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**LIBRARY DATA SERVICES AND RESEARCH DATA MANAGEMENT IN NIGERIA:
READINESS, POLICIES, AND PRACTICE**

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Abstract

The emergence of data-intensive research paradigms has fundamentally transformed the global academic landscape, positioning effective research data management (RDM) as an essential component of scholarly communication and knowledge production. Within the Nigerian higher education context, however, the development and implementation of systematic RDM practices remain at a nascent stage, characterized by significant disparities between institutional aspirations and operational realities. This comprehensive documentary review critically examines the current state of library data services and RDM infrastructure across Nigerian universities, with attention to dimensions of institutional readiness, policy frameworks, and practical implementation challenges. Methodologically, this study employs a systematic documentary analysis approach, synthesizing evidence from peer-reviewed literature, institutional reports, national policy documents, and grey literature published between 2015 and 2025. Analytical frameworks drawn from the Data Curation Centre (DCC) lifecycle model and institutional theory inform the examination of how Nigerian academic libraries are navigating the complex transition toward data-conscious research ecosystems.

Key findings suggest that while several Nigerian universities have initiated RDM awareness programs, substantial gaps persist in technical infrastructure, human resource capacity, and sustainable funding models. Particularly noteworthy is the uneven distribution of RDM readiness across geopolitical zones, with southern institutions generally demonstrating more advanced capabilities than their northern counterparts. The policy analysis reveals that although the Revised National Policy on Science, Technology and Innovation (2022) formally endorses open science principles, operational guidelines for RDM implementation remain underdeveloped, creating ambiguity in institutional compliance requirements. Regarding practice, the review identifies emerging service models primarily focused on data storage and basic consultation, with more advanced services like data curation, metadata enhancement, and long-term preservation remaining largely aspirational. A significant tension emerges between the ethical imperatives of data protection, particularly concerning health research, and the open science mandates promoted in national policy frameworks.

This study contributes to ongoing scholarly conversations by proposing a contextualized RDM adoption framework specifically designed for resource-constrained academic environments. The framework emphasizes phased implementation strategies, leveraging existing institutional strengths while systematically addressing critical capability gaps. Furthermore, the analysis highlights the crucial mediating role that academic libraries could potentially play in bridging disciplinary silos and fostering collaborative data cultures, provided they receive adequate



institutional support and professional development opportunities. Practical recommendations include the development of tiered RDM service portfolios aligned with institutional research priorities, the establishment of consortial approaches to infrastructure sharing among Nigerian universities, and the creation of context-sensitive training curricula for both librarians and researchers. These interventions, if strategically implemented, could substantially enhance the visibility, impact, and reproducibility of Nigerian research within global knowledge networks, while simultaneously addressing local developmental priorities through more effective mobilization of research data assets.

Keywords: research data management, academic libraries, Nigeria, open science, data services, documentary review, policy implementation

1. Introduction

The global shift toward data-intensive research methodologies has precipitated a fundamental reconfiguration of scholarly communication ecosystems, with research data management (RDM) emerging as a critical determinant of research quality, transparency, and impact. Within this evolving landscape, academic libraries worldwide are increasingly repositioning themselves as vital stakeholders in the research data lifecycle, transitioning from traditional custodians of published knowledge to active partners in data stewardship, curation, and dissemination. This transformative process, however, unfolds within contexts characterized by markedly different levels of infrastructural development, institutional commitment, and professional preparedness. In Nigeria, Africa's most populous nation with a rapidly expanding higher education sector encompassing over 170 universities, the imperative to develop robust RDM capabilities intersects with complex challenges related to resource constraints, technological access, and competing institutional priorities.

Recent national policy developments, particularly the Revised National Policy on Science, Technology and Innovation (2022), have formally endorsed open science principles and emphasized the strategic importance of research data accessibility for national development (Okafor & Adekunle, 2023). This policy orientation theoretically creates an enabling environment for RDM advancement, yet its operationalization within academic institutions reveals significant implementation gaps. Concurrently, Nigerian researchers are producing increasingly substantial volumes of digital research data across diverse domains, from public health and agricultural science to climate studies and digital humanities, creating both unprecedented opportunities for knowledge generation and formidable challenges regarding data organization, preservation, and ethical governance. The academic library sector's capacity to respond effectively to these challenges remains uncertain, with existing literature suggesting considerable variation in institutional readiness and strategic focus.

This documentary review aims to provide a comprehensive, critical analysis of current RDM readiness, policies, and practices within Nigerian academic libraries. The investigation proceeds from the premise that effective RDM implementation constitutes not merely a technical challenge, but a multifaceted sociotechnical endeavor requiring alignment between technological infrastructure, policy

frameworks, professional competencies, and organizational cultures. By synthesizing evidence from diverse documentary sources, this study seeks to elucidate patterns of development and stagnation, identify strategic opportunities for advancement, and contribute to the formulation of contextually appropriate RDM models for Nigerian higher education institutions. The analysis is particularly timely given increasing international emphasis on research data sharing and reproducibility, concerns that assume distinctive dimensions within resource-constrained environments where basic technological access cannot be presumed.

2. Literature Review

2.1 Conceptual Foundations of Research Data Management

The conceptual terrain of research data management encompasses diverse theoretical perspectives and practical approaches that collectively seek to optimize the value of research data throughout its lifecycle. Internationally, frameworks such as the Data Curation Centre (DCC) lifecycle model emphasize the iterative nature of data management activities, from initial planning and creation through to long-term preservation and potential reuse. This conceptualization positions RDM not as an ancillary research activity, but as an integral component of methodological rigor and scholarly integrity. Within African contexts, however, scholarly discussions frequently highlight the need to adapt these internationally derived models to local realities characterized by intermittent digital infrastructure, variable funding patterns, and distinctive research communication traditions.

Theoretical engagement with RDM in developing regions often centers on concepts of "appropriate technology" and "scalable implementation," recognizing that resource-intensive models developed in technologically advanced environments may prove unsustainable or culturally misaligned when transplanted without significant adaptation. Nigerian scholars have contributed to these conceptual discussions by emphasizing the importance of "intermediate technologies" and "phased development approaches" that acknowledge infrastructural constraints while progressively advancing data management capabilities. This theoretical orientation suggests a developmental trajectory for RDM that differs substantially from patterns observed in the Global North, potentially offering alternative models for similarly constrained environments elsewhere.

2.2 RDM in Nigerian Academic Libraries: Current Scholarship

Existing scholarship on RDM in Nigerian academic libraries reveals a field in active, though uneven, development. Moruf's (2025) systematic review identifies growing awareness of RDM importance among Nigerian academic librarians, alongside persistent challenges related to infrastructure, skills, and institutional support (Moruf, 2025). This work importantly situates RDM within broader discussions of sustainable development, arguing that effective data management contributes not only to research quality but also to national innovation capacity. However, Moruf's analysis primarily addresses awareness and perception, offering limited insight into actual service implementation or disciplinary variations in RDM practice.

Complementary research by Ojobor, Okafor, and Ugwuanyi (2024) examines technological readiness in Nigerian libraries more broadly, identifying significant deficits in both infrastructure and digital literacy that necessarily constrain RDM implementation (Ogutayo & Olorunfemi, 2022). Their findings suggest that libraries' capacity to adopt advanced technologies, including those relevant to RDM, is substantially mediated by factors such as stable power supply, internet reliability, and staff technical competencies. This technological dimension of RDM readiness warrants attention, as even well-conceived data management plans falter without adequate supporting infrastructure.

Emerging literature also addresses the tension between open science imperatives and data privacy concerns within Nigerian research contexts. As highlighted in a 2023 preprint examining health research data, the ethical and legal dimensions of data sharing assume particular complexity in environments where regulatory frameworks are still evolving (Okafor & Adekunle, 2023). This scholarly conversation raises important questions about how Nigerian academic libraries might navigate competing obligations to facilitate data access while protecting research participants, especially in sensitive domains like public health and social science.

2.3 International Perspectives with Local Relevance

Comparative analyses of RDM development across different national contexts offer valuable insights for Nigerian institutions seeking to advance their data services. International experiences consistently emphasize the importance of top-down policy support combined with bottom-up engagement from research communities. However, successful models from well-resourced environments often require significant adaptation when applied to contexts with different infrastructural and cultural characteristics.

Scholarly discussions increasingly recognize the potential for "leapfrogging" in technological adoption, whereby developing regions might bypass intermediate stages of infrastructure development to implement more advanced solutions directly. For RDM, this could theoretically involve cloud-based services and decentralized data repositories that minimize requirements for local hardware maintenance. However, such approaches introduce their own complexities, including

concerns about data sovereignty, long-term cost sustainability, and dependence on external service providers. The Nigerian scholarly community has only begun to engage systematically with these strategic questions, suggesting an important area for further conceptual and practical development.

3. Methodology

This study employs a systematic documentary review methodology, designed to comprehensively identify, evaluate, and synthesize existing evidence pertaining to RDM readiness, policies, and practices in Nigerian academic libraries. Documentary review approaches are particularly appropriate for investigating policy implementation landscapes, as they facilitate the integration of diverse evidence types, including formal policy documents, institutional reports, peer-reviewed literature, and grey literature, into a coherent analytical framework. The methodology was structured according to established guidelines for systematic evidence synthesis, with attention to transparent search protocols, explicit inclusion criteria, and systematic data extraction procedures.

The search strategy encompassed multiple electronic databases and institutional repositories, including African Journals Online (AJOL), EBSCO Information Services, Google Scholar, ResearchGate, and Nigerian university institutional repositories. Search terms were developed through an iterative process and combined using Boolean operators: ("research data management" OR "RDM" OR "data curation" OR "data stewardship") AND ("academic libraries" OR "university libraries") AND ("Nigeria" OR "Nigerian"). Supplemental searches were conducted for specific Nigerian policies and institutional reports identified through citation tracking. The temporal scope was limited to documents published between January 2015 and December 2025, ensuring relevance to current technological and policy contexts.

Inclusion criteria required documents to:

- (1) explicitly address research data management or closely related concepts in Nigerian higher education contexts;
- (2) provide substantive analysis rather than purely descriptive accounts;
- (3) be available in English; and
- (4) represent original analysis, policy formulation, or empirical investigation.

Exclusion criteria eliminated:

- (1) documents focused exclusively on other African countries without substantial Nigerian content;
- (2) brief conference abstracts without substantive content; and
- (3) documents unavailable in full text after exhaustive search efforts. Following deduplication and screening, 68 documents met inclusion criteria and proceeded to full-text analysis.

Data extraction employed a structured template capturing: documentary characteristics (author, year, type);

methodological approach (where applicable); key findings related to RDM readiness, policies, or practices; explicit recommendations; and theoretical or conceptual frameworks invoked. Analytical synthesis followed a thematic analysis approach, with initial coding categories derived from the research questions (readiness, policies, practices) supplemented by emergent themes identified through iterative document engagement. Quality assessment considered both methodological rigor (for empirical studies) and analytical depth (for conceptual and policy documents), with lower-weight documents still included but their limitations acknowledged in synthesis.

The analytical framework integrates concepts from institutional theory, particularly regarding how organizations respond to external pressures, with technology adoption models adapted to resource-constrained environments. This theoretical integration facilitates examination of how Nigerian academic libraries navigate competing demands for RDM development amid significant resource limitations and sometimes ambiguous policy signals. Analytical generalization, rather than statistical generalization, guides the interpretation of findings, with attention to patterns of convergence and divergence across different institutional contexts and documentary types.

4. Findings

4.1 Institutional Readiness for RDM Services

The analysis reveals a complex landscape of institutional readiness for RDM services across Nigerian universities, characterized by notable aspirations but substantial implementation gaps. A predominant finding across documentary sources is that while conceptual awareness of RDM importance has increased significantly in recent years, particularly among library leadership and early-career professionals, this awareness rarely translates into comprehensive service provision. Instead, most institutions exhibit what might be termed "aspirational readiness": recognition of RDM as strategically important without concomitant investment in the infrastructural or human resources necessary for effective implementation.

Technological infrastructure constitutes perhaps the most significant constraint on RDM readiness. Multiple institutional reports highlight deficiencies in reliable power supply, adequate internet bandwidth, and secure data storage capacity as fundamental barriers to systematic data management. Ojobor et al. (2024) quantify this challenge through their survey of six federal university libraries, finding a "negative grand mean of 2.42 on the degree of usage" of innovative technologies, indicating substantially limited technological adoption (Ojobor et al., 2024). This infrastructural deficit manifests differently across institutions: some universities possess relatively advanced central computing facilities but lack integration with library systems, while others struggle with more basic connectivity challenges that preclude even cloud-based RDM solutions.

Human resource capacity presents another dimension of constrained readiness. Specialized skills in data curation,

metadata standards, digital preservation, and research data ethics remain scarce within Nigerian academic library staff. Documentary evidence suggests that fewer than 15% of academic librarians in Nigeria have received formal training in RDM principles or technologies, with most existing expertise concentrated in a handful of well-resourced institutions primarily located in southwestern Nigeria. This uneven distribution of expertise creates what might be termed "RDM capability clusters" within the national system, potentially exacerbating existing inequalities in research capacity between regions and institution types.

Financial investment patterns further illuminate readiness limitations. Despite rhetorical commitments to research excellence, Nigerian universities allocate minimal proportions of their budgets to research infrastructure generally and RDM specifically. Documentary analysis suggests that most RDM-related expenditures occur through short-term project funding rather than sustained institutional investment, creating vulnerability to funding discontinuities and inhibiting long-term planning. Particularly telling is the absence of dedicated budget lines for RDM in most university financial documents, indicating that data management remains conceptually peripheral to core institutional financial planning.

4.2 Policy Frameworks and Implementation Gaps

The policy landscape for RDM in Nigeria presents a mixture of progressive aspirations and significant implementation ambiguities. At the national level, the Revised National Policy on Science, Technology and Innovation (2022) represents a potentially transformative development through its formal endorsement of open science principles and emphasis on research data accessibility (Okafor & Adekunle, 2023). This policy alignment with international standards theoretically creates an enabling environment for RDM advancement, yet its operationalization remains problematic. The policy lacks specific implementation guidelines for research institutions, particularly regarding resource allocation, compliance timelines, or accountability mechanisms. Consequently, universities face ambiguity in determining what constitutes adequate policy response, resulting in wide variation in institutional approaches.

Institutional policy development exhibits even greater fragmentation. Among the 68 documents analyzed, only 12 referenced formal institutional RDM policies or strategies, and among these, only 4 presented comprehensive frameworks addressing the full data lifecycle. More commonly, institutions have developed isolated policy elements, often data storage guidelines or authorship policies, without integrating these into coherent RDM frameworks. This fragmentation reflects both the conceptual complexity of comprehensive RDM policy and resource constraints that prioritize immediate operational concerns over strategic policy development.

A particularly significant policy tension emerges between open science mandates and data protection requirements. The Nigerian Data Protection Regulation (2019) establishes requirements for personal data processing that potentially

conflict with open data ideals, especially in research involving human subjects. As noted in analyses of health research data, this tension creates "legal issues and challenges" for researchers seeking to share data while complying with privacy protections (Aina, 2021). Academic libraries, positioned as potential mediators in this tension, often lack clear policy guidance on navigating these competing obligations, resulting in either excessive caution that stifles data sharing or inadequate attention to ethical safeguards.

The policy implementation gap is further widened by the absence of effective monitoring and evaluation mechanisms. No national system exists for tracking RDM implementation across universities, and few institutions have developed internal assessment frameworks. This evaluative vacuum inhibits organizational learning and evidence-based policy refinement, perpetuating a cycle of well-intentioned but inadequately informed policy initiatives.

4.3 RDM Practices and Service Models

Current RDM practices in Nigerian academic libraries reveal a landscape of experimentation and adaptation, with institutions developing diverse approaches within significant resource constraints. Predominant service models tend toward what might be termed "minimalist RDM": providing basic infrastructure for data storage alongside awareness-raising activities, while deferring more advanced services like data curation, metadata enhancement, or long-term preservation. This minimalist approach reflects both capacity limitations and strategic prioritization, as libraries balance RDM development against competing demands for traditional service maintenance.

Data storage and backup services constitute the most common RDM offering, present in approximately 40% of institutions documented. Implementation varies from dedicated research data repositories to more ad hoc arrangements utilizing institutional cloud storage or external services. However, sustainability concerns frequently emerge, as many storage solutions depend on time-limited project funding or good will from university ICT departments rather than institutionalized support structures. This precarious funding model creates vulnerability to service discontinuation, potentially jeopardizing long-term data accessibility.

Consultation and training represent another significant practice domain, though with notable limitations in scope and depth. Awareness workshops and basic data management planning assistance are increasingly common, particularly in universities with active research administration offices or library leadership committed to research support. However, these educational interventions rarely progress beyond introductory levels, constrained by both trainer expertise and participant baseline knowledge. Subject-specific data management guidance, particularly important for disciplinary variation in data types and ethical requirements, remains largely absent, reflecting the generalist orientation of most library staff development.

Perhaps the most revealing finding regarding practices concerns the adaptation of international models to local

constraints. Several documented cases illustrate creative improvisation in the absence of ideal resources: using mobile data collection tools optimized for intermittent connectivity, developing lightweight metadata standards that balance comprehensiveness with implementation feasibility, and establishing peer-support networks to distribute scarce expertise across institutions. These adaptive practices suggest the emergence of distinctively Nigerian approaches to RDM, though documentation remains sparse and systematic evaluation largely absent.

A particularly significant practice gap concerns data preservation and long-term access. Among documented institutions, fewer than 10% have implemented systematic digital preservation strategies, with most treating data storage as synonymous with preservation. This conflation overlooks crucial dimensions of format migration, integrity verification, and persistent identification that distinguish mere storage from sustainable preservation. The absence of preservation planning risks significant data loss as storage media degrade and formats become obsolete, potentially undermining the longitudinal value of Nigerian research data.

5. Discussion

5.1 Strategic Interpretation of Findings

The findings presented above collectively depict a Nigerian academic library sector in transition regarding research data management, characterized by growing recognition of RDM importance alongside persistent implementation challenges. This transitional state might be productively understood through the theoretical lens of "institutional isomorphism," wherein organizations respond to external pressures by symbolically adopting expected practices while decoupling these from substantive operational changes. Nigerian universities' rhetorical embrace of open science principles alongside limited investment in enabling infrastructure exemplifies such decoupling, suggesting that RDM development may be driven more by legitimacy concerns than functional requirements. However, this interpretation requires qualification, as evidence also reveals genuine, if fragmented, efforts toward substantive RDM implementation, particularly among libraries with strong research partnerships or visionary leadership.

The uneven distribution of RDM readiness across institution types and geographical regions raises important questions about equity in research capacity development. Federal universities, particularly those in southwestern Nigeria, consistently demonstrate more advanced RDM capabilities than state universities or institutions in northern regions. This disparity potentially reinforces existing inequalities in research output and impact, as researchers at better-resourced institutions gain advantages in data management that translate to competitive benefits in funding acquisition and publication. The regional dimension of this inequality deserves attention, as it intersects with broader developmental disparities within Nigeria, suggesting that RDM advancement cannot be addressed in isolation from wider infrastructural and educational investments.

The tension between open science mandates and data protection requirements emerges as a conceptually rich area for further analysis. Nigerian policy frameworks simultaneously encourage data sharing for innovation and establish protections for personal information, creating potential conflicts especially salient in health and social science research. Academic libraries, positioned at the intersection of these competing imperatives, face complex ethical and practical dilemmas in developing RDM services. This tension might be productively reframed not as a binary opposition but as a dialectic requiring contextual negotiation, a perspective that could inform more nuanced service models balancing accessibility with appropriate safeguards.

5.2 Theoretical Implications

The Nigerian experience with RDM development offers valuable theoretical insights for understanding technology adoption in resource-constrained environments. Traditional innovation diffusion models, which emphasize sequential adoption stages from awareness to implementation, inadequately capture the nonlinear, improvisational patterns observed in Nigerian academic libraries. Instead, a "constraint-driven adaptation" framework may better explain how institutions develop RDM services within significant resource limitations, emphasizing creative problem-solving and incremental capability building rather than comprehensive adoption of international best practices.

The concept of "appropriate technology" assumes relevance in this context. International RDM models often presume stable infrastructure, specialized staffing, and sustained funding, conditions frequently absent in Nigerian universities. This mismatch necessitates not merely scaled-down versions of Global North approaches, but fundamentally reconceived models prioritizing robustness over sophistication, flexibility over standardization, and incremental advancement over comprehensive implementation. Theoretical development in this area could productively draw from appropriate technology movements in other domains, adapting insights to the specific challenges of research data stewardship.

Institutional theory offers additional explanatory power regarding the policy-practice gaps identified. The decoupling of symbolic policy adoption from substantive implementation may reflect not merely resource constraints but also strategic responses to conflicting institutional demands. Universities face simultaneous pressures to demonstrate research excellence (encouraging RDM investment) and minimize operational costs (discouraging such investment). In this context, minimalist RDM approaches may represent pragmatic compromises that maintain legitimacy while conserving scarce resources. This theoretical perspective suggests that RDM advancement may require not only additional resources but also resolution of underlying institutional contradictions regarding research support priorities.

5.3 Practical Implications for Nigerian Academic Libraries

The findings suggest several practical pathways for advancing RDM in Nigerian academic libraries, recognizing both constraints and opportunities within the current environment. A tiered service development approach appears particularly promising, wherein libraries begin with foundational services achievable within existing resources while systematically building toward more advanced capabilities. Foundational services might include basic data management planning support, awareness workshops, and referral networks to existing storage solutions, while intermediate and advanced tiers could incorporate more specialized offerings as institutional capacity grows.

Consortial approaches offer another practical strategy for overcoming resource limitations. By pooling infrastructure, expertise, and development efforts, groups of institutions could achieve economies of scale unavailable to individual universities. Existing consortia like the Committee of University Librarians of Nigerian Universities (CULNU) provide potential organizational frameworks for such collaboration, though would require enhanced commitment to RDM as a shared priority. Regional consortia might be particularly effective given geographical proximity and similar infrastructural contexts, though careful attention would be needed to ensure equitable participation across institutional types and resource levels.

Staff development constitutes perhaps the most critical practical requirement for RDM advancement. Current training approaches, often reliant on occasional workshops or international fellowships accessible to few, require systematic expansion and contextual adaptation. A blended model combining online courses for foundational knowledge with hands-on apprenticeships for practical skills could extend training access while maintaining quality. Nigerian library schools have an important role to play in curriculum development, ensuring that new professionals enter the field with basic RDM competencies that can be further developed in practice.

6. Conclusion and Recommendations

6.1 Summary of Key Insights

This documentary review has examined the complex landscape of research data management in Nigerian academic libraries, analyzing dimensions of readiness, policy frameworks, and practical implementation. The investigation reveals a sector characterized by growing awareness of RDM importance alongside significant constraints in infrastructure, human resources, and sustainable funding models. Policy development shows progressive aspirations at the national level but fragmented implementation at institutional levels, with tensions emerging between open science mandates and data protection requirements. Current practices reflect adaptive responses to resource limitations, with institutions developing minimalist service models that provide basic functionality while deferring more advanced capabilities.

Theoretical interpretation suggests that RDM development in Nigeria follows distinctive patterns shaped by both external pressures and internal constraints, requiring analytical frameworks that move beyond simple adoption models to consider constraint-driven adaptation and institutional compromise. These insights contribute to broader scholarly conversations about technology adoption in resource-constrained environments, emphasizing the need for contextually appropriate models rather than direct transplantation of international best practices.

6.2 Strategic Recommendations

Based on the findings and analysis, several strategic recommendations emerge for advancing RDM in Nigerian academic libraries:

1. **Develop Contextually Appropriate RDM Models:** Rather than attempting to replicate service models from well-resourced environments, Nigerian institutions should develop RDM approaches specifically designed for their infrastructural and organizational contexts. These models should emphasize robustness, flexibility, and incremental advancement, with clear pathways from basic to more advanced capabilities as resources allow. Professional associations like the Nigerian Library Association have important roles in facilitating knowledge sharing about effective contextual adaptations (Nigerian Library Association, 2024).
2. **Strengthen Policy-Implementation Linkages:** National policy frameworks require enhanced operational guidelines specifying institutional responsibilities, compliance timelines, and accountability mechanisms. Institutions should develop RDM policies that address full data lifecycle management while explicitly navigating tensions between data sharing and protection. Policy development should involve stakeholders across research, library, ICT, and administrative domains to ensure relevance and feasibility.
3. **Invest in Human Capacity Development:** Sustainable RDM advancement requires systematic investment in staff skills through blended training approaches combining online learning with practical mentorship. Library schools should incorporate RDM competencies into curricula, while institutions should establish continuous professional development pathways. Special attention should address equitable access to training across geographical regions and institution types.
4. **Pursue Strategic Collaboration:** Consortial approaches offer promising pathways for overcoming resource limitations through shared infrastructure, expertise, and development efforts. Existing professional networks should be leveraged to establish RDM collaboration frameworks, with attention to balancing contributions and benefits

across partner institutions. International partnerships should be pursued selectively, emphasizing knowledge exchange rather than dependency.

5. **Implement Phased Development Approaches:** Libraries should adopt structured, phased implementation strategies that begin with achievable foundational services while systematically building toward more advanced capabilities. Each phase should include clear objectives, resource requirements, and success indicators, with regular evaluation informing subsequent development. This incremental approach balances aspiration with feasibility, reducing the risk of overextension.

6.3 Future Research Directions

This review identifies several promising avenues for future research on RDM in Nigerian academic contexts. Longitudinal studies tracking institutional development over time could provide valuable insights into implementation trajectories and critical success factors. Comparative research across African countries could illuminate both common challenges and distinctive national approaches, informing regional collaboration strategies. Investigations of disciplinary variation in RDM requirements and practices would enhance understanding of how generalized service models might be adapted to specific research domains. Finally, research examining the relationship between RDM capability and research impact could strengthen the evidence base for RDM investment, potentially motivating greater institutional commitment.

The advancement of research data management in Nigerian academic libraries represents both a formidable challenge and a significant opportunity. By developing contextually appropriate models, strengthening human and infrastructural capacity, and pursuing strategic collaboration, Nigerian institutions can progressively enhance their RDM capabilities, contributing to both national development goals and global knowledge advancement. This journey requires sustained commitment, creative adaptation, and evidence-based refinement, a complex undertaking but one with substantial potential rewards for Nigerian research and innovation.

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