chapters and Sections

Figure 1: Most frequently archived content in the Institutional Repository in Nigeria



The content mostly archived is journal article followed by theses and dissertations and conference proceedings. These are the materials produced by staff and students of the institutions; they are research publications from different fields of study within the institution. Many of them explored ways to solve societal and economic problems, as a result, there is need to make them accessible to be utilized by researchers. The studies of Nyambi (2012); Ukwoma and Okafor (2017), Ukwoma, Osadebe and Dim (2019) stated that the contents of IR in Zimbabwe and Nigeria are journal articles, conference proceedings, theses and dissertations.

friendly and easy to customized by the users. Again since it is more common among the institution it makes it easy for them to collaborate in case of any challenges on using the software.

Figure 2: The most prevalent software used in developing institutional repositories in Nigeria

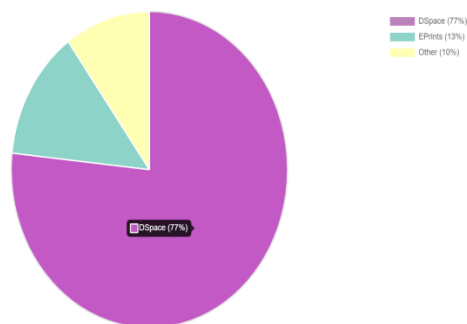
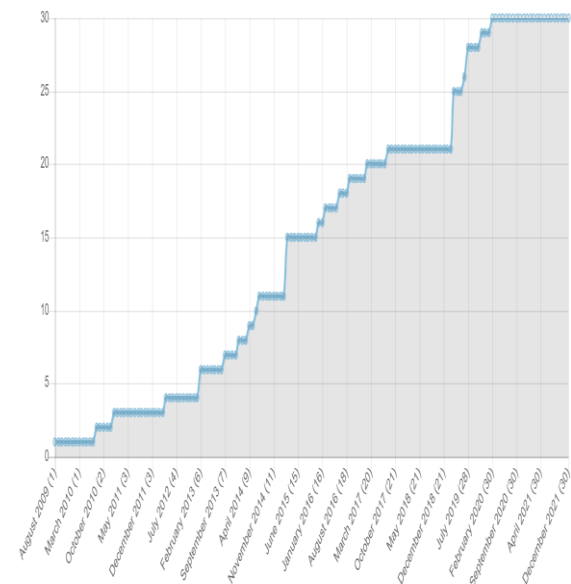


Figure 2 shows that Dspace software was predominantly used in building institutional repositories in Nigeria. This corroborates the findings of Ukwoma and Okafor, (2017), which means that the features may be user-

Figure 3: The growth of Institutional Repository in Africa



The growth rate of the institutional repository has been on the increase, a look at figure 3 shows that each year the number of repositories keeps on increasing which shows that more and more repositories are developed in various institutions. Though there may be some universities that have not registered their repositories on the directory of open access

repositories which makes them not to be counted.

Discussion

From the analysis above, a lot of universities are yet to develop their IR. This may be as a result of lack of awareness of the importance of (this) IR service to the universities or they do not have the technical expertise to carry out the project. As Moahi (2009) pointed out that Africa produce a lot of research but many of them are not visible on the web for others to see what have been produced. The repositories are mainly institutional many of the contents archived in these repositories are mostly journal articles, thesis and dissertations as well as conference proceedings. The study highlighted that there is a commendable growth of IR's on yearly bases in Nigeria, and the growth of repositories in has been on the increase in arithmetic progression. However, this growth may not be significant when compared with the number of institutions in Nigeria and the emphasis on research and innovations globally.

Implications of Developing Institutional Repository for Higher Institutions

Any higher institution is aimed at teaching, learning and research for the development of an individual and for national development. In order to achieve this, they involve a lot in research and publications which should be preserved for use. The implication of functional institutional repository to university development cannot be overemphasized, Bashir, Gul, Bashir, Nisa, Ganaie (2021) stated that the characteristics associated with open institutional repositories makes them stand out of the crowd in the family of open access scholarly platform. IR helps to build collections for the library which users can access for their research, it serves as a platform for research dissemination, contributes to the growth of literature and improves the visibility of the university.

Collection Development: It is imperative that libraries acquire materials for teaching, learning and research, the development of institutional repository with rich contents as analysed will serve as a database for

researchers both within and outside the university community. They can access research materials in their subject areas of interest to build on existing knowledge and make contributions to knowledge. In addition, information could be collected from the database which will help to analyse the materials used by researchers in the institution. Such information is helpful, as it serves as a guide to the materials mostly used by researchers within the university community.

Research Dissemination: Institutional repository provides a platform for easy access and retrieval of materials. It is the best way to circulate articles or research findings, it is easy to connect with the researcher if there is need for further research in that area or collaboration. The move on indigenization of scholarship has made most institutions to create a database of their local contents for global visibility, knowledge is meant to be shared to enhance access and collaboration as a result the development of institutional repositories should be sustained. Knowing the archived contents belongs to an institution or organization none of them will like to archive any research materials that lack credibility. This explains why many institutions always check the originality of the research materials to be archived in their IR to avoid plagiarism and copyright violation. This makes the materials available in IR credible and reliable that many researchers always rely on them.

Growth in Literature; The drive on open access to knowledge is very much on the increase, many organizations and institutions support the movement. This has contributed a lot to the growth of open access institutional repository leading to the production of much literature in different fields. These materials are available and accessible as soon as they are archived, contributing to the growth of literature in the world, it has also given a boost to the collections of many libraries in different formats such as journal articles, theses and dissertations, books and book chapters.

Visibility of Universities: Institutions have gained a lot in visibility by developing an open access institutional repository. Visibility shows how users outside have been able to access or link to the repository site, its only rich sites

that can attract high traffic. Akpokodje and Akpokodje 2012 observed that the establishment of institutional repository in university of Jos made their research outputs to be visible, that university of Jos, moved from nowhere on the map to 4th position in Nigeria and 70th in Africa and 7000th in the world of the ranking of world universities for January 2010 ranking. This is evidence of the impact of archiving research materials on IR, this justifies the reason why many institutions develop their IR.

Government: This has provided an idea of research outputs produced from institutions of higher learning in the country, the results of the research if implemented by the government will help to solve some societal problems. It provides a framework for government intervention and support to most of the research works going on in the country. It is easier to support institutional based research, because of its credibility, collaboration and sharing of the research findings.

Recommendations

Based on the findings of the study, it is therefore recommended that:

1. All academic institutions in Nigeria to key into IR development in and make their research publications available to the public.
2. Academic institutions should outsource for funds from non-governmental bodies and other donor agencies in order to carry out this project rather than waiting for the government to fund them.
3. There should be provision of alternative power supply such as inverters and adequate ICT infrastructures required for managing IR.
4. Scholars should be sensitized on the need to submit contents for archiving in IR. Although in some institution this is the practice but in many others the case is different, but the sustainability of an IR through content creation and submission is important.

Conclusion

Having accessed the state of Institutional repositories in Nigeria, it was discovered that there are functional IRs in Nigeria although the number is low considering the number of institutions in Nigeria. It is expected that the number of IRs should be higher than what was captured in DOAR. It may be that many institutions may have IR but did not register them in DOAR. Universities should key in to IR development as this will help in archiving the research outputs published within the university and to increase the visibility of the university. Universities should ensure that their IRs are registered at the DOAR, since this is a database for capturing of repositories globally to increase access and use.

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