Assessment of the Implementation of Sustainable Open Access Repositories in Nigerian Universities

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The assessment was performed according to 57 indicators across the nine determinants identified in the model, including stakeholder engagement, community competence, content development, technology innovation, feedback systems, regulatory support, institutional cooperation, cultural inclusivity, and industrial partnerships.

The population of the study comprised 117 staff working in IR units across 14 public universities in Nigeria. This study's findings reveal that none of the determinants influencing the implementation of Sustainable Institutional Repositories (IRs) have been fully realized. While six determinants have made significant progress, three remain at the initial implementation stage. Stakeholders indicate commendable performance in staff management for IRs, fostering teamwork, and strengthening internal relationships within the repository team. However, there is a noticeable absence of indices reflecting relationships between teams and scholars. Similarly, the findings reveal that universities lack partnerships with international journals/publishers and show minimal engagement with local peer-reviewed journals for depositing publications into repositories. These universities have not yet established affiliations with other repositories or digital libraries for data harvesting, nor have they endorsed any open-access declaration to support repository practices. Nigeria should revive and establish new collaborations for resource sharing, expertise, and data harvesting, as well as create partnerships with local and international journal publishers for deposits into the repositories. Library schools should reform their curricula to reflect the current practice of scholarly communication and repository management. This research is the first to measure the implementation level of Institutional Repositories (IRs) in Nigeria using a novel assessment framework tailored to the African context, offering a comprehensive analysis of 57 indicators across nine determinants of IR sustainability. It highlights progress in internal management while identifying significant gaps in external collaborations.

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The research provides valuable insights into stakeholder engagement and presents actionable recommendations, including policy development, fostering partnerships, and updating educational curricula to enhance IR sustainability in Nigerian universities.

Keywords: Sustainability, Open access, Institutional repository, Implementation measure, Nigeria.

INTRODUCTION

An institutional repository (IR) is a project established to facilitate the widespread implementation of open access across research institutions globally. The implementation of institutional repositories has been very successful and well received, and institutions and scholars have begun to reap the benefits of IRs. However, this implementation poses several challenges that threaten sustainability. These challenges include faculty contribution, skills and competency, support and regulation, copyright issues, advancement of technology, and content preservation (Adam & Kiran, 2021; Asadi et al., 2019; Goben & Griffin, 2019). Studies indicate that over one-third of the repositories implemented in Nigeria are no longer accessible (Adam & Kaur, 2021; Bamigbola & Adetimirin, 2020; Oye et al., 2020). The diversity of these challenges necessitates sustainability studies on IR implementation. These sustainability studies involve identifying or gauging the implementation of sustainability indicators.

Scholars in the field have meticulously identified a set of indicators and determinants that play a pivotal role in ensuring the successful implementation of sustainable institutional repositories. These indicators address critical facets of repository management from diverse perspectives, underlining the complexity and multifaceted nature of this endeavor. Stakeholder engagement is viewed as a cornerstone, ensuring the repository reflects the collective input and requirements of the various entities involved. This collaborative approach not only enhances the repository's relevance but also fosters a sense of ownership among stakeholders (Eschenfelder et al., 2019). Furthermore, scholars underscore the importance of cultivating a competent community that effectively manages the repositories. A knowledgeable and skilled community is essential for navigating the complexities of repository maintenance, ensuring optimal utilization, and addressing evolving challenges (Wesolek et al., 2017).

Content development strategies constitute another critical perspective outlined by scholars. Practical strategies for developing and curating content are necessary to sustain the repository's relevance and scholarly impact. These strategies should encompass not only the identification of valuable content but also mechanisms for continuous enrichment and updating (Onyebinama et al., 2022; Ukwoma et al., 2019). In addition, the infusion of cutting-edge technology is seen as a means to enhance accessibility, facilitate seamless navigation, and promote efficient utilization of the repository's resources (Eschenfelder et al., 2019; Luther, 2018). A robust feedback system is

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recognized as a vital element in the repository management process. This system plays a crucial role in facilitating the evaluation of research impact, implementing necessary improvements, and gauging researcher satisfaction (Eschenfelder et al., 2019; Saundry, 2017). Beyond the operational aspects, scholars argue for the significance of broader institutional and external support. It includes securing regulatory backing from governmental entities, fostering administrative cooperation within the institution, promoting cultural inclusivity, and establishing partnerships with relevant industrial stakeholders (Ndegwa et al., 2022; Ukwoma et al., 2019). These elements collectively contribute to a repository's stability, relevance, and long-term sustainability (Adam & Kaur, 2022). Therefore, a comprehensive approach integrating all these perspectives is indispensable for ensuring the long-term stewardship of institutional repositories.

PROBLEM STATEMENT

Institutional repositories play a pivotal role in shaping the landscape of knowledge distribution, access, and sharing within academic institutions. These repositories offer a platform that not only facilitates the dissemination of scholarly works but also promotes collaboration and information exchange on a global scale. By providing unrestricted access to a wealth of academic resources, these repositories contribute to democratizing knowledge and fostering a more inclusive scholarly community. However, the realization of the potential benefits of open-access institutional repositories is hindered by a myriad of challenges. Faculty contributions, often essential for the success of such repositories, can be impeded by various factors including time constraints and a lack of awareness of the repositories' benefits. Technical competencies pose another challenge as ensuring these repositories' effective operation and maintenance requires a certain level of technological expertise. Moreover, the regulatory frameworks governing intellectual property rights, content recruitment, and preservation standards present additional hurdles (Baro & Nwabueze-Echedom, 2023; Oberhiri-Orumah & Baro, 2023). The intricate nature of these challenges necessitates a thorough examination of sustainability factors to ensure the enduring impact of institutional repositories.

Research Objective

This research within the Nigerian academic environment addresses the urgent need for sustainable practices in institutional repositories (IRs). The study aims to assess the implementation level of sustainable IRs using the IR Sustainability Model, which identifies 57 indicators across nine determinants: stakeholder engagement, community competence, content development, technology innovation, feedback systems, regulatory support, institutional cooperation, cultural inclusivity, and industrial partnerships (Adam & Kaur, 2022). By leveraging this model, the study seeks to provide profound insights that will enhance existing IR practices in Nigeria and serve as a valu-

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able reference for other African institutions aiming to establish and sustain open-access repositories.

LITERATURE REVIEW

Institutional repositories provide sustainable access to the literature. This role corresponds to the provision of long-term practice. The sustainability of institutional repositories must include long-term management of repository content and services (Anbu, 2006). Scholars have discussed the sustainability and long-term management of repositories from different perspectives. Rieger (2011) viewed IR sustainability as the ability to ensure access to all resources needed to preserve, manage, develop, and enhance the value of content and services offered. Sustainability is more than mere successful implementation and content management of IRs. It requires a socio-technical approach, where the value of the scholarship is realized and aligned with technical and financial support for adequate knowledge management and sharing. Van Wyk (2012) clarified that establishing sustainable IR is not just a matter of finding efficient funds but also about finding sound technical, financial, legal, and institutional knowledge across stakeholders and forming resilient ICT infrastructure. Erway (2012) defined sustainability as "the ability to keep an already successful repository running into the future." Others suggest that the sustainability of IRs can be achieved through the attraction of high user participation, sound policy, stakeholder engagement (Palmer et al., 2008), sustainable content deposits, community engagement (Carr & Brody, 2007), and increasing utilization of IR content (Li et al., 2011).

However, Ndegwa et al. (2022) revealed that institutions were not adequately prepared to provide long-term digital preservation for repository practice because of a lack of proper plans for implementing IR policies. They concluded that although institutional repositories ought to provide sustainable access to the literature, there are no such arrangements regarding plans or policies in Kenya. Similarly, Bashir et al. (2022) identified the provision of unavailable information, such as datasets, lecture notes, unpublished reports, working papers, learning objects, etc., among the advantages of institutional repositories over the commercial/subscription model of scholarly communication. The authors added that institutional repositories improve preservation, widen the readership, and enhance the standards and impact of institutional research output. Verma and Sonkar (2021) included South Africa among the countries that contributed more than others to open-access publications with particular reference to medicine. Baro et al. (2018) have acknowledged that institutions have no mandate for the sustainable practice of institutional repositories in Africa. Bangani (2018) indicated that many IRs in South Africa have not yet implemented their open-access policies. Adam and Kaur (2022) proposed a model for institutional repository sustainability. Their study identified a scale of 57 indicators across nine determinants to assess the implementation of sustainable institutional repositories (Figure 1).

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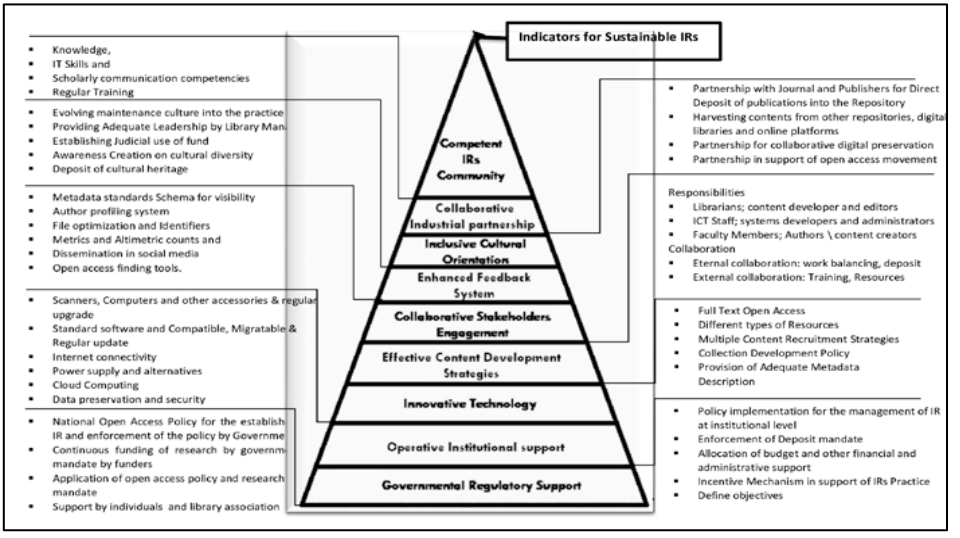
Figure 1

Indicators for Institutional Repository Sustainability



(Source: Adam & Kiran, 2023, p. 573)

METHODOLOGY

The study adopted a scale from the institutional repository sustainability model to assess the implementation of repositories in Nigerian Universities using descriptive statistics. The assessment was performed according to the nine determinants identified in the model (Adam & Kaur, 2022). The determinants included i. Collaborative stakeholder engagement, ii. Competent IRs Community, iii. Effective content development strategy, iv. Innovative technology, v. Enhanced feedback system, vi. Governmental Regulatory Support vii. Cooperative Institutional Support viii. Inclusive cultural orientation and ix. Collaborative Industrial Partnership. The mean score, frequency, and percentage measures were used. The implementation level was determined by calculating the mean score recorded by each determinant. The variables were measured on a scale ranging from 1 to 5. The points were labeled according to the following levels: 1 = Not implemented, 2 = Planning stage, 3 = Begun to implement, 4 = Made solid progress, and 5 = Fully Implemented. Table 1 presents the scale used for the assessment and the total mean scores attained by the nine determinants. The mean score has been used to determine the implementation level. The study population comprised 117 staff members from 14 public universities in Nigeria (refer to Appendix A). These staff members

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were selected based on their status as current or former library administrators and their working and research experience in institutional repositories. The inclusion of universities was determined by criteria such as being a public university, having an individual institutional repository, and being registered with OpenDOAR (refer to Appendix B). Data collection spanned from March to June 2020.

RESULTS AND DISCUSSION

The demographic evaluation of respondents for the study involved descriptive statistics, considering institution, position, duty post, qualification, and working experience. The response rate for data analysis was satisfactory at 88.03%, with representation from all fourteen identified universities. Ahmadu Bello University, Zaria, and the Federal University of Technology, Akure, each had 9.7% representation. In contrast, Federal University Oye-Ekiti had 4.9% representation. Librarians and IT staff constituted the majority of participants (55.3%, 11.7%, and 17.5%), contrasting with lower participation from other researchers (3.9% & 4.9%). The findings also revealed a significant presence of highly qualified staff (25.2% Ph.D., 46.6% Masters) with extensive experience in library work and Information Repository units (see appendix A). The results and discussions are presented based on the nine determinants of IR sustainability. Table 1 depicts the mean score and implementation level threshold for each determinant. A scale of 1–5 is used to categorize the implementation level based on the threshold range for the mean value. The implementation level is indicated in the highlighted cell in Table 1. Six of the determinants are at level 4 (made solid progress) while another three determinants are at level 3 (begun to implement).

Table 1

Evaluation Scale for the Level of Implementation for Sustainable IRs

No	Determinant	No. Items	Mean Score	Implementation Level Threshold				
				1	2	3	4	5
1	Collaborative Stakeholders Engagements	7	27.01	1-7	8-14	15-21	22-28	29-35
2	Competent IRs Community	5	18.59	1-5	6-10	11-15	16-20	21-25
3	Effective Content Development Strategies	6	21.62	1-6	7-12	13-18	19-24	25-30
4	Innovative Technology	10	36.50	1-10	11-20	21-30	31-40	41-50
5	Enhanced Feedback System	6	17.81	1-6	7-12	13-18	19-24	25-30
6	Governmental Regulatory Supports	6	18.48	1-6	7-12	13-18	19-24	25-30
7	Cooperative Institutional Support	6	20.75	1-6	7-12	13-18	19-24	25-30
8	Inclusive Cultural Orientation	6	19.92	1-6	7-12	13-18	19-24	25-30
9	Collaborative Industrial Partnership	5	13.83	1-5	6-10	11-15	16-20	21-25

Key: 1 = Not implemented, 2 = Planning stage, 3 = Begun to implement, 4 = Made solid progress, and 5 = Fully Implemented.

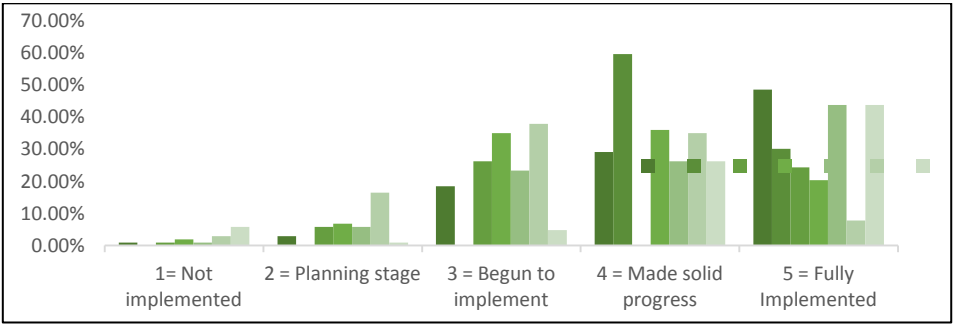
https://doi.org/10.47657/7671

Collaborative Stakeholders Engagement

The overall result for the implementation of the Collaborative stakeholder engagement determinant was progressive, with a total mean score of 27.01. The determinant scored the highest mean average compared to other determinants, indicating that collaborative stakeholders' engagement in sustainable IRs is very well implemented. Respondents rated the seven (7) items in the construct positively (4.21, 4.11, 3.83, 3.66, 4.06, 3.28, 3.85) [See Figure 2]. As the determinant received strong ratings, the findings reveal that implementing sustainable IRs from this perspective has reached a solid progress level. The results from the viewpoint of stakeholders demonstrated good performance in the employment of staff responsible for the management of IRs (77.66%). Although the results of teamwork and internal relationships between the repository team had strong ratings (66.99%), the relationship between the teams and the scholars and the external collaborations with other institutions for training and technical assistance had weaker ratings (42.71%). This indicates a need to improve local and international collaboration for sustainable IRs. The ratings of engaging relevant stakeholders for the sustainability of IRs beyond federal funding and joining local/international consortia were strong, indicating that the scholarly communities were engaged in IR practice and that the institutions had experienced involvement in collaborative consortia for resource sharing on IRs [see Figure 2].

Figure 2

Descriptive result for Collaborative Stakeholders Engagement



This finding is supported by previous studies in which units comprising senior librarians, IT personnel, and other supporting staff were created, and collaborations were specifically established for the sustainable management of IRs across some universities in Nigeria (Ifijeh et al., 2020). It is worth noting that most pioneer repositories in Nigeria were initially established and managed through effective collaborations, both locally and internationally. However, the negative ratings received by this deter-

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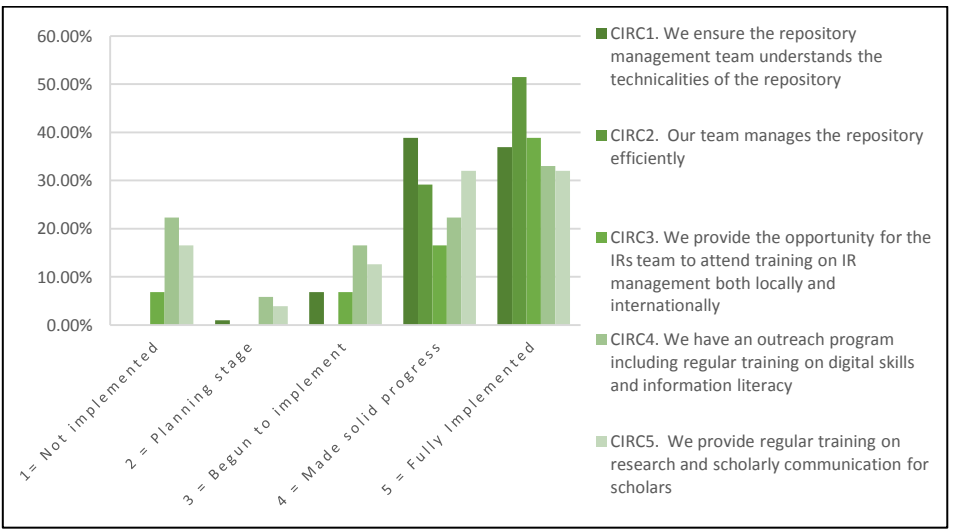
minant indicate that these collaborations no longer exist. Reviving and establishing new collaborations will improve the implementation of sustainable IRs in Nigerian universities.

Competent IR Community

The general ratings of this determinant were fairly positive with a total mean score of 18.59. The determinant is the second determinant with a high mean score. This result [Figure 3] indicates competency levels among repository teams and scholars and elements of training in scholarly communication in Nigerian universities. Although this determinant has attained a solid progress level, the vast natural and negative ratings received indicate a fair understanding of the technicalities of IRs by the repository team, partial outreach programs, and nonregular conduct of training on scholarly communications by some universities. However, this finding contradicts the claim that IR management is seriously hindered by a lack of competent staff, prerequisite skills, and training in scholarly communication (Ejikeme & Ezema, 2019; Gbaje et al., 2018; Oguche, 2018). The variations in staff capacity among the universities and the dynamic nature of the technology that rapidly changes the landscape of scholarly communication may impact this determinant. The fact that universities have highly qualified staff only informed the need to reform library schools' curricula to reflect the current changes in scholarly communication and repository management.

Figure 3

Descriptive result for Competent IRs Community



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Effective Content Development Strategies

Content has been the core determinant of the successful development and sustainable implementation of IRs. The overall result of the assessment of this determinant recorded an average of 21.62. This indicates that suitable measures have been fairly implemented for effective IR content development in Nigerian universities. The six (6) items in the construct achieved moderate ratings, that is, 3.98, 3.25, 3.42, 3.51, 4.00 and 3.46 [Figure 4]. The implementation has attained a solid progress level. However, the main finding for the implementation of sustainable IRs concerning this determinant is the application of content development policies. From all the indications, content development policies were not applied to managing IRs in Nigerian universities. This is a real threat to the sustainability of IRs and could be a source of the many challenges faced by the practice.

The application of content development policies will not only ensure sustainable content development but also establish sustainable IRs (Carr & Brody, 2007) eliminate challenges related to content sharing, access, and copyright, and ensure long-term stewardship of the repositories (Bradley, 2005; Luther, 2018; Webb, 2003). Therefore, universities must adopt policies for effective content development and the smooth running of repository projects. Moreover, multiple recruitment strategies are equally crucial for implementing sustainable repositories (Ukwoma et al., 2019). The overflow of weak ratings for adopting multiple recruitment strategies indicates the need to involve other strategies to recruit repository content effectively. Despite the challenges of faculty members' contribution toward developing repositories' content, the finding forecasts a prosperous future for IRs through content development. [Figure 4]

Clearly, research in Nigerian universities is kept on the shelves without having any form of online presence, and the contents of the repositories are recruited only via physical submission to the libraries (Abbas, 2016; Chen et al., 2013). In summary, the findings identified some areas of content development and recruitment policies that require improvement to implement sustainable repositories effectively. These include applying content development policies, metadata descriptions, and multiple content recruitment strategies.

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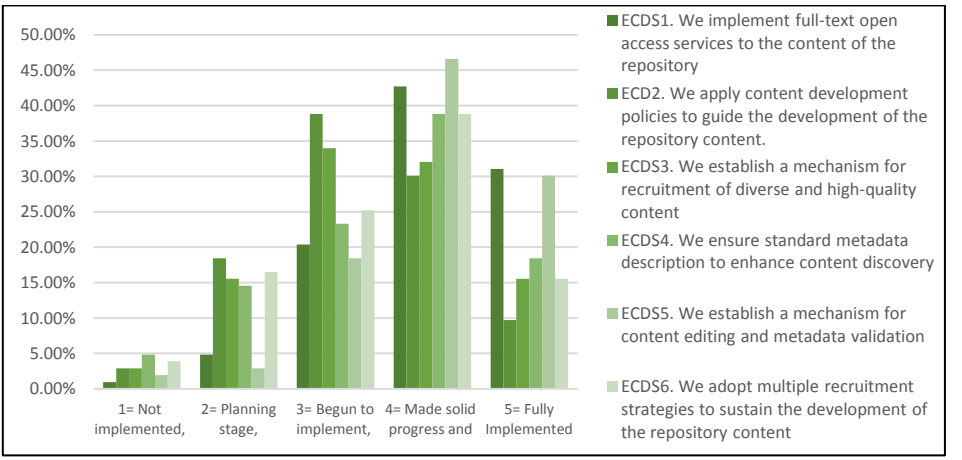
Figure 4

Descriptive result for Effective Content Development Strategies



Innovative Technology

This determinant assesses the implementation of hardware, software platforms, and other facilities necessary for the sustainable management of IRs. The overall rating of this determinant is equivalent to a solid progress level, with a total mean score of 36.50. Respondents rated the ten items in the construct positively (3.82, 3.96, 3.50, 3.50, 3.47, 3.77, 3.63, 3.72, 3.71, 3.43) [Figure 5]. The findings statistically demonstrate satisfactory performance in the acquisition of computers and other devices, establishing a stable power supply and alternative energy sources, installing a standard repository platform, modifying the system, including different file formats, and creating backup systems.

However, negative ratings received by this determinant indicate that establishing Internet connectivity and exploring the compatibility and migratability of the system are important for improving the level of implementation from this perspective. Internet connectivity and repository software are essential for the sustainability of repository practices. The Internet is influencing not only the repository services but also the sustainability. According to IFLA (2002) providing internet access is the basis for libraries to remain relevant in society. Therefore, universities should provide adequate internet connection for the repositories and for the entire library services to be sustainable. Similarly, installing standard, compatible, and flexible software can boost the sustainability of the repository (Luther, 2018). Although the weak ratings acknowl-

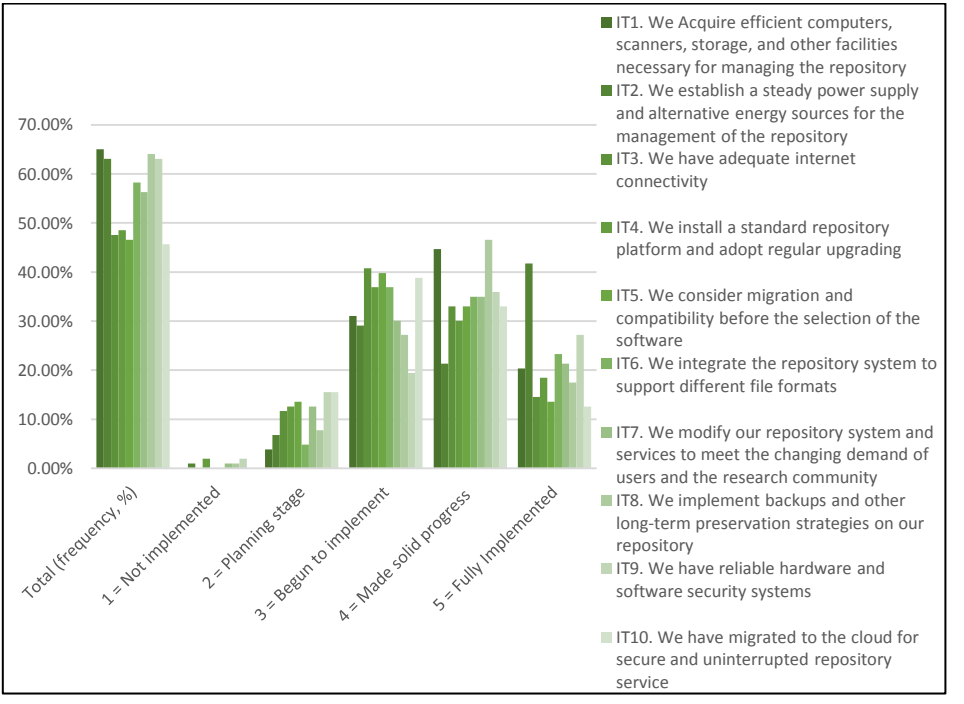
https://doi.org/10.47657/7671

edged the presence of challenges in the issues of Internet connectivity, repository software, and power supply, the finding alludes to some improvements in the implementation of sustainable IRs from this perspective.

Similarly, this finding contradicts Oguche (2018) that digital technology and power supply remain a stumbling block for the establishment of IRs in Nigeria. The finding concurs with Ifijeh et al. (2020) that the establishment and management of several functional repositories in Nigeria is evidence that universities were able to overcome the challenges of technology. Regardless of the steady development in the ICT sector, the remarks made by the participants and literature have indicated differences in implementation among the universities and acknowledged persisting problems of concern regarding the implementation of sustainable IRs. Therefore, to improve the implementation of sustainable IRs in Nigerian universities, emphasis should be placed on enhancing Internet connectivity and developing a standard repository platform [Figure 5].

Figure 5

Descriptive result for Innovative Technology



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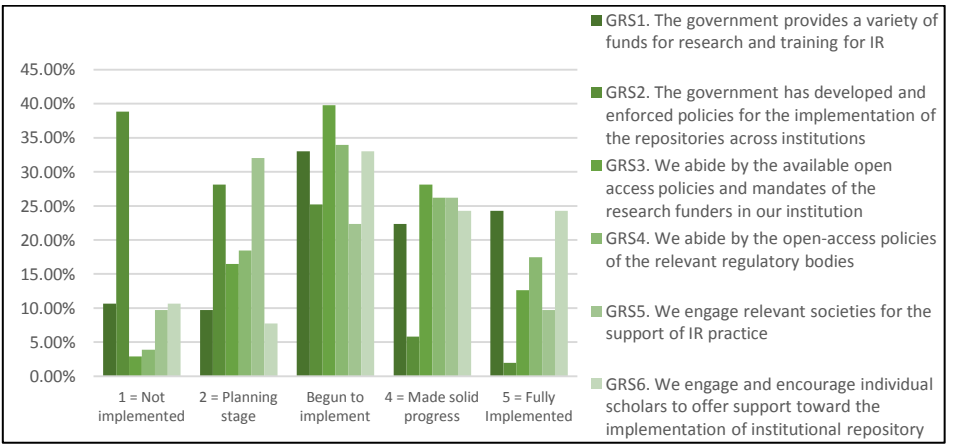
Governmental Regulatory Support

This determinant seeks to assess the implementation of support and national open access policies by the government and agencies for the practice of IRs and support by societies and individuals for the implementation of sustainable IRs. The determinant recorded a mean total score of 18.48. The results showed that the implementation of sustainable IRs based on this determinant is still at the implementation level. The items in this construct received both weak and strong ratings from the respondents, with average mean scores of 3.40, 2.04, 3.31, 3.35, 2.94, and 3.44 [Figure 6]. The balance between weak and strong ratings indicates that policies and support from the government, agencies, associations, and individual scholars were not adequately provided and implemented. This finding corroborates the findings of Nwagwu (2013). Most government and educational authorities in Africa have not yet shown any engagement in supporting open access. The findings also agree with Ejikeme and Ezema (2019) that the practice of IRs has not been guided and supported by the federal authority in Nigeria. This finding further vindicates the assertion of Smith (2019) that the African government has not adequately supported the implementation of open access. It is worth noting that open-access projects, such as repositories, can hardly survive without regulation and funding from the government and other relevant stakeholders. The threat imposed by this determinant on the sustainability of IRs is critical. Subsequently, the practice of IRs needs to be adequately supported and guided by government policies and support from professional associations and individuals.

Figure 6

Descriptive result for Governmental Regulatory Support



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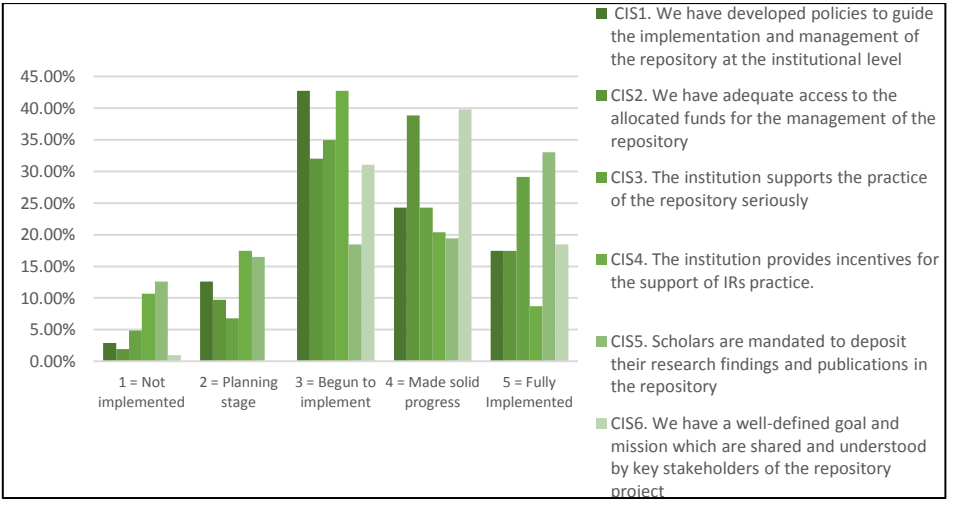
Cooperative Intuitional Support

This determinant attempted to assess the management of IRs from the provision of policies and resources through the management of institutions. The analysis appeared to have a positive result as this determinant had a mean score of 20.75, indicating that the implementation of sustainable IRs has attained solid progress. The respondents rated the items in the construct moderate: 3.41, 3.60, 3.66, 2.99, 3.44, 3.65

Figure 7

Descriptive result for Cooperative Institutional Support



The strong ratings indicate that IRs enjoy collegial support from the management, and the weak ratings received by this determinant show that many universities do not implement open-access policies. Correspondingly, weak ratings also revealed that the practice of IRs suffers from inadequate support from management in some universities, and some universities do not mandate scholars to deposit their research on IRs. The findings showed a drastic change from the findings of Dlamini and Snyman (2017) that the implementation of IRs is severely hindered by inadequate financial and administrative support from management at the institutional level however, it agrees with Salau et al. (2020) that there is no remarkable progress in the IR practice in terms of policy implementation in Nigerian public universities. This implies that the implementation of sustainable IRs lacks policies rather than support from institutions. Therefore, the way forward remains on the shoulders of libraries and repository managers to develop coherent policies and strive for enforcement by the management at the university level.

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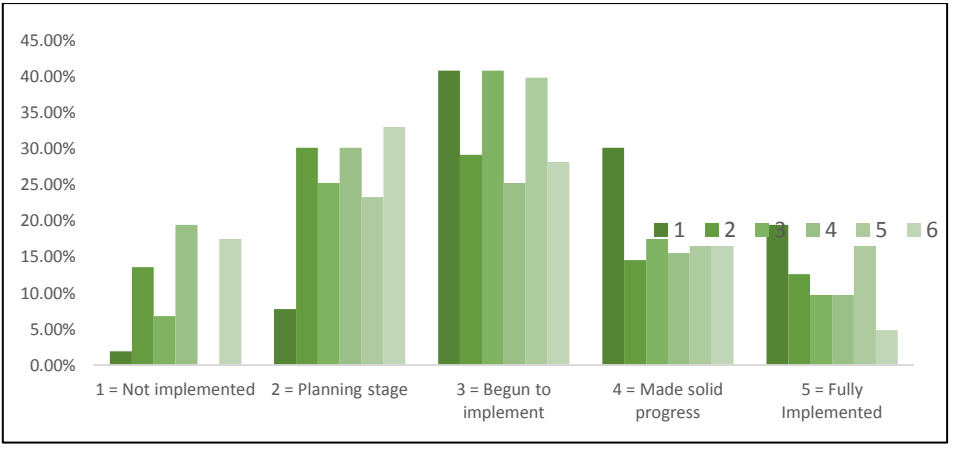
Enhanced Feedback System

This determinant assesses the method implemented to enhance visibility and assess the impact of IRs. The determinant scores have a total mean of 17.81, indicating that the implementation of this determinant is still at the starting point. The items in the construct overflowed with numerous weak ratings with mean scores of 3.57, 2.83, 2.98, 2.66, 3.18, and 2.58, respectively [Figure 8].

Figure 8

Descriptive result for Enhanced Feedback System



The weak ratings reflected across the items indicate that some features and value-added services of IRs, such as open assessment standards, compatible usage statistics, author profiling, connection to social networks, and digital identifiers, were not fully integrated into the IR practice in Nigeria. Therefore, for IRs to achieve the desired level of implementation, the above features and services must be integrated into practice. A Feedback System is critical. Feedback from metric counts is considered a principal motivator for the global management of IRs (Saundry, 2017). This indicates the finding of Salau et al. (2020) that IRs in Nigeria are not compliant with the open-archive protocol for metadata harvesting. Therefore, there is a need to improve the understanding and application of emerging alternative measures of research impact, author profiling systems, and open-access next-generation standards.

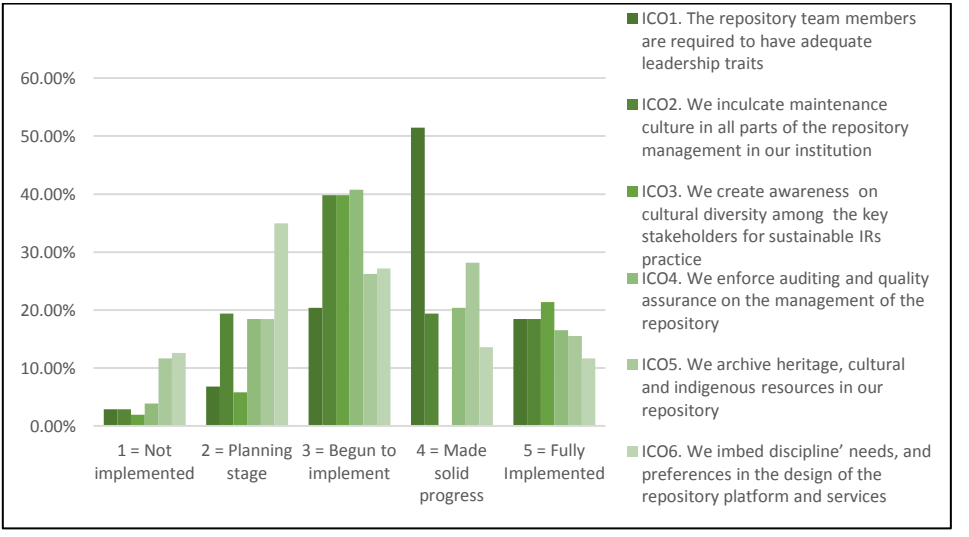
https://doi.org/10.47657/7671

Inclusive Cultural Orientation

The implementation of this determinant by Nigerian universities is satisfactory. The overall mean score for this determinant is an average of 19.92, indicating that the implementation has made solid progress. The general ratings of the respondents for the items in the construct were strong: 3.76, 3.31, 3.64, 3.27, 3.17, and 2.77 [Figure 9].

Figure 9

Descriptive result for Inclusive Cultural Orientation



In other words, the results show that some measures were put in place to address cultural barriers, invite good leadership, and ensure quality assurance, including heritage and discipline preferences in practice. However, the frequency of weak ratings within the determinant indicates variations in implementation among universities. Therefore, there is a need for the widespread implementation of all items within the determinant for universities to unanimously reach the made solid progress level, especially in the areas of embedment of maintenance culture, quality assurance, and inclusion of heritage and discipline preferences in the practice. Hence, awareness creation on cultural diversity, intensive training, and formulation of policies that enforce the application of maintenance culture and quality assurance must be considered to attain full implementation of sustainable IRs in this aspect.

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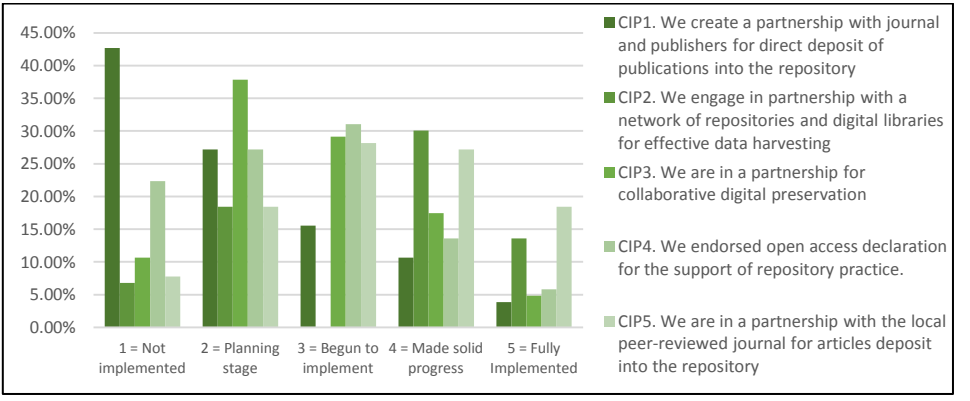
Collaborative Industrial Partnership

This determinant received the lowest average compared to other determinants, indicating that partnerships within the information industry are not very well established for the practice of IRs in Nigerian universities. The determinant scored a mean of 13.83, indicating that the implementation of sustainable IRs from the perspective of establishing partnerships within the information industry is still at the starting point. The respondents negatively rated the items in the determinant with weak means of 2.06, 3.25, 2.68, 2.53, and 3.30 [Figure 10].

Figure 10

Descriptive result for Collaborative Industrial Partnership



The overflow of weak ratings across all items within this determinant indicates that many universities are not exposed to any form of partnership within the industry. This means that universities are neither in partnership with international journal publishers nor engaged with local peer-reviewed journals for depositing publications into the repositories. Similarly, universities have not yet been affiliated with other repositories or digital libraries for data harvesting. Although few universities have acknowledged being in partnership for collaborative digital preservation, most universities have not yet endorsed any open-access declaration to support repository practices. The implication is that a single university cannot fully implement a sustainable repository without establishing partnerships for smooth content recruitment, sharing, accessing, or data harvesting within the industry. Therefore, universities in Nigeria should endorse open-access declarations, explore possible avenues for creating partnerships with local and international journal publishers for depositing into the repositories, and establish affiliations with other repositories for the smooth implementation of sustainable IRs

https://doi.org/10.47657/7671

from an industrial perspective. This can improve the performance of the IRs to attain the preferred level.

CONCLUSION AND RECOMMENDATIONS

The assessment of the implementation level of sustainable IRs in Nigerian universities has indicated that none of the determinants were fully implemented. While six determinants have attained solid progress, three determinants are still in the initial implementation phase. The findings also showed that collaborative stakeholder engagement scored the highest average, while collaborative industrial partnership remained the determinant with the lowest average. The recommendations highlighted include improvement in local and international collaborations from the areas of resource sharing and expertise, reformation of library schools' curricula to reflect the current trends of scholarly communication and repository management, application of content development policies, adequate metadata descriptions, and multiple content recruitment strategies. The recommendations include enhancement of Internet connectivity and development of standard platforms, implementation of governmental policies, support from associations and individuals, development and enforcement of policies by the management at the university level, and application of emerging alternative measures of research impact, author profiling system, and open access next-generation standards. The study also recommends creating awareness regarding cultural diversity, intensive training, and enforcing maintenance culture and quality assurance. Finally, the study recommends that Nigerian universities explore possible ways to create partnerships with local and international journals and publishers for depositing into repositories and establishing affiliations with other repositories.

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ETHICAL COMPLIANCE

All participants of this study were well informed about the aim of the study, their participation was anonymous and all data would be used for the purpose of this study only. There are no conflicts of interest involving any of the authors of this paper.

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Appendix A

Participant's Demographic Data

Demographic Domain	Level	Frequency	Percentage %
Gender	Male	69	67.0
	Female	34	33.0
	Total	**103**	**100.0**
Institutions	Ahmadu Bello University, Zaria	10	9.7
	Ambrose Alli University, Ekpoma	6	5.8
	Ebonyi State University	6	5.8
	Federal University Dutsin-ma	9	8.7
	Federal University Lokoja	7	6.8
	Federal University Ndufu-Alike Ikwo	8	7.8
	Federal University Oye Ekiti	5	4.9
	Federal University of Technology, Akure	10	9.7
	Federal University of Technology, Minna	7	6.8
	University of Ibadan	7	6.8
	University of Ilorin	7	6.8
	University of Jos	8	7.8
	University of Lagos	6	5.8
	University of Nigeria, Nsukka	7	6.8
	Total	**103**	**100.0**
Duty Post	Repository Manager	14	13.6
	Depositing Librarian	20	19.4
	Content Editing Librarian	13	12.6
	Supervisor	17	16.5
	Systems Developer	2	1.9
	Technical Assistant	33	32.0
	Other	4	3.9
	Total	**103**	**100.0**
Qualification	Ph.D.	26	25.2
	Master	48	46.6

https://doi.org/10.47657/7671

	Bachelor HND /	27	26.2
	Other	2	1.9
	Total	**103**	**100.0**
Working Experience			
In the Library	1-5 Years	42	40.8
	6-10 Years	42	40.8
	11-15 Years	8	7.8
	16-20 Years	7	6.8
	21-25 Years	1	1.0
	26 and above	3	2.9

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Appendix B

Registration with Open DOAR

SN	University	Year of Establishment	Date of registration with Open DOAR	Respondents' Positions
1	Ahmadu Bello University, Zaria	1962	27 March 2015	Librarian Lecturer Researcher Systems Administrator Systems Analyst
2	Ambrose Alli University, Ekpoma	1981	08 November 19	Librarian Lecturer Systems Administrator Systems Analyst
3	Ebonyi State University	1999	22 February 2022	Librarian Lecturer Researcher Systems Analyst
4	Federal University Dutsinma	2011	18 March 2019	Librarian Lecturer Researcher Library Officer
5	Federal University Lokoja	2011	22 September 2016	Librarian Lecturer Systems Administrator Systems Analyst
6	Federal University Ndufu-Alike Ikwo	2011	10 March 2015	Librarian Lecturer Systems Analyst
7	Federal University Oye Ekiti	2011	16 April 2014	Librarian Lecturer Systems Analyst
8	Federal University of Technology, Akure	1981	12 July 2023	Librarian Lecturer Systems Administrator Systems Analyst Principal Library Assistant Library Officer
9	Federal University of Technology, Minna	1983	28 June 2016	Librarian Lecturer Systems Analyst Library Officer
10	University of Ibadan	1948	5 March 2019	Librarian Lecturer Systems Administrator Systems Analyst

https://doi.org/10.47657/7671

11	University of Ilorin	1975	23 March 2015	Librarian Lecturer Systems Administrator Systems Analyst
12	University of Jos	1971	13 August 2009	Librarian Lecturer Systems Analyst
13	University of Lagos	1962	11 July 2014	Librarian Lecturer Systems Analyst Library Officer
14	University of Nigeria, Nsukka	1955	10 December 2015	Librarian Lecturer Systems Administrator Systems Analyst

Sources: OpenDOAR 2024; https://v2.sherpa.ac.uk/opendoar/

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