

Challenges and Benefits of Institutional Repository Sustainability in Public Libraries in Nigeria

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ORIGINAL

Abstract

Objective. The study investigated the challenges of Institutional Repository Sustainability in public university libraries in Nigeria. **Method.** A questionnaire was administered to 230 librarians from public university libraries in Nigeria. The sample of repository institutional was purposive, all registered on Open-DOAR, whether functional or non-functional. **Results.** The main sustainability challenges with Nigerian institutional repository were: funding, content populating, poor synergy between IT and library staff as well as lack of qualified staff, lack of sustainable Internet connectivity, electricity supply, among others. Most librarians have a doctorate and little experience in Institutional Repository Sustainability. The study also proposed recommendations for IRs. **Conclusions.** There is a need for a paradigm shift in the process of managing the sustainability of institutional repositories. Libraries cannot be bystanders in the economy and production of knowledge.

Keywords:

Librarians; Libraries; Nigeria; Institutional Repository Sustainability; Public Universities

Retos y beneficios de la sostenibilidad de los repositorios institucionales en las bibliotecas públicas de Nigeria

Resumen

Objetivo. El estudio investigó los retos de los Repositorios Institucionales Sostenibles en las bibliotecas universitarias públicas en Nigeria. **Métodos.** Se administró un cuestionario a 230 bibliotecarios de bibliotecas universitarias públicas de Nigeria. La muestra de repositorios institucionales fue intencional, todos registrados en Open-DOAR, ya fueran funcionales o no. **Resultados.** Los principales retos de sostenibilidad de los repositorios institucionales nigerianos fueron: financiación, saturación de contenidos, escasa sinergia entre el personal de TI y el de la biblioteca, así como falta de personal cualificado, falta de conectividad sostenible a Internet, suministro de electricidad, entre otros. La mayoría de los bibliotecarios tienen un doctorado y poca experiencia en RIS. El estudio también proponía recomendaciones de sostenibilidad para los repositorios institucionales. **Conclusiones.** Es necesario un cambio de paradigma en el proceso de gestión de la sostenibilidad de los repositorios institucionales. Las bibliotecas no pueden ser espectadoras de la economía y la producción de conocimiento.

Palabras clave:

Bibliotecarios; Bibliotecas; Repositorios Institucionales Sostenibles; Nigeria; Universidades públicas

Desafios e benefícios da sustentabilidade do repositório institucional nas bibliotecas públicas da Nigéria

Resumo

Objetivo. O estudo investigou os desafios dos Repositório Institucional Sustentáveis em bibliotecas de universidades públicas na Nigéria. **Método.** Foi aplicado um questionário a 230 bibliotecários de bibliotecas de universidades públicas na Nigéria. A amostra dos RIs foi intencional, todos registrados no Open-DOAR, sejam eles funcionais ou não funcionais. **Resultados:** Os principais desafios de sustentabilidade com o repositórios institucionais nigerianos foram: financiamento, povoamento de conteúdo, sinergia deficiente entre a equipe de TI e a equipe da biblioteca, a ausência de conectividade sustentável com a Internet, fornecimento de eletricidade, entre outros. A maioria dos bibliotecários possuem um doutorado e pouca experiência em repositórios institucionais. O estudo também propôs recomendações para Repositórios Institucionais Sustentáveis. **Conclusão.** Há necessidade de uma mudança de paradigma no processo de gerenciamento da sustentabilidade dos repositórios institucionais. As bibliotecas não podem ser espectadoras na economia e produção do conhecimento.

Palavras-chave

Bibliotecários; Bibliotecas; Nigéria; Repositório institucional sustentável; Universidades públicas

1 Introduction

Institutional Repository Sustainability (IRS) is an all-encompassing construct focused on the continuity of an institutional repository. Institutional repositories aim to secure the intellectual content of universities, while sustainability refers to the consistent operation of an entity. Therefore, IRS deals with the continuous operation of institutional repositories. Sustained institutional repositories contribute significantly to a university's mission in advancing study, learning, and research. According to Nkiko, Bolu, and Michael-Onuoha (2014), IRS requires concerted efforts, collective participation of stakeholders, and a clear definition of roles and responsibilities. Critical components key to institutional repository sustainability includes metadata management, content recruitment, storage, preservation and archiving, copyright adherence and discoverability (Dlamini and Snyman, 2019).

The aim(s) of establishing institutional repositories are to protect and preserve research outputs created by the university members and to make the research outputs available for people who might need them at any point in time. Various authors have defined the concept of institutional repository. Jain et al. (2015) describes institutional repository as a digital research archive that contains accessible collections of scholarly work that reflects the intellectual capital of an institution. Institutional repository is a system where institutions manage the digital scholarship that emanate from the university community and maximize access to research outputs both before and after publication to increase the visibility and academic prestige of both the institution and authors. The development of institutional repository has provided academic and research institutions with a very high level of visibility on the library digital resources electronically (Okumu, 2016). As such, teaching, learning and research are widely enhanced in the society at large today (Ogbomo and Muokebe, 2015). This has inspired students and faculty members to deposit their intellectual output and make available the results of their work within and outside the institution through the institutional repository. The goal of institutional repository is to increase visibility, preservation and storage of all types of institutional output, including unpublished literature, support for learning and teaching, standardization of institutional records, ability to keep track of and analyze research performance, breaking down of publishers' cost and permission barriers, help universities to share their knowledge and expertise (Christian, 2008).

2 Literature review

Institutional Repository (IRs) development in Nigeria has not been devoid of challenges. One of the challenges of IR sustainability in Nigeria and many other developing countries is that of Information Communication

Technology and Internet connection. The development of open access institutional repositories requires fast and dependable internet connection cum deployment of necessary information and communication technology infrastructure. Unfortunately, evidence from preliminary studies carried out in Nigeria shows that Nigeria still lags behind when it comes to Internet access. Christian (2012) in his study discovered that institutional repository development has been challenged by various problems which includes epileptic power supply, lack of ICT skills, poor funding and so on.

Electricity supply is a major problem associated with IRs in developing countries like Nigeria. This problem has made the development of projects like an institutional repository in Nigeria much difficult and expensive. Fatunde (2008) observed that epileptic power supply is a major problem to the operation and growth of information and communication technology in Nigerian tertiary institutions. According to him only a drop of daily power supply drops irregularly into the country's tertiary institutions, thereby making ICT systems in those institutions mal-functional. To overcome this problem, universities resort to diesel-driven and gas-powered generators, but they are economically expensive and environmentally disadvantageous. Even though the country is making effort to increase its power production, the present daily production, which stood at about 2,500 megawatts, is ten times lower than its daily need (Dlamini & Snyman, 2019). The degree to which this problem limits ICT projects in the Nigerian educational sector is no small. For instance, in 2001 as reported by Christian (2012), the National University Commission (NUC) in her effort to implement repository started the development of the electronic library project in Nigeria. The project was aimed at creation of a Central Digital Repository that will help the Nigerian university system in terms of acquisition of electronic resources to support teaching and learning resources presently available in the individual university libraries. Unfortunately, this project was impeded by erratic power supply to the extent that server for the project had to be located in a distant United Kingdom which resulted in much higher cost of operation. This could have been avoided supposed there is functional electricity supply in place.

Lack of funding is another common problem experienced by developing country's institutions in their bid to establish functional digital repositories (Jain, 2015). Institutional repositories are money gulping projects whose implementation, maintenance and sustainability may depend on finance. Many universities in Nigeria seem not to have been able to set up IR because of financial paucity while existing repositories have not been able to match up with their counterparts in developed climes due to poor funding. According to National Bureau of Statistics (2019), Nigeria's budget on education has remained at less than 10% for the past ten years. Out of this 10%, only meagre sum goes to development of libraries and repositories, hence slow pace of repositories in Nigeria. There is a high tendency for development and improved performance when adequate finance is made available towards development of institutional repositories in Nigeria. But beyond funding, an important issue that may foster or limit IR sustainability is training of repository personnel. How knowledgeable and competent repository personnel are may determine how well they will be able to support the growth and continuity of IR.

Adeyemi, Appiah, Akinlade and Bribena (2017) in their attempt to identify opportunities and barriers to institutional repository development in Nigeria also lament about poor funding of institutional repository in the country. It will not be out of place to conclude that this problem is responsible for slow pace and development of institutional repository in Nigeria because repository cannot be established, successfully run and sustained without fund. Funds are required to procure necessary software, computer machines, generator, servers, scanners and various other tools essential for the smooth operation of an institutional repository. Further emphasis has been placed on funding as a significant challenge faced by institutional repositories in Nigeria, as highlighted by Oguche (2018). The author whose study was on the state of institutional repository and scholarly communication in Nigeria point to the fact that public universities in Nigeria are underfunded simply because they are dependent on federal allocation as their source of funding. The problem with this source is that the government itself is faced with various economic challenges, which often result in financial paucity and incapacitate them from dispensing fund to various institutions. Ivwighrehweta (2012), Ezema and Ugwu (2013) and Ridwan (2015) have all shown in their respective studies how lack of funding as impede the establishment and sustenance of institutional repository in Nigeria. Another issue affecting the development and sustenance of institutional repository in Nigeria is that of intellectual property and copyright. Musa, Shittu and Abdulkadir (2014) in their report berate lack of understanding of intellectual property right as a major impediment to repository development in Nigeria. Intellectual property right is a branch of law that covers various legal rights that exists in creative work of people. Simply put, intellectual property right is the right exclusively reserved for owners of creative works. Observations from various studies depict those authors often infringe on intellectual right of

others by copying their works without legal permission. Similar problem has been reported by Eke (2011) at the University of Nigeria Nsukka, where authors use creative works of others without taking the necessary legal permission for the work. The implication of this on repository development and sustainability as submitted by Musa and Musa (2012) is that it reduces the quality and value of research outputs of an institution with great implication on institutional recognition and visibility.

Muneja and Ndenje-Sichalwe (2016) identified issue of intellectual property as a major challenge to institutional repository sustenance in Africa. The authors in their study observed that there is still lack of thorough awareness of intellectual property right among researchers and academics. This is indicated in the scholars' belief that IR will be a source of generating disagreements between authors and the libraries in which the repository is located. The fear of these scholars as observed in the study is that many of them perceive institutional repository as a system that exposes their rigorous research products and without earning from it after dispensing so much time, effort and other resources on the work. This area needs to be explored because of huge number of resources researchers usually dispensed on their research works. Technical challenges such as issue relating to software have appeared in literature as a challenge to institutional repository sustainability across Africa and Nigeria inclusive.

The current state of ICT infrastructure in academic and research institutions in developing countries like Nigeria is insufficient to support the success and sustainability of institutional repositories. Meanwhile, development of institutional repository is capital gulping. However, there is a debate regarding whether the development of institutional repositories is less capital-intensive in developed countries compared to what is applicable in developing countries. Some of the researchers that have supported this are Arunachalam (2003), Agyen-Gasi et al (2010) and Adeyemi et al (2017) who all argued that academic and research institutions in developed countries already have in place a developed contemporary ICT infrastructure to capitalize on for institutional repository development but in developing countries, this infrastructure is not readily available and as such, academic institutions in developing countries have to bear huge cost in making these facilities available.

Dlamini and Snyman (2017) explored obstacles and challenges of institutional repositories in Africa and posit those issues of software remains a major obstacle to repository development in many African countries. The study further explained that many institutional repositories across Africa have not progressed due to limited knowledge of personnel in use of software available for repository services. According to Ghosh (2007), technological obstacle such as that of software would have to be addressed so as to successfully implement institutional repository. With immense advancement and changes in technology and computing, the need for training of personnel in use of various softwares and even hardware in repository is imminent.

Bimbe, Lungu, Kakana, Sichilima, Makondo and Kanyengo (2017) in their report on reinvigoration and upgrading of DSpace-based Institutional Repositories software used at university of Zambia identified that the software, that is, MyDspace 6 which is the newest version of the software is effective in enhancing the acquisition and inclusion of materials, including metadata about the resources and making easy and fast accessibility to the resources possible by listing and searching as well as supporting the sustainable preservation of the resources. However, the authors affirm that the upgrading process of the software at the university was not easy as there is no direct or established upgrade of CentOS from 5 to 6 which allows already existed upgrade to the latest (at the time) version 7.8. Moreover, it was reported that even though the software is free and open source, working with it is very challenging, and new skill set have to be embraced for effective use to take place bringing to fore the importance of training as an important determinant of institutional repository development, deployment and sustenance.

Lack of training as a challenge to institutional repository development and sustenance has been captured in previous studies. The study of Fasae, Larnyoh, Wilhemina, Alanyo, and Holmner (2017) conducted in three African universities revealed that 6.25% of the respondents have not received comprehensive training needed for management of institutional-based repository. Similar study earlier carried out by Okumu (2015) on adoption of institutional repositories in universities in Kenya indicate that although institutional repositories are very important in mitigating challenges users encounter in relation to access and utilization of repository materials, however, the library staff lack the necessary skills to manage the repository effectively as a result of lack of training and capacity development opportunities.

The implication of lack of personnel training in all areas has direct effect on repository. This is because training improves skills while lack of it impedes skills and innovation. Corroborating this, the survey of Babu, Kumar, Shewale, Singh (2012) submitted that it might be difficult to successfully run an institution repository without commensurate trainings of the personnel on various areas of repository. Mensah (2015) recommends that university management and government must give serious credence to training of library and repository staff to prepare them for efficient job performance and sustainable library and repository development.

Moreover, university also benefit from institutional repositories in a number of ways. For instance, repository provides services that aid multiple storage, access, and storage of information. In digital repository, there is no need for wooden shelves for storing information materials neither is there any barrier to access and retrieval as these are done electronically. With digital repositories, university can adopt software that will allow storage of millions of information and clients locally or globally can access and download the materials swiftly and easily to their digital devices. In this regard, universities do not have to think about space where patrons will sit when they come to repository (Baro and Otiodo, 2020).

Another benefit of repository's adoption to university is that digital repository for instance offers to university an organized environment, which easily allows for editing, correction and update of information. Unlike the traditional libraries where there is need for consistent shelve reading, dusting and monitoring of print materials, repository offers the university the benefit of electronic means of organizing information materials (Chisita, and Chiparausha, 2020). These materials can be edited at any time and could be updated without having to go through rigorous processes. It has equally been observed in studies that institutional repositories reduce time and effort information managers dispensed on document control and management as well providing functions that make for authentic maintenance of document history in a way that will always meet legal requirements regardless of the time being.

More importantly, institutional repository may increase global visibility of a university, as publications coming from a university increase the tendency of scoring high in web metrics rankings of universities and opening up outputs of the institution to a worldwide audience. Other benefits of Institutional repository sustainability are the enabling of interdisciplinary approaches to research; showcasing the institution to interested constituencies – prospective staff, prospective students and other stakeholders; accelerates the dissemination of research information; allows for collaboration with researchers around the world amongst other benefits.

Universities in Nigeria are setting up institutional repository owing to its benefits. The earliest repositories in Nigeria are Ahmadu Bello University repository, Zaria, University of Jos repository, Jos, University of Nigeria repository, Nsukka, University of Ibadan repository, Obafemi Awolowo University repository, Ile-Ife, Federal University of Technology Akure repository, Covenant University repository, Ota, Afe Babalola University and Landmark University repository, Omu-Aran. Apart from the aforementioned, many other universities have equally set up either offline or online institutional repository.

However, only a few of these repositories have been approved by OpenDOAR, a quality-assured, global directory of Open Access Repositories. As at now, only thirty (30) institutional repositories have been approved by OpenDOAR in Nigeria as against 40 (forty) while in South Africa and 44 (forty-four) in Kenya have been approved in these countries. (OpenDOAR, 2021). Regardless of this disparity, institutional repository sustainability has become an important theme in the context of librarianship and information management.

Institutions with repositories not registered with OpenDOAR may face many limitations, which often stem from time and financial constraints involved in establishing, maintaining and sustaining repositories. The absence from OpenDOAR's directory can result in limited visibility and assessment for these repositories, thereby affecting their content and scholarly impact. Additionally, not being registered may hinder global knowledge base contributions, as OpenDOAR serves as a platform for global access to institutional repositories. Institutions may also miss opportunities for collaboration and networking, as registration with OpenDOAR facilitates connections with other repositories. Moreover, repositories not registered with OpenDOAR may experience limitations in data analysis and comparison, as the directory provides valuable information about content types and software platforms used by each repository.

3 Methodology

The population of this study consisted of 542 professional librarians in all public university libraries in Nigeria that have institutional repository. The Nigerian Universities Commission lists of accredited institutions in Nigeria in December 2022 indicate that there are 220 universities, comprising 51 federal universities, 59 state universities, and 111 private universities. However, public universities with institutional repositories in Nigeria were considered for a study that comprises of 20 federal universities, and 5 state universities. While the general population for this study consisted of 542 librarians across all the public university libraries in state, and federal government funded universities in Nigeria, that have institutional repository, Taro Yamane's (1967) formulae and table was used to determine a sample size of 230 librarians for this study. A multistage sampling technique was adopted for this study that gives a representative sample thereby yielding precise results that are generalizable.

The questionnaires were sent to 230 librarians distributed in 25 Public University Libraries in Nigeria. The selection of participating universities was those that had functioning Institutional Repository that is registered in OpenDOAR. The researcher with the help of two (2) research assistants administered these questionnaires. The data collected were collated, coded and analysed in simple frequency counts and percentages with the aid of SPSS- Statistical Product and Service Solution 22. Descriptive statistics such as frequency, percentages, mean, and standard deviation were used to analyze the research questions. The research hypotheses were subjected to regression analysis. The hypotheses were tested at 0.05 level of significance.

4 Results

4.1 Response Rate

Questionnaires were distributed to respondents in the area of study and a response rate was calculated based on the total number of copies of questionnaire collected. Almost all questionnaires were answered 225 (97.8%). It is important to note that the librarians studied have the following characteristics: in Nigerian University Libraries, we operate a rotational method for librarians to ensure that everyone has a foreknowledge and hands-on experience of every aspect of the library and its services. All librarians under this study are individuals who have specifically worked with the IR. Every librarian is trained to handle the IR at any point in time, and librarians gain professional experience as they learn on the job and become proficient.

4.2 Demographic Information of Respondents

Table 1 reveals the demographic information of librarians in public university libraries in Nigeria. The results showed that the highest academic qualification in public university libraries in Nigeria is PhD degrees at 64% (n=144), while the least is Bachelor's degree (2.7%, n= 6). 25.8% of the respondents who participated in the study have had 11 to 25 years working experience while few had more than 30 years of working experience (8.4%)

On the library designation, the result of Table 1 indicates that Senior Librarians at 24.9% is highest designation while University Librarians (6.7%) were the least. In Nigeria, librarians progress through various career levels, starting from the lowest rank, which is Assistant Librarian, and advancing to the position of University Librarian. This progression is determined by several factors, including your involvement in research and your publications. Additionally, academic qualifications play a crucial role in this career path. To qualify as an Assistant Librarian, one must hold a B. Sc in Library Science. Moving up the ranks from Assistant Librarian to Librarian II requires obtaining a Master's Degree. Promotion from Librarian II to Senior Librarian is contingent on the number of research publications you have to your credit. Advancing from Principal Librarian to the position of University Librarian necessitates holding a PhD, a substantial number of research publications, and accumulating years of professional experience.

These findings collectively paint a picture of a highly educated and experienced workforce in Nigeria's public university libraries. Such a trend suggests that the majority of these librarians are well equipped with the

necessary academic and professional background to significantly contribute to the sustainability and effectiveness of institutional repositories in these libraries.

Table 1 - Demographic information of librarians

| Highest academic qualification | Frequency | % |
|---------------------------------|------------|---------------|
| Bachelor Degree | 6 | 2.7% |
| Masters | 75 | 33.3% |
| PhD | 144 | 64.0% |
| Total | 225 | 100.0% |
| Years of work experience | | |
| 0 - 5 years | 22 | 9.8% |
| 6 - 10 years | 44 | 19.6% |
| 11 - 15 years | 58 | 25.8% |
| 16 - 20 years | 26 | 11.6% |
| 21 - 25 years | 33 | 14.7% |
| 26 - 30 years | 23 | 10.2% |
| 31 years and above | 19 | 8.4% |
| Total | 225 | 100.0% |
| Designation | | |
| Assistant Librarian | 9 | 4.0% |
| Librarian II | 28 | 12.4% |
| Librarian I | 41 | 18.2% |
| Senior Librarian | 56 | 24.9% |
| Principal Librarian | 36 | 16.0% |
| Deputy Librarian | 40 | 17.8% |
| University Librarian | 15 | 6.7% |
| Total | 225 | 100.0% |

Source: Field Survey (2023).

Research question one: What are the challenges associated with the IR sustainability in in public university libraries in Nigeria?

The result shows that inadequate funding for IR sustainability had the highest percentage score (Yes = 92.0%), followed by difficulty in maintaining consistent metadata quality (88.4%); lack of budget (88.0%), inadequate facilities (85.8%), lack of a standard digital preservation plan (85.3%), absence of appropriate advocacy and literacy programs (83.1%), epileptic power supply (83.1%), lack of training of librarians and IR managers in metadata creation (82.7%), the absence of IR supporting policies (82.2%), lack of incentive for researchers (81.8%), strike and closure of university (81.3%), breakdown of IR portal due to limited library budget (80.4%) and copyright issues (79.6%).

Table 2 - Descriptive Statistics for Challenges Associated with IR sustainability

| Challenges associated with IR sustainability | Yes | No |
|---|-----------|----------|
| Inadequate funding for IR sustainability | 207(92.0) | 18(8.0) |
| Difficulty in maintaining consistent metadata quality across different collections | 199(88.4) | 26(11.6) |
| No budget for IR sustainability | 198(88.0) | 27(12.0) |
| Inadequate facilities | 193(85.8) | 32(14.2) |
| Lack of a standard digital preservation plan | 192(85.3) | 33(14.7) |
| Absence of appropriate advocacy and literacy programs for the University community | 187(83.1) | 38(16.9) |
| Epileptic Power supply | 187(83.1) | 38(16.9) |
| Lack of training of librarians and IR Managers in metadata creation | 186(82.7) | 39(17.3) |
| Absence of IR supporting policies (such as Content, Perseveration, intellectual property, copyright, access, submission, Funding policy, etc) | 185(82.2) | 40(17.8) |
| Lack of incentive for researchers | 184(81.8) | 41(18.2) |
| Strike and Closure of University | 183(81.3) | 42(18.7) |
| Breakdown of IR portal due to limited library budget | 181(80.4) | 44(19.6) |
| Copyright issues | 179(79.6) | 46(20.4) |
| Plagiarism issues | 178(79.1) | 47(20.9) |
| Lack of synergy between the IT department and the library with regards to IR | 178(79.1) | 47(20.9) |
| Lack of training for librarians and other support staff in charge of university IR | 174(77.3) | 51(22.7) |
| Lack of provision of institutional content / documents for IR | 174(77.3) | 51(22.7) |
| Lack of controlled vocabularies available to index for certain subjects | 173(76.9) | 52(23.1) |
| Poor internet connectivity | 171(76.0) | 54(24.0) |
| Security issues | 170(75.6) | 55(24.4) |
| Lack adequate ICT technologies for sustainability | 164(72.9) | 61(27.1) |
| Lack of Institutional Support on sustainability | 163(72.4) | 62(27.6) |
| Lack of human resources for IR sustainability | 156(69.3) | 69(30.7) |
| Lack of skilled ICT Personnel | 141(62.7) | 84(37.3) |
| Limited storage for data on the IR | 133(59.1) | 92(40.9) |

Source: Field Survey (2023).

By implication, the key challenges associated with IR sustainability in public university libraries in Nigeria are inadequate funding, difficulty in maintaining consistent metadata quality across different collections, lack of budget, inadequate facilities, lack of a standard digital preservation plan, lack of appropriate advocacy and literacy programs, epileptic power supply, lack of training of librarians and IR managers in metadata creation, the absence of IR supporting policies, lack of incentive for researchers, strike and closure of university, breakdown of IR portal due to limited library budget and indicated copyright issues have not been given urgent attention.

Research question two: What are the benefits associated with the IR sustainability public university libraries in Nigeria?

The results of Table 3 revealed that certain benefits associated with IR sustainability in public university libraries in Nigeria (Average mean score \bar{x} =3.57). A cursory look at the items revealed that increase visibility had the highest mean score (\bar{x} = 3.68), followed by image boosting of authors (\bar{x} = 3.67); improved sharing of scholarly content (\bar{x} = 3.60), improved webometric rankings of institutions (\bar{x} = 3.57), provision of open access to materials and research findings (\bar{x} = 3.56), preservation of institutional scholarly documents in digital format (\bar{x} = 3.54), attracting of future research funding (\bar{x} = 3.51), globalization of Nigerian research findings (\bar{x} = 3.51) and development of collaborative workspace/file sharing with other scholars in the world (\bar{x} = 3.50).

Table 3 - Descriptive Statistics for Benefits Associated with IR sustainability

| Benefits associated with IR sustainability | SA (%) | A (%) | D (%) | SD (%) | Mean \bar{x} |
|--|-----------|----------|---------|---------|----------------|
| IR sustainability increase visibility of the institution | 170(75.6) | 40(17.8) | 14(6.2) | 01(0.4) | 3.68 |
| IR sustainability enhances the image of authors via increased citations | 175(77.8) | 33(14.7) | 10(4.4) | 07(3.1) | 3.67 |
| IR sustainability improves sharing of scholarly contents | 163(72.4) | 45(20.0) | 07(3.1) | 10(4.4) | 3.60 |
| IR sustainability improves webometrics ranking of institutions | 162(72.0) | 38(16.9) | 18(8.0) | 07(3.1) | 3.57 |
| IR sustainability provides open access to materials and research findings | 157(69.8) | 52(23.1) | 02(0.9) | 14(6.2) | 3.56 |
| IR sustainability ensures preservation of institutional scholarly documents in digital format | 143(63.6) | 70(31.1) | 02(0.9) | 10(4.4) | 3.54 |
| IR sustainability helps the institution and authors to attract future research funding | 144(64.0) | 62(27.6) | 09(4.0) | 10(4.4) | 3.51 |
| IR sustainability assists in globalization of Nigerian research findings | 142(63.1) | 66(29.3) | 07(3.1) | 10(4.4) | 3.51 |
| IR sustainability helps to develop collaborative workspace/file sharing with other scholars in the world | 140(62.2) | 66(29.3) | 12(5.3) | 07(3.1) | 3.50 |
| Average Mean | | | | | 3.57 |

Source: Field Survey (2023).

Decision Rule: If mean is $\leq 1.49 = SD$; 1.5 to 2.49 = D; 2.5 to 3.49 = A; 3.5 to 4.0 = SA. Criteria mean = 2.5. SA – Strongly Agree, A – Agree, D – Disagree, SD – Strongly Disagree.

This result indicates that IR sustainability is pivotal to the growth and progress of public university libraries in Nigeria.

5 Discussion

The result shows that inadequate funding for IR sustainability had the highest percentage score (Yes = 92.0%), followed by difficulty in maintaining consistent metadata quality (88.4%); lack of budget (88.0%), inadequate facilities (85.8%), lack of a standard digital preservation plan (85.3%), absence of appropriate advocacy and literacy programs (83.1%), epileptic power supply (83.1%), lack of training of librarians and IR managers in metadata creation (82.7%), the absence of IR supporting policies (82.2%), lack of incentive for researchers (81.8%), strike and closure of university (81.3%), breakdown of IR portal due to limited library budget (80.4%) and copyright issues (79.6%).

The result is consistent with what has been reported in many studies (Christian (2009); Eke (2012); Ivwighrehweta (2013); Musa & Shittu, (2017); Ridwan (2016). Thus, the outcome is consistent with Oyedokun et al (2018) that lack of adequate information infrastructure, absent of provision for staff training and development, limited and tighter budget for the library, lack of technological know-how, fear of technology on the part of library staff as well as epileptic power supply are faced by libraries and IRs in Nigeria. In the same vein, the finding supports Sambo, Saturday and Usman (2014) that previously established that technology obsolescence, lack of standards, lack of policies, lack of training and manpower as well as a lack of management support are the main challenges likely to hinder progress towards long term digital preservation practices.

Despite the challenges faced by IRs, finding showed that IR sustainability is highly beneficial, especially at increasing the visibility of the institutions and staff, generating funds, sharing of scholarly content, improving webometrics of institutions and others. This finding is consistent with Anene, Ozor, Baro, (2020) that IR makes

university research output transparent as well as how it helps researchers and everyone in the academic community are some of the advantages.

Similarly, the finding agrees with Dhanavandan and Tamizhchelvan (2013), who noted that among other advantages of using IR are open access to a larger audience of researchers, increased impact of researchers' work, simple access to research work and the development of new research methodologies, self-archiving, and increased citation to published scholarly works. This finding of this study confirms the findings of Gargouri (2010) who confirms that IR increase visibility and accessibility of research as repositories provide a centralized location for an institutions research output, making it easier for scholars and the general public to access and discover scholarly works.

This study finds that IR facilitates preservation and long-term access to research, a finding that agrees with Lynch (2003) that IRs ensures the long-term preservation and access to scholarly output, providing a solution to the problem of disappearing digital information. Corroborating this, Davis (2007) indicates that IRs are cost-effective as they eliminate the need for expensive subscriptions to academic journals.

6 Conclusions

The study concluded that inadequate funding, poor metadata quality, inadequate facilities, lack of a standard digital preservation plans, lack of training and incentives as well erratic power supply, strike action and portal breakdown and others as major challenges inhibiting IR sustainability in Nigerian universities. Consistently with previous findings, the study revealed that IR sustainability has many benefits that include increase in the visibility of the institution, increase in the status of authors via citations, improvement in sharing of scholarly contents, increase in the webometric ranking of institutions etc. This implies that more credibility should be given to the sustainability of IR because of the many personal and collective benefits it brings.

The study on the challenges and benefits of institutional repository sustainability in Nigeria uniquely contributes to understanding the local context by providing insights into the state of development of IRs, and its challenges, and benefits. It sheds light on the importance of stakeholders, including librarians, faculty, students, and the academic community, in ensuring sustainability. The study highlights challenges related to policies, funding, and infrastructure, offering specific insights into the difficulties faced by Nigerian universities. Additionally, it underscores the impact of awareness on open access adoption within the Nigerian academic landscape, which is crucial for repository sustainability. In addition, assessing the value of institutional repositories to the academic community, the study provides specific insights into both challenges and benefits, thereby guiding tailored sustainability strategies for the Nigerian academic context.

7 Recommendation

Based on the findings of this study, the following recommendations were developed:

1. There is an urgent need to support institutional repositories in Nigerian universities with funding to enhance sustainability as many of them are currently underfunded. Government and university management must show commitment to this by devoting significant portion of educational budget into development of IRs. This will help in sustaining existing institutional repositories and equip them and new ones with quality resources that will facilitate scholarship and national development.
2. Infrastructure, training, advocacy, intellectual property, policy and working tools such as software, computer, chairs, storage, server, internet, electricity and space in the university repositories are not encouraging, hence, attention and effort should be given to this by government and university management.

3. In today's business world, monitoring and evaluation is important for success, hence, government should set up an effective monitoring and evaluation team that will monitor and evaluate how funds and resources disbursed into institutional repositories are utilized.

Theoretical contribution of the study

The theoretical contribution of the study encompasses the importance of awareness and patronage, user-centered design, institutional design, process-oriented research, and the impact of assessment and registration in OpenDOAR. These theoretical perspectives provide valuable insights into the factors that contribute to the sustainability of institutional repositories and offer a framework for addressing the challenges and maximizing the benefits of repository sustainability.

Social contributions

The social contributions of the challenges and benefits of institutional repository sustainability encompass the importance of awareness and patronage, stakeholder engagement, understanding the value proposition, and open access adoption. These social contributions provide valuable insights into the factors that influence the sustainability of institutional repositories and offer a framework for addressing the challenges and maximizing the benefits of repository sustainability.

Research limitations

In summary, the research limitations to the study encompass the limited empirical studies, limited generalizability, limited long-term perspective, and limited stakeholder engagement such as faculty, students and other members of the academic community. These limitations highlight the need for more research that provides practical insights into the sustainability of institutional repositories and engages all stakeholders to ensure their long-term viability.

Suggestions for Future Research

The following can be considered for future research on challenges and benefits of institutional repository sustainability:

- **Empirical Studies:** Future research should focus on empirical studies that provide concrete evidence of the challenges and benefits of institutional repository sustainability. Such studies can provide practical insights into the sustainability of institutional repositories and contribute to the development of best practices for repository sustainability.
- **Long-Term Perspective:** Future research should take a long-term and future-oriented perspective to ensure the sustainability of institutional repositories. Such research can explore the challenges and opportunities associated with long-term preservation, planning, and resource allocation for institutional repositories.
- **Stakeholder Engagement:** Future research should engage all stakeholders, including faculty, students, and other members of the academic community, the study should explore the perceptions, attitudes, and behaviors of stakeholders towards institutional repositories and identify strategies for enhancing stakeholder engagement and participation.

- Open Access Adoption: Future research should explore the adoption of open access practices by academes and the impact of awareness on open access adoption. The study explores the factors that influence the adoption of open access practices and identify strategies for enhancing awareness and promoting open access adoption.

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