# STRATEGIES OF MAKING INSTITUTIONAL REPOSITORIES VISIBLE AND ACCESSIBLE IN AGRICULTURAL RESEARCH INSTITUTES IN NORTH WESTERN NIGERIA.

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**Abstract**
*This study examines the strategies employed to enhance the visibility and accessibility of institutional repositories (IRs) within three National Agricultural Research Institutes in North-West Nigeria. A cross-sectional survey design was used to gather data from a comprehensive sample of 291 respondents, including digital librarians, extension workers, veterinary doctors, livestock officers, agricultural officers, and researchers. Data were collected through a structured questionnaire, focusing on the strategies used to manage and promote the visibility of IRs. The analysis, conducted using SPSS, revealed several critical gaps in current practices. Findings indicate limited utilization of search engine optimization (SEO) techniques, ineffective metadata and keyword usage, and inadequate stakeholder engagement, resulting in reduced discoverability of IR materials. Additionally, there was limited collaboration with other repositories and a lack of outreach activities, such as workshops and training sessions, to promote IR resources. Based on these findings, the study recommends a comprehensive review of existing strategies, incorporating user feedback and best practices to improve IR visibility and accessibility within these institutes. This research underscores the need for agricultural research institutes to adopt more proactive and collaborative approaches to maximize the impact and reach of their institutional repositories.*
**Keywords:** Making, Institutional Repositories, Accessible, iAgricultural, Research Institutes

## Introduction

In an era marked by rapid technological advancements and a growing emphasis on open-access scholarship, institutional repositories (IRs) have emerged as pivotal platforms for enhancing the dissemination and accessibility of academic research. The studies conducted by Ranasinghe and Chung (2018), Ismail et al. (2021), and Wamae (2022) collectively underscore the transformative potential of IRs, not only as repositories for traditional scholarly outputs but also as dynamic venues for scholarly publishing and data management. Ranasinghe and Chung's investigation into the role of IRs as platforms for open-access publishing presents a paradigm shift in how academic institutions can leverage these repositories to maintain authority over their research outputs while promoting broader access to knowledge. The comprehensive literature analysis reveals prevailing patterns in scholarly publication and highlights the evolving landscape of the open-access movement, positioning IRs at the forefront of this transformation.

Complementing this perspective, Ismail et al. (2021) delve into the visibility of IRs among Malaysian research institutes, employing webometrics indicators to assess their online presence. The findings show the disparities in visibility between research-focused and non-research institutions, advocating for strategic enhancements such as reciprocal hyperlink exchanges and increased engagement on social media platforms. This emphasis on visibility is crucial, as it reflects the reach of institutional repositories and underscores the imperative for non-research institutions to adopt innovative strategies to bolster their prominence in the digital landscape.

Moreover, Wamae (2021) expands the discourse on IRs by exploring their potential to encompass a diverse range of materials, including unpublished works and datasets. This broader scope not only enriches the content available within IRs but also positions them as essential tools for managing the complexities of modern academic research. Jones advocates for a reimagining of IRs, suggesting that they should transcend traditional boundaries and embrace a more inclusive approach to content management, thereby addressing the varied needs of researchers and academic institutions.

Together, these studies highlight a critical juncture in the evolution of institutional repositories. The authors advocate for rediscovering IRs as multifaceted platforms that serve not only as storage solutions but also as integral components of the scholarly communication ecosystem. By fostering open access, enhancing visibility, and expanding content management capabilities, institutional repositories can play a transformative role in the academic landscape, ensuring that research outputs are preserved and actively disseminated to a global audience. This article aims to synthesize these insights, exploring the multifarious roles of institutional repositories in contemporary scholarship and advocating for strategies used to make the institutional repositories visible and accessible.

**Objective of the Study**
1. To identify the strategies being used to make institutional repositories visible and accessible.

**Research Question**
1. What are the strategies being used to make Institutional Repositories visible and accessible?

**Methodology**

The study design is a detailed plan that outlines how data on a specific subject will be collected and analyzed (Kombo, 2018). In this study, a cross-sectional survey research design is used to ensure that a representative sample is included from the three National Agricultural Research Institutes located in North West Nigeria. This design allows the study to collect a wide range of data from Institutional Repository Practitioners regarding the management of the repositories and service delivery by observing variables without influencing them (Hatab, 2021). The design enabled the study to explore and gather comprehensive data on digital librarians' material selection and strategies used to enhance the visibility and accessibility of their respective repositories. The sample institutions were selected using the census approach, which involves including every member of the population in the study. This ensures complete data collection and analysis. The target population of 291 Respondents constituted the sample for the study using the census approach. The sample distribution from the National Animal Production Research Institute (NAPRI) consisted of 104 Respondents, including 1 chief librarian (1.67%), 3 digital librarians (5.00%), 16 extension workers (26.67%), 11 veterinary doctors (18.33%), 21 livestock/agricultural officers (35.00%), and 9 researchers (15.00%). From the Institute for Agricultural Research (IAR), the sample included 96 Respondents, with 1 chief librarian (1.82%), 3 digital librarians (5.45%), 12 extension workers (21.82%), 13 veterinary doctors (23.64%), 18 livestock/agricultural officers (32.73%), and 9 researchers (16.36%). The National Agricultural Extension Research and Liaison Services (NAERLS) comprised 91 Respondents, including 1 chief librarian (1.89%), 2 digital librarians (3.77%), 13 extension workers (24.53%), 14 veterinary doctors (26.42%), 16 livestock/agricultural officers (30.19%), and 8 researchers (15.09%).

A close-ended questionnaire was given to digital librarians, extension workers, researchers, veterinary doctors, livestock officers, and agricultural officers in the study area to collect data. The questionnaire contained nine questions on the strategies for improving the visibility and accessibility of IRs. The responses obtained from these items were used to determine ways of improving the visibility and accessibility of IRs. The responses were rated using a five-point Likert scale: Strongly Disagree (SD=1), Disagree (D=2), Not Sure (N=3), Agree (A=4), and Strongly Agree (SA=5). The items were positively worded to ensure a consistent construct and to provide a discrete outlook for the Respondents to identify with. This study used a quantitative statistical approach to analyze data collected from Respondents through close-ended questionnaires. The data were analyzed using frequency counts (f) and percentages (%), and the Findings were presented according to the study's specific objectives. The SPSS software was used to compute the data, providing answers to the research questions across all objectives, and the Findings were presented in tables.

**Result**
**Research Question**
1.  What are the strategies being used to make Institutional Repositories visible and accessible?

**Strategies Used to Make Institutional Repositories Visible and Accessible**
The preservation and exhibition of intellectual production are greatly aided by institutional repositories (IRs), however, maintaining their visibility and accessibility can be difficult. A strong metadata schema, integration of IRs with current library systems, and improving visibility and accessibility for the campus community are just a few of the initiatives that have been put into practice to solve this. It was vital to look into this to give users information into how visible and accessible the institution's repositories are. The quantified responses from three chief librarian interviews and closed-ended surveys were created using data from 284 staff members. The outcomes are displayed in the Table.

**Table 1: Strategies for making Repositories Visible and Accessible**

| Construct of Measurement | Scale | NAPRI n=101 | | IAR n=94 | | NEARLS n=89 | |
|---|---|---|---|---|---|---|---|
| | | Freq. | Percent | Freq. | Percent | Freq. | Percent |
| The Institutional Repository at this agricultural research institute utilizes effective search engine optimization techniques to improve its visibility. | 1 | 5 | 5.0 | 7 | 7.5 | 9 | 10.1 |
| | 2 | 17 | 16.8 | 18 | 19.2 | 20 | 22.5 |
| | 3 | 11 | 10.9 | 13 | 13.8 | 9 | 10.1 |
| | 4 | 15 | 14.9 | 10 | 10.6 | 12 | 13.5 |
| | 5 | 5 | 5.0 | 4 | 4.3 | 3 | 3.4 |
| The research materials in the Institutional Repository appear prominently in search engine Findings. | 1 | 20 | 19.8 | 17 | 18.1 | 19 | 21.4 |
| | 2 | 17 | 16.8 | 21 | 22.3 | 18 | 20.2 |
| | 3 | 2 | 2.0 | 4 | 4.3 | 3 | 3.4 |
| | 4 | 7 | 6.9 | 8 | 8.5 | 5 | 5.6 |
| | 5 | 7 | 6.9 | 2 | 2.1 | 8 | 9.0 |
| The metadata and keywords used in the Institutional Repository enhance its search engine discoverability. | 1 | 19 | 18.8 | 13 | 13.8 | 17 | 19.1 |
| | 2 | 16 | 15.8 | 23 | 24.5 | 17 | 19.1 |
| | 3 | 4 | 4.0 | 3 | 3.2 | 5 | 5.6 |
| | 4 | 9 | 8.9 | 10 | 10.6 | 8 | 9.0 |
| | 5 | 5 | 5.0 | 3 | 3.2 | 6 | 6.7 |
| The Institutional Repository actively promotes its research materials through social media platforms. | 1 | 21 | 20.8 | 17 | 18.1 | 15 | 16.9 |
| | 2 | 9 | 8.9 | 14 | 14.9 | 19 | 21.4 |
| | 3 | 11 | 10.9 | 8 | 8.5 | 6 | 6.7 |
| | 4 | 3 | 3.0 | 10 | 10.6 | 11 | 12.4 |
| | 5 | 9 | 8.9 | 3 | 3.2 | 2 | 2.3 |
| The Institutional Repository engages with users and stakeholders through social media channels to increase awareness and accessibility. | 1 | 13 | 12.9 | 16 | 17.0 | 15 | 16.9 |
| | 2 | 18 | 17.8 | 15 | 16.0 | 15 | 16.9 |
| | 3 | 9 | 8.9 | 3 | 3.2 | 11 | 12.4 |
| | 4 | 4 | 4.0 | 10 | 10.6 | 7 | 7.9 |
| | 5 | 9 | 8.9 | 8 | 8.5 | 5 | 5.6 |
| The Institutional Repository collaborates with other repositories to enhance its visibility and accessibility. | 1 | 17 | 16.8 | 16 | 17.0 | 14 | 15.7 |
| | 2 | 13 | 12.9 | 15 | 16.0 | 19 | 21.4 |
| | 3 | 8 | 7.9 | 11 | 11.7 | 7 | 7.9 |
| | 4 | 5 | 5.0 | 6 | 6.4 | 10 | 11.2 |
| | 5 | 10 | 9.9 | 4 | 4.3 | 3 | 3.4 |
| | 1 | 10 | 9.9 | 11 | 11.7 | 9 | 10.1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| The Institutional Repository shares resources and research materials with other repositories to expand its reach. | 2 | 24 | 23.8 | 23 | 24.5 | 25 | 28.1 |
| | 3 | 8 | 7.9 | 7 | 7.5 | 5 | 5.6 |
| | 4 | 6 | 5.9 | 9 | 9.6 | 8 | 9.0 |
| | 5 | 5 | 5.0 | 2 | 2.1 | 6 | 6.7 |
| The Institutional Repository actively engages with researchers, students, and other stakeholders to promote its services and resources. | 1 | 11 | 10.9 | 12 | 12.8 | 13 | 14.6 |
| | 2 | 23 | 22.8 | 21 | 22.3 | 18 | 20.2 |
| | 3 | 8 | 7.9 | 6 | 6.4 | 9 | 10.1 |
| | 4 | 7 | 6.9 | 10 | 10.6 | 9 | 10.1 |
| | 5 | 4 | 4.0 | 3 | 3.2 | 4 | 4.5 |
| The Institutional Repository organizes events, workshops, or training sessions to educate stakeholders about its resources and functionalities. | 1 | 11 | 10.9 | 9 | 9.6 | 13 | 14.6 |
| | 2 | 21 | 20.8 | 20 | 21.3 | 22 | 24.7 |
| | 3 | 7 | 6.9 | 11 | 11.7 | 9 | 10.1 |
| | 4 | 11 | 10.9 | 10 | 10.6 | 6 | 6.7 |
| | 5 | 3 | 3.0 | 2 | 2.1 | 3 | 3.4 |

1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree.

Based on the research findings of item 1 presented in the table on the utilization of institutional repositories, it is observed that 5.0% of the Respondents acknowledged non-utilization of search engine optimization techniques to improve visibility with an additional 16.8% of Respondents from NAPRI. Explicitly, these Respondents were noted for non-utilization of search engine optimization techniques to improve visibility in the process of providing users with the most efficient service delivery. However, the analysis shows that 7.5% of the Respondents from IAR confirmed not actively engaged in improving the visibility of uploaded materials in the repository using search engine optimization techniques. This affirmation gained solidarity from 19.2% of the Respondents from IAR which conformed to 10.1% of Respondents from NEARLS validated by 22.5% of Respondents from the same institutions who confirmed this practice is not available in their institution. The survey among stakeholders at the various agricultural research institutions revealed the non-utilization of search engine optimization to improve the visibility of uploaded materials indicating a lack of functional repository operations.

The result indicates that among the Respondents, 10.9% of NAPRI Respondents, 13.8% of IAR Respondents, and 10.1% of NEARLS Respondents, articulated ambiguity on the utilization of search engine optimization techniques. In comparison, it was observed that IAR displayed a higher percentage of Respondents who were undecided in their response, contrary to NAPRI and NEARLS. According to the Findings, 14.9% of the Respondents agreed that in NAPRI, they often utilize search engine optimization techniques to improve the visibility of the repository, with optimal support by 5.0% of Respondents who strongly affirmed the efficient utilization of search engine optimization techniques. Based on the data collected, it has been reported that a noteworthy fraction, 10.6% of the Respondents from IAR have expressed that the search engine optimization technique is implemented in their repository to enhance visibility with support from 4.3% of respondents. The analysis demonstrated that a significant proportion of Respondents (13.5%) and (3.4%) reported active utilization of search engine optimization techniques to NEARLS to improve visibility.

The result on item 2 indicates that 19.8% of the Respondents admitted the research materials in the NAPRI institutional repository do not appear prominently in search engine Findings with optimal confirmation from 16.8% of the Respondents. It was observed by 18.1% of the Respondents with a total backing of 22.3% of the Respondents that the research materials in the IAR institutional repository failed to appear prominently in search engine Findings. In the same manner, 21.4% of the Respondents with optimal support from 20.2% confirmed the research materials in the NEARLS institutional repository declined from the threshold of prominently appearing in search engine Findings. However, there was no opinion from 2.0% of the

Respondents from NAPRI, 4.3% from IAR, and 3.4% from NEARLS. The evaluations reveal that NAPRI exhibited a modest 6.9% positive confirmation rate, indicating the research materials in the institutional repository appear prominently in search engine Findings with solidarity from 6.9% from NAPRI. In contrast, IAR demonstrated a noteworthy proportion of 8.5% confirming the functionality of the repository in line with 2.1% of the Respondents who strongly affirmed the aforementioned submissions. This finding aligns with the NEARLS equivalent 5.6% confirmation rate, suggesting a consistent pattern of utilization with optimal support from 9.0% who confirmed the research materials in the NEARLS repository appear prominently in search engine Findings.

Based on the result of item 3, it was observed that a large proportion, 18.8%, of Respondents reported the metadata and keywords used in the NAPRI repository do not enhance its search engine discoverability with confirmation from 15.8% of the Respondents. The data presented aligns with the reported percentages of 13.8% from Respondents at IAR, with strong support from 24.5% suggesting the metadata and keywords used in the institutional repository fail to enhance its search engine discoverability. The result is similar to those recorded by 19.1% of Respondents at NEARLS and 19.1% of Respondents affirming the metadata and keywords used in the institutional repository cannot enhance its search engine discoverability. However, 4.0% of Respondents from NAPRI, 3.2% from IAR, and 5.6% from NEARLS expressed uncertainty. The Findings demonstrated that 8.9% of the respondents were in agreement with the opinion obtained from 5.0% of the Respondents who reported positive feedback that the metadata and keywords used in the NAPRI repository enhance its search engine discoverability. The Findings indicate that a notable proportion of Respondents 10.6% with a considerable affirmation from 3.2% of Respondents from IAR expressed that the metadata and keywords used in the IAR repository enhance its search engine discoverability. The Findings show similarity to those gathered from 9.0% of the Respondents from NEARLS with optimal agreement with 6.7% suggesting the metadata and keywords used in the NEARLS repository enhance its search engine discoverability. The majority of Respondents across the institutions under investigation exhibited a significant level of agreement that the metadata and keywords used in their various institutional repositories cannot enhance highlights that 20.8% of Respondents indicated that the NAPRI repository does not actively promote its research materials through social media platforms. This affirmation gained support from 8.9% of the Respondents suggesting the NAPRI repository does not actively promote its research materials through social media platforms. In addition, 18.1% of the Respondents strongly agreed that the IAR repository does not actively promote its research materials through social media platforms with optimal support from 14.9% of the Respondents from IAR. In the same manner, 16.4% of the Respondents were in disagreement and confirmed that the NEARLS repository does not actively promote its research materials through social media platforms with affirmation from 21.4% of the Respondents from NEARLS. The Findings show that 10.9% of Respondents from NAPRI, 8.5% from IAR, and 6.7% from NEARLS declined to attend to the items of the questionnaires. In contrast, 3.0% of the Respondents with an additional 8.9% confirmed that the NAPRI repository actively promotes its research materials through social media platforms, which is consistent with reports obtained from 10.6% of Respondents who agreed that the IAR repository actively promotes its research materials through social media platforms with optimal support from 3.2% of the Respondents from IAR. However, a significant proportion of Respondents (12.4%) with an additional 2.3% of Respondents expressed satisfaction that the NEARLS repository uses social media platforms to promote its research materials. The Findings of this study offer substantive claims that repository experts in agricultural institutions exhibit a significant inadequacy in using social media platforms to encourage research materials.

Based on the findings on item 5, it has been ascertained that 12.9% of the Respondents in the study expressed the inability of the NAPRI repository to engage with users and stakeholders through social media channels to increase awareness and accessibility. A substantial proportion of the Respondents, 17.8%, confirmed this result from NAPRI. On the other hand, 17.0% of the Respondents from IAR with an additional 16.0% disagreed that the institutional repository increases awareness and accessibility by creating social media channels that allow interaction between users and stakeholders. Similarly, 16.9% affirmed that the repository at NEARLS engages with users and stakeholders through social media channels to increase awareness and accessibility with emphasis from 16.9% of Respondents. However, 8.9% of Respondents from NAPRI, 3.2% from IAR, and 12.4% from NEARLS expressed uncertainty. The result demonstrated that 4.0% of the Respondents agreed that the institutional repository engaged with users and stakeholders through social

media channels to increase awareness and accessibility with emphasis from 8.9% of the Respondents from NAPRI. The result is consistent across the institutions; a reasonable percentage of Respondents (10.6%) in addition to 8.5% observed that the IAR repository engages with users and stakeholders through social media channels to increase awareness and accessibility. Similarly, 7.9% of Respondents from NEARLS with support from 5.6% observed that the institution repository engages with users and stakeholders through social media channels to increase awareness and accessibility.

Based on the findings of item 6, it has been observed that 16.8% of the Respondents in the study expressed that the institutional repository does not collaborate with other repositories to enhance its visibility and accessibility. A substantial proportion of the Respondents 12.9% confirmed this result from NAPRI. On the other hand, 17.0% of the Respondents from IAR with an additional 16.0% disagreed that the IAR repository did not consider collaboration with other repositories as a way of promoting its visibility and accessibility. Similarly, 15.7% and 21.4% respectively affirmed that the repository at NEARLS does not collaborate with other repositories as a means of enhancing its visibility and accessibility. However, 7.9% of the Respondents from NAPRI, 11.7% from IAR, and 7.9% from NEARLS expressed uncertainty. The result demonstrated further that, 5.0% of the Respondents agreed that the institutional repository at IAR collaborates with other repositories to enhance its visibility and accessibility with emphasis from 9.9% of the Respondents from NAPRI. The result is consistent across the institutions; a reasonable percentage of Respondents (6.4%) in addition to 4.3% observed that the IAR repository promotes its visibility and accessibility through active collaboration with other repositories. Similarly, 11.2% of the Respondents from NEARLS with support from 3.4% observed that the institution repository collaborates with other repositories to enhance as a means of improving visibility and accessibility.

Based on the findings on item 7, it has been ascertained that 9.9% of the Respondents in the study observed the institutional repository does not share resources and research materials with other repositories to expand its reach. A considerable proportion of the Respondents 23.8% confirmed this result from NAPRI. On the other hand, 11.7% of the Respondents from IAR, with additional from a substantial fraction 24.5% disagreed that the institutional repository shares resources and research materials with other repositories to expand its reach. In the same vein, 10.1% affirmed that the repository at NEARLS does not share resources and research materials with other repositories to expand its reach with optimal support from 28.1% of the Respondents from NEARLS. However, 7.9% of the Respondents from NAPRI, 7.5% from IAR and 5.6% from NEARLS were undecided. The Findings revealed that 5.9% of the Respondents expressed satisfaction with the repository operations at NAPRI confirming that the repository actively shares resources and research materials with other repositories to expand its reach with emphasis from 5.0% of the Respondents from NAPRI. The result is certain across the institutions; a sensible percentage of the Respondents (9.6%) in addition to 2.1% observed that, IAR repository in their quest to extend their reach often shares resources and research materials with other repositories. However, 9.0% of the Respondents from NEARLS with support from only 6.7% observed that, NEARL repository shares resources and research materials with other repositories to expand its reach.

According to the Findings on item 8, 10.9% of the Respondents from NAPRI disagreed that the institutional repository actively engages with researchers, students, and other stakeholders to promote its services and resources. A substantial proportion of the Respondents 22.8% confirmed this result from NAPRI. Similarly, 12.8% of the Respondents from IAR with an additional 22.3% affirmed that the institutional repository programmes meant to engage researchers, students, and other stakeholders to promote its services and resources is not effective. Similar Findings have been obtained from 14.6% of the Respondents affirming that the repository at NEARLS poorly engages with researchers, students, and other stakeholders to promote its services and resources with emphasis from 20.6% of Respondents. However, 7.9% the Respondents from NAPRI, 6.4% from IAR and 10.1% from NEARLS were not sure while, 6.9% of the Respondents agreed that the institutional repository at NAPRI actively engages with researchers, students, and other stakeholders to promote its services and resources with emphasis from approximately 4.0% of the Respondents from NAPRI. The result showed consistency within the institutions under investigation; a sensible proportion of Respondents (10.6%) in addition to 3.2% observed that, IAR repository actively engages with researchers, students, and other stakeholders to promote its services and resources. While 10.1% of Respondents from NEARLS with support from 4.5% observed that, the institution repository actively engages with researchers, students, and other stakeholders in order to promote its services and resources.

Based on the Findings on item 9, it has been ascertained that 10.9% of the Respondents in the study expressed the inability of NAPRI repository to organize events, workshops, or training sessions to educate stakeholders about its resources and functionalities. A substantial proportion of the Respondents 20.8% confirmed this result from NAPRI. In addition, 9.6% of the Respondents from IAR with an additional 21.3% shared similar views with those from NAPRI who confirmed that the repository at IAR does not organize events, workshops, or training sessions to educate stakeholders about its resources and functionalities. Similarly, 14.6% affirmed that repository at NEARLS mode of creating awareness does not entail organizing events, workshops, or training sessions that educate stakeholders about its resources and functionalities with optimal support from 24.7% of the Respondents from NEARLS. However, 6.9% of the Respondents from NAPRI, 11.7% from IAR and 10.1% from NEARLS expressed uncertainty. The result indicated that 10.9% of the Respondents agreed that the institutional repository organizes events, workshops, or training sessions to educate stakeholders about its resources and functionalities as a way of improving stakeholder awareness with emphasis from 3.0% of the Respondents from NAPRI. The result is consistent across the institutions; 10.6% in addition to 2.1% observed that, IAR repository organizes events, workshops, or training sessions as a means of educating stakeholders on their resources and functionalities. Similarly, 6.7% of the Respondents from NEARLS with support from 3.4% observed that the institution repository organizes events, workshops, or training sessions to educate stakeholders about its resources and functionalities.

**Discussion**

The findings from this study reveal significant shortcomings in the strategies employed to enhance the visibility and accessibility of institutional repositories within agricultural research institutes in North Western Nigeria. The overall dissatisfaction among respondents, as indicated by the low mean score and high standard deviation, suggests that the current approaches are not effectively meeting the needs of users or achieving the desired outcomes. The disagreement with the effectiveness of search engine optimization techniques, metadata and keyword usage, social media promotion, collaboration efforts, resource sharing, active engagement, and workshop organization highlights the need for a comprehensive review and overhaul of the strategies being used. These findings align with the literature emphasizing the evolving role of institutional repositories and the importance of diverse content, collaboration, and engagement efforts in enhancing visibility and accessibility. However, the specific challenges identified in the North Western Nigerian context underscore the need for targeted interventions and a concerted effort from various stakeholders within the agricultural research institutes to address these shortcomings and develop more effective strategies for promoting the visibility and accessibility of their institutional repositories.

The findings regarding strategies for enhancing the visibility and accessibility of agricultural institutional repositories in North Western Nigeria align with several aspects highlighted in the literature. Ranasinghe and Chung (2018) emphasize the evolving role of institutional repositories beyond conventional scholarly access, advocating for their potential as platforms for scholarly publishing. Similarly, the study by Wamae (2022) underscores the importance of repositories in broadening their scope to include unpublished materials and datasets, aligning with the need for diverse content highlighted in the findings. However, the studies by Ismail et al. (2021) and Jones (2018) address the visibility and collaboration aspects more directly, suggesting techniques such as reciprocal hyperlink exchange and collaborative endeavors among institutions to enhance visibility. These suggestions resonate with the findings indicating a lack of effective SEO techniques, collaboration, and engagement efforts observed in North Western Nigeria's agricultural research institutes.

**Conclusion**

The findings of this study reveal critical gaps in the strategies employed to enhance the visibility and accessibility of institutional repositories within agricultural research institutes in North Western Nigeria. The overall dissatisfaction expressed by respondents reflected in the low mean scores and high standard deviations, indicates that the current approaches fail to meet user needs and achieve intended outcomes. This misalignment highlights the urgent necessity for a comprehensive reassessment of existing strategies. The ineffectiveness of search engine optimization techniques, metadata utilization, social media promotion, collaboration efforts, resource sharing, active engagement, and workshop organization underscores the importance of adopting a more holistic approach to enhancing the visibility and accessibility of institutional

repositories. Furthermore, the specific challenges identified within the context of North Western Nigeria call for targeted interventions and collaborative efforts among stakeholders to address these shortcomings.

**Recommendations**

To enhance the visibility and accessibility of institutional repositories in agricultural research institutes in North Western Nigeria, a comprehensive strategy review is essential. This review should identify weaknesses in current approaches and propose actionable improvements based on user feedback and best practices. Additionally, implementing training programs for repository managers will equip them with skills in search engine optimization, metadata management, and social media promotion, thereby empowering them to effectively engage with users and promote repository content.

Fostering collaboration among agricultural research institutions, universities, and other stakeholders is crucial for resource sharing and joint promotional efforts. Expanding the scope of repositories to include unpublished materials and datasets will attract a broader audience, while active engagement strategies, such as workshops and outreach programs, will raise awareness and encourage user participation. Establishing regular feedback mechanisms will ensure that repositories remain responsive to user needs, ultimately leading to improved scholarly communication and knowledge dissemination in the region.

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