

Exploring Research Data Management in Academic Libraries in Nigeria: Drivers, Challenges, Stakeholders and Influencing Factors

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ABSTRACT

As Nigerian academic libraries generate larger and more complex datasets that require effective management and sharing, a holistic and strategic exploration in the area is required to understand the challenges of research data management and the key activities involved in each stage. This study aimed to explore stakeholder awareness as well as the drivers, challenges, and influences of RDM in Nigerian university libraries. The current study is unique in scope and methodology as it employs a pragmatic triangulation approach to obtain quantitative and qualitative data from many respondents (N = 171) and from different institutions (N = 13). A population of 197 respondents including 171 librarians across 13 academic libraries in North-East Nigeria was drawn for the quantitative phase and 26 heads of research and IT departments from each institution for the qualitative interview. The study concluded that there is a high level of awareness of RDM and librarians are the major stakeholders in the RDM process. The study found that Data-driven Research and Data privacy, protection, and security (mean=4.41), collaboration, and partnerships (mean=4.10) are the required drivers and influencing factors for academic libraries to adopt RDM practices. The study revealed a dearth of specialists/experts (mean=3.85), which leads to ineffective RDM application while adequate stakeholder support (mean=4.44) and compliance of policies with funding agencies can aid in addressing the challenges of application of RDM in academic libraries. This study may inform the development of similar initiatives in other African countries facing similar challenges in managing and sharing research data.

Keywords: Research Data, Research Data Management, Nigerian Academic Libraries, Drivers of RDM, RDM Stakeholders, and Influencing Factors of RDM.

INTRODUCTION

Libraries are the best agents for handling research data management (RDM activities as the library professionals are trained in the skills of organizing and preserving information for posterity (Payal & Tripathi, 2019). Anduvare (2019) reported no framework to guide RDM and data support services among Kenyan private universities as he submitted that researchers managed their data in different formats and scattered it all over the shelves and computers.

Singh, Bharti & Madalli (2022) opined that with the emergence of Data Librarianship as a new role for LIS professionals, academic and research libraries around the world have begun to adopt new services, such as RDM or RDS, along with the traditional ones, to establish themselves as leaders and respected collaborators in the field of research data management. Research Data Management (RDM) has recently gained increased traction among facilitators of academic activities, including researchers, institutional administrators, academic libraries, and funding organizations (Huang et al., 2021; Reichmann et al., 2021). Many studies highlighted the established. However, Sheikh, Malik & Adnan (2023) revealed that data-sharing practices and the development of RDM services in libraries are more prevalent in developed countries.

Several studies discuss research data management (RDM) services in libraries, particularly in academic libraries in Nigeria (Ekeh et al., 2023; Eke et al., 2022; Nwabugwu & Godwin, 2020; Zotoo & Liu, 2019; Abdulyadan, 2018). These articles highlight the importance of RDM in organizing and preserving research data, and the role of academic libraries in providing RDM services to their stakeholders. However, there is limited information on the awareness of stakeholders in Nigerian libraries about RDM. Hombali (2022) supported that libraries in Nigeria play a crucial role in RDM ensuring that research data is well-organized, easily accessible, and preserved for the long-term is to assist researchers with developing data management plans.

In academic libraries, Research Data Management (RDM) services include the process of sensitizing researchers on research data creation, collection, management of institutional data repositories, developing data management plans, and applying metadata for describing datasets. Masinde, Chen & Muthee (2021) argued that researchers are turning to academic libraries to manage their data owing to paradigm shifts in scientific research that are being propagated by cyberinfrastructure, funder mandates for research data sharing, and the proactive role of libraries in shaping scholarly communication. The services of Research Data Management include a range of tools and support systems that libraries offer to help researchers and faculty members organize, document, and preserve their data during and after their research activities are finished (Payal & Tripathi, 2019).

Insignificant studies were conducted to examine how academic libraries in Nigeria collect, manage, and apply metadata for the discovery, sharing, and reusing of research data (Masinde, Chen & Muthee, 2021; Payal & Tripathi, 2019; Nhendodzashe & Pasipamire, 2017). However, even though there is growing momentum in research data management activities in academic libraries in Nigeria, the level of application of RDM activities has not been consistent due to a lack of clear-cut policy guidelines and influencing factors. Academic libraries play vital roles in research data management activities (Sheikh, Malik & Adnan, 2023; Tang & Hu, 2019; Faniel & Connaway, 2018; Perrier, Blondal & MacDonald, 2018), but their level of application is still in the early stages. In the same vein, Ekeh et al (2023) argued that managing research data is an emerging area of activity, where responsibilities and practices within libraries are generally not yet firmly established.

The limited information on the awareness of stakeholders in Nigerian libraries about RDM calls for the need to determine the level of awareness and understanding of RDM among stakeholders in Nigerian libraries. There are just a few institutions in Nigeria that are engaged

in generating evidence-based research on the nature and direction of data governance in Nigeria (Eke, 2022). This is evident in the dearth of literature on data governance and data ethics in the Nigerian university curriculum which may hinder effective research data management in Nigerian libraries. According to Nwabugwu & Godwin (2020), technology obsolescence and fragility are some of the challenges facing effective RDM services in Nigerian libraries. This means that libraries may not have access to the latest technology or may experience technical difficulties that hinder their ability to manage research data effectively. There may be a lack of awareness of RDM practices among librarians in Nigeria which may extend to other stakeholders in Nigerian libraries, such as researchers and students.

The major research questions (RQs) of the current investigation were as follows:

RQ1: What is the level of awareness about the Research Data Management (RDM) activities in academic libraries in North-Eastern Nigeria?

RQ2: Who are the relevant stakeholders involved in the RDM activities responsible for effectively managing and preserving research data?

RQ3: What are the drivers and influencing factors contributing to the application of the Research Data Management (RDM) process in academic libraries in North-Eastern Nigeria?

RQ4: What are the challenges hindering the successful implementation of RDM practices and the strategies to overcome such challenges in the academic libraries under study?

By addressing these research questions, the current investigation will contribute to the understanding of the state of RDM in Nigerian academic libraries and provide implementable recommendations that will enhance RDM activities, increase awareness, define stakeholder roles, and improve the IT infrastructure for the effective adoption and implementation of Research Data Management (RDM).

A study on the drivers, challenges and influencing factors of research data management (RDM) in Nigerian academic libraries is an important step toward understanding the current state of RDM services in Nigerian libraries and identifying ways to improve them. Several empirical research suggests that while some RDM services are being offered in Nigerian libraries, there are also challenges that need to be addressed, such as technology obsolescence, funding, and lack of awareness. By identifying the stakeholders and drivers for adopting RDM in Nigerian academic libraries, this study can help to improve the effectiveness of RDM services and ensure that Nigerian libraries are equipped to manage research data effectively.

METHODOLOGY

The study adopted the pragmatic assumption of conducting an empirical investigation due to the specific objectives and nature of the research problem. However, considering the aim of exploring the drivers and influencing factors of Research Data Management in academic libraries in Nigeria, a mixed-methods research design was considered suitable. The design

allowed the integration of qualitative and quantitative approaches, providing a comprehensive understanding of the topic. The 'Quantitative Phase' included the conduct of a survey among the librarians and IT-supported staff in the 13 academic libraries under survey and assessed the level of awareness and understanding of RDM practices, information on the availability of IT infrastructure, and resources for data management. The second method was the 'Qualitative Phase' involved an interview with the key stakeholders, including 13 heads of libraries and 13 heads of IT departments of the libraries, to explore their perspectives on the drivers, challenges, and influencing factors related to RDM adoption in academic libraries.

DATA ANALYSIS

The quantitative survey responses were analyzed using descriptive statistical techniques to identify patterns and trends between variables related to awareness, IT infrastructure, and RDM adoption. The qualitative data was analyzed through concept-driven qualitative data coding using a predefined set of codes. Relevant policy documents, guidelines, and reports related to RDM practices and IT infrastructure in Nigerian academic libraries were also analyzed using document content analysis. A triangulation mixed-methods research design was followed in integrating the findings which captured the comprehensive view of the factors influencing RDM adoption, addressing the limitations of a single-method approach

The integrated findings were used in developing themes, emerging patterns, and discrepancies between the survey data and qualitative insights. A deeper understanding of the research problem was established including strategies and recommendations for overcoming the challenges and promoting the adoption of RDM process models in Nigerian academic libraries.

Study Area

The study was conducted in 13 academic libraries in North-Eastern Nigeria (7 Federal-owned University Libraries and 6 State-owned University Libraries). The study purposively selected these academic libraries which stand as hubs for providing research services to the region and practice research data management activities, including research partnerships and expert guidance in research-related activities.

Population and Sampling

Therefore, the researchers expect resourceful and high-quality data on the drivers, challenges, and influencing factors of RDS due to the combination of the relevant stakeholders. A population of 197 RDM stakeholders including 171 librarians across the 13 academic libraries were drawn for the quantitative phase and 26 heads of research and IT departments for the qualitative interview. Stratified random sampling was used to select librarians who filled out the questionnaires while participants from the qualitative interview were selected using judgmental sampling.

Pilot Study

A pilot study was conducted among 21 librarians and one head of IT at the Federal University Dutse Library. The researchers chose a different library but similar characteristics to check

the applicability of the instrument in addressing the research problem. The number was informed by the findings of Hill (1998) and Isaac & Michael (1995), who suggested samples of between 10-30 participants for pilot studies. Experts’ assessment was also conducted to validate the application of constructs on the instruments. The outcome was then used to test the internal consistency of the instrument using the Cronbach alpha which produced an average above 0.7 for all constructs.

Table 1. Cronbach’s alpha coefficients

S/No	Major Constructs on the Questionnaire	Number of Items	Cronbach’s alpha
1	Level of awareness about the RDM process	9	.964
2	Relevant Stakeholders in the RDM activities	6	.715
3	Drivers and Influencing Factors for the Application of RDM Activities	7	.876
4	Status of RDM policy infrastructure	6	.826
5	Challenges and Strategies	12	.876
	5 Research Questions	40	.851

The Cronbach’s Alpha computed for the five (5) items was **0.851** considered high enough to make the instrument reliable and acceptable for empirical investigations.

Return Rate

From the 171 distributed questionnaires, 149 were returned, representing an 87% return rate. This response rate is considered excellent according to Morton, Bandara, Robinson, and Carr (2012), that a return rate approximating 60% is considered good, and a 50% return rate is considered suitable for analysis, 70-85% return rate is considered very good, while a return rate above 85% is regarded as excellent. Out of the 26 respondents for the qualitative interview, 16 heads of research and IT department participated in the interview.

DATA ANALYSIS AND DISCUSSION

The quantitative data collected were cleaned to identify any errors, missing values, or outliers, which ensured that the data was complete and consistent for analysis. Descriptive statistics such as mean and standard deviation were used to summarize the data on the respondents’ level of awareness about the RDM process, policy, and infrastructure for the implementation of RDM. This helps in providing an overview of the variables and understanding the distribution of responses. For the qualitative analysis of the study, the collected data were analyzed using concept-driven qualitative data coding involving assigning descriptive labels to the specific ideas, concepts, and themes that emerge from the data. Interviews were conducted with heads of research and IT departments to establish their skills and knowledge in fostering a culture of responsible data management and supporting the broader research ecosystem.

RQ1: What is the level of awareness about the Research Data Management (RDM) activities in academic libraries in North-Eastern Nigeria?

Table 2: Level of Awareness of RDM Activities

S/ No	Awareness of RDM) Practices	N	Mean	SD	Decision
1	I am aware of Research Data Management (RDM) activities in this library	149	4.5888	.85133	Accepted
2	RDM practices enhance research integrity and reproducibility	149	4.2303	.98148	Accepted
3	I understand the concept of RDM practices through workshops and training	149	4.2039	1.06451	Accepted
4	I am aware of institutional policies and guidelines for RDM activities	149	3.4638	1.55175	Accepted
5	RDM practices are adequately supported by institutional policies and guidelines	149	2.4276	1.29279	Rejected
6	RDM practices improve the discoverability and accessibility of research data	149	2.0329	1.35908	Rejected
7	RDM practices contribute to the long-term preservation of research data	149	2.3355	1.36163	Rejected
8	I am aware that RDM practices facilitate data sharing and collaboration among researchers	149	3.5066	1.30496	Accepted
9	RDM practices facilitate data sharing and collaboration among researchers	149	2.5625	1.78073	Accepted

The study revealed that there is a high level of awareness of Research Data Management (RDM) activities in academic libraries in North-East Nigeria. The respondents were aware that RDM practices enhance research integrity and reproducibility (mean=4.23), and RDM practices facilitate data sharing and collaboration among researchers (mean=3.50) and also facilitate collaboration among researchers (mean=2.56). These findings also corroborate the studies of Sheikh, Malik & Adnan (2023), and Mavodza (2022), that creating awareness among researchers about the benefits of data sharing is a challenging task for libraries. On the contrary, the findings showed that the respondents were not aware that RDM practices are adequately supported by institutional policies and guidelines (mean=2.42), improve the discoverability and accessibility of research data (mean=2.03) and contribute to the long-term preservation of research data (mean=2.33). This finding is critical to the study as a significant number of the respondents were adequately aware of the application of Research Data Management (RDM) activities in academic libraries in North-East Nigeria.

RQ2: Who are the relevant stakeholders involved in the RDM activities responsible for effectively managing and preserving research data?

Table 3: Stakeholders Involved in RDM Activities

S/No	RDM Stakeholders	Available Response	Not Available Response
1	Institutional Researchers	149	0

2	Data Managers	149	0
3	Data Architects	0	149
4	IT Professionals for RDM	149	0
5	Network and Data Repository Managers	149	0
6	Librarians	149	0

The study revealed that 'Data Architects' are not available as stakeholders for RDM activities in academic libraries in North-East Nigeria. Ekeh et al (2023) also supported that librarians are the major stakeholders in the RDM process, responsible for developing policies, providing guidance on best practices, and assisting researchers in organizing and preserving their data. The IT professionals and repository managers contribute to the understanding of the institutional landscape for RDM in the university libraries, providing valuable insights into the adoption and integration of RDM policies, ensuring compliance with funding agencies, and offering a technical perspective on RDM practices in the university libraries. Students: Students, particularly those engaged in research or postgraduate studies, generate research data and interact with RDM practices. Their perspectives on data management, data sharing, and the availability of support services can provide insights into the specific needs and challenges faced by the student community in university libraries.

RQ3: What are the drivers and influencing factors contributing to the application of the Research Data Management (RDM) process in academic libraries in North-Eastern Nigeria?

Table 4: Drivers and Influencing Factors Behind Application of the RDM Process

S/ No	Drivers and Influencing Factors	N	Mean	SD	Decision
1	Institutional Support and Policies	149	2.4836	1.22665	Rejected
2	Research Integrity and Reproducibility	149	2.5132	1.32996	Accepted
3	Funding Agency Requirements	149	4.0691	1.35163	Accepted
4	Collaboration and Partnerships with Researcher Needs and Expectations	149	4.1086	1.05839	Accepted
5	Data privacy, protection, and security	149	4.4112	1.03663	Accepted
6	Data-driven Research	149	4.4112	.90032	Accepted
7	Open Science Research Data Sharing Initiatives	149	2.3289	1.38962	Rejected

The study found that the drivers for the application of RDM vary across institutions but are largely influencing factors in the successful application of Research Data Management (RDM) activities. Many funding agencies and grant providers in Nigeria (mean=4.06) such as the Tertiary Education Trust Fund (TETFund), the Education Trust Fund (ETF), and the Petroleum Trust Development Fund (PTDF) are increasingly mandating proper RDM practices across academic libraries as a requirement for research funding. Compliance with Data-driven Research and Data privacy, protection, and security (mean=4.41), collaboration, and partnerships with researcher needs and expectations (mean=4.10) are the requirement drivers and influencing factors for academic libraries to adopt RDM practices to meet the funding agency's guidelines. RDM practices contribute to ensuring research integrity by

promoting data sharing, and proper documentation of research findings. The global shift towards Open Science, which emphasizes the open sharing of research data, is also seen as a driver for the application of RDM activities for transparency and collaboration in making RDM practices more essential for academic libraries.

RQ4: What are the challenges hindering the successful implementation of RDM practices and the strategies to overcome such challenges in the academic libraries under study?

Table 5: Challenges hindering the successful implementation of RDM practices

S/ No	Challenges to the Implementation of RDM	N	Mean	SD	Decision
1	Lack of investment in research capacity and training of stakeholders	149	4.2204	1.12610	Accepted
2	Inadequate research data Management Specialist	149	3.8586	1.28577	Accepted
3	Intellectual and license property issues	149	3.1743	1.37608	Accepted
4	Lack of professional preparation from institutions	149	2.4178	1.56060	Rejected
5	Fragmented Data Management Policies	149	2.6283	1.23614	Accepted
6	Lack of policy infrastructure	149	3.8487	1.42472	Accepted
7	Lack of priority among researchers and institutional mandates	149	4.2961	1.13066	Accepted

The research capacity and training are integral to the research data management landscape becoming increasingly complex and challenging. The finding revealed that a lack of investment in research capacity and training of stakeholders (mean=4.22) is undermining the research abilities of individual researchers, institutions, and systems in motivating the stakeholders to engage in the process of research data management. The findings also supported the conclusions of Sheikh, Malik & Adnan (2023) that institutional commitment, collaboration, academic engagement, technological infrastructure development, lack of policies, funding, and storage, skills, and competencies required for librarians to offer RDM-based services are some of the other significant challenges.

The main asset and driver for quality RDM activities are highly qualified human resources. However, the study revealed a dearth of specialists/experts (mean=3.85), which led to ineffective research data management application. The RDM policies involving training and support, access and reuse, security, and long-term preservation among other elements are seen to be fragmented (mean=2.62) as well as lack of policy infrastructure (mean=3.84). This causes a lot of problems for the successful application of RDM activities in academic libraries in Nigeria. Xu (2022) identified a lack of quantitative research, especially statistical analysis, on the effect of RDM interventions. However, the findings showed that lack of professional preparation from institutions (mean=2.410 and lack of priority among researchers and institutional mandates were not among the challenges of application of research data management in academic libraries in North-East Nigeria.

Table 6: Strategies for Overcoming Challenges of Implementing RDM

S/No	Strategies for Overcoming the Challenges	N	Mean	SD	Decision
1	Adoption of comprehensive RDM policies	149	4.7303	.52615	Accepted
2	User training of library staff and other stakeholders	149	4.4441	1.03575	Accepted
3	Adequate support from stakeholders, such as technical expertise	149	4.6678	.74781	Accepted
4	Voluntary submission of publications to the repositories	149	2.9145	1.69427	Accepted
5	Compliance of policies with funding agencies	149	4.7105	.99922	Accepted

Despite the aforesaid challenges, there are possible strategies to adopt research data management in academic libraries in North-East Nigeria. User training of library staff and other stakeholders (mean=4.44), adequate Support from stakeholders, such as technical expertise (mean=4.66), and compliance of policies with funding agencies (mean=2.9) can aid the addressing of the challenges of application of RDM in academic libraries. The findings corroborated the work of Gunjal, & Gaitanou, (2017), who highlighted strategies such as the adoption of policies, training of library staff, and support from stakeholders, such as technical expertise and academic fraternity can overcome the challenges of application of the RDM process.

Qualitative Interview Data Analysis

Reporting qualitative data in research requires ethical considerations. To ensure confidentiality, no individual library’s research finding was reported but a general finding through pseudonyms. The data makes use of non-numerical data to generate themes deductively, starting with a predefined set of codes, and then assigning the codes to the new qualitative data collected.

Table 7: Concept-Driven Interview Report on RDM in Academic Libraries

Concept-Driven Code	Comments
The current state of RDM practices	<i>Respondents 1, 4, 5, 7, 13, 14, 15, & 16 majorly emphasized that libraries in North-East Nigeria are currently offering RDM services but these services are fragmented. There is a need for library staff to update their knowledge of RDM. They are currently engaged in supporting communication among researchers, providing disciplinary and institutional resources, and emphasizing the importance of data and knowledge sharing. Respondents 2, 3, 6, 8, 9, 10, 11, & 12 revealed the current practice of RDM in the libraries has been motivated by internal and external factors, such as funding agency requirements and national policies. These to a large extent influenced RDM application in academic libraries in North-East Nigeria</i>
Drivers and Motivations for RDM Adoption	<i>Respondents 1, 3, 4, 5, 7, 9, 10, 12, 13, 14, 15, & 16 highlighted the drivers for adopting comprehensive RDM policies to include; user training of library staff, adequate support from stakeholders such as technical expertise and academic</i>

	<i>brotherliness, voluntary submission of publications to the repositories, and compliance of policies with funding agencies; While Respondents 2, 6, 8, & 11 were silent on the drivers motivating the adoption of RDM in their libraries</i>
Specific policies or guidelines in RDM activities	<i>Respondent 3, 4, 5, 7, 8, 9, 11, 12, 13, & 15 submitted that the “Policy on Data ownership” addressing issues relating to data rights and creation were available, while all the respondents affirmed that “Data Retention and Disposal Policy, Data Use and Reuse Policy, and Data Storage and Dissemination Policy” are available that outlined the rules and procedures governing data management in the libraries. Respondents 1, 4, 9, 10, 11, & 12 revealed that the “Data Software and Tools Management Policy” is put in place but in fragmented parts that address the management of software and tools used in data-related activities.</i>

Based on the summarized findings provided in Table VII, the research conducted in North-East Nigeria found that libraries offer RDM services but in fragmented parts by supporting communication among researchers, providing disciplinary and institutional resources, and emphasizing the importance of data and knowledge sharing as well, the librarians need to update their knowledge about RDM. This finding is in tandem with the submissions of Hombali (2022) and Nwabugwu & Godwin (2020) that library staff have a professional responsibility to update their knowledge about data management.

External factors and internal motivations, such as funding agency requirements and national policies, have influenced RDM application in academic libraries in North-East Nigeria. The drivers and motivations for RDM adoption include adopting comprehensive RDM policies, user training of library staff and other stakeholders, adequate support from stakeholders such as technical expertise and academic brotherliness, voluntary submission of publications to the repositories, and compliance of policies with funding agencies. Specific policies or guidelines in RDM activities include the policy on data ownership, data retention and disposal policy, data use and reuse policy, data storage and dissemination policy, and data software and tools management policy.

These findings suggest that academic libraries in North-East Nigeria are making efforts to provide RDM services, but there is a need for more comprehensive policies and guidelines to ensure effective RDM practices. These prove that policy guidelines are the backbone for RDM activities such as preservation, storage, quality, security, and jurisdiction to improve management and reuse research data (Nhendodzashe & Pasipamire, 2017). The findings also highlight the importance of external factors and internal motivations in driving RDM adoption in academic libraries.

The data retention policy on what kind of information or records should be processed for RDM should also be clearly outlined. Academic libraries in North-East Nigeria have fragmented data storage and dissemination policies which are not suitable for research data management activities. These findings can inform the development of RDM programs and policies in academic libraries in North-East Nigeria and other similar contexts.

Theoretical Implications:

The study contributes to the theoretical understanding of RDM practices in academic libraries, particularly in the Nigerian context. It provides insights into the drivers and

influencing factors of RDM adoption, as well as the challenges and barriers faced in implementing RDM processes. The findings can enrich existing RDM frameworks in the field of library and information science by providing empirical evidence and insights into the role of academic libraries in RDM activities. By exploring the drivers for RDM, the study sheds light on the understanding of how effectively RDM can foster collaboration, enhance data sharing, and promote open access to research outputs.

Practical Implications:

The findings of the study can inform policy development and decision-making processes related to RDM in academic libraries in North-East Nigeria. The identification of drivers and influencing factors can guide policymakers in creating supportive environments, developing RDM guidelines, and allocating resources to enhance RDM practices. Understanding the challenges, drivers, and influencing factors of RDM adoption can guide the development of capacity-building programs and training initiatives for librarians, researchers, and IT professionals targeting programs to enhance RDM knowledge, skills, and awareness among stakeholders. The findings have direct implications for promoting collaboration and partnerships between academic libraries and external organizations. This can lead to the sharing of expertise in RDM activities, ultimately fostering a culture of collaboration and knowledge exchange.

CONCLUSION AND RECOMMENDATIONS

The study concluded that there is a high level of awareness of Research Data Management (RDM) activities in academic libraries in North-East Nigeria. The study concludes that librarians are the major stakeholders in the RDM process, responsible for developing policies, providing guidance on best practices, and assisting researchers in organizing and preserving their data. While the IT professionals and repository managers as stakeholders contribute to understanding the institutional landscape for RDM in academic libraries.

The drivers and influencing factors for the application of RDM activities vary across institutions but are largely influencing the successful application of Research Data Management (RDM) activities. These include the influence of funding agencies and grant providers in Nigeria such as the Tertiary Education Trust Fund (TETFund), the Education Trust Fund (ETF), and the Petroleum Trust Development Fund (PTDF) are increasingly mandating proper RDM practices across academic libraries as a requirement for research funding. Others include collaboration and partnerships with researcher needs and expectations and the global shift towards Open Science, which emphasizes the open sharing of research data and best practices. RDM activities have become a new standard in academic libraries in North-East Nigeria for supporting research activity, international accessibility, and collaboration. It is crucial to create an environment where all academic libraries provide comprehensive RDM services and can play a substantial role in making all their research output visible and preserved.

Therefore, the study recommends the establishment of awareness campaigns and stakeholder sensitization strategies towards a robust research data management activity. An institutional support framework as a driver and motivating factor of RDM should be put in place to develop policy guidelines assembling all the needed capabilities (Funding Agency

Requirement, Data Privacy, Protection, and Security, Data-Driven Research, as well as RDM and IT Policy guidelines) to enable efficient managing, sharing, and reusing of research data in academic libraries.

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