

Scholarly Communication, Open Access Publishing, and Research Visibility in Nigerian and Sub-Saharan African Universities

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ABSTRACT

Nigerian universities produce a substantial volume of research across disciplines such as agriculture, public health, education, governance, and the humanities; however, much of this scholarship remains underrepresented in global academic communication systems. This paper examines the structural conditions shaping scholarly communication in Nigerian and Sub-Saharan African universities, with particular emphasis on open access (OA) publishing as a mechanism for improving research visibility. Drawing on a systematic review of literature and institutional data from OpenDOAR, African Journals OnLine (AJOL), and the National Universities Commission (NUC), the study analyzes the effectiveness and limitations of gold, green, diamond, and bronze OA models within the Nigerian context.

The findings reveal persistent barriers to OA adoption, including the high cost of article processing charges (APCs), weak institutional repository infrastructure, the absence of coordinated national OA policies, and the growing challenge of predatory publishing. These constraints collectively reduce the global discoverability of Nigerian research and reinforce structural inequities in scholarly communication. Despite these challenges, emerging opportunities are identified, including the expansion of AJOL as a continental OA platform, the potential of diamond OA models supported by scholarly societies, and the strategic role of institutional repositories in enhancing access and visibility.

The paper concludes by proposing a national OA strategy aligned with UNESCO's Open Science framework, emphasizing policy reform, repository mandates, and sustainable funding models to strengthen the visibility and impact of Nigerian and African scholarship.

Keywords: Open Access; Scholarly Communication; Institutional Repositories; Research Visibility; Nigerian Universities; AJOL.

INTRODUCTION

The paradox of Nigerian research visibility is well-documented in the literature: Nigeria is one of the most prolific research-producing nations on the African continent, with over 157 federally and state-accredited universities and a postgraduate research culture spanning all major academic disciplines — yet the overwhelming majority of the research produced by Nigerian scholars remains invisible to the global academic community (Onyancha & Ngulube, 2021; Omotayo & Ahiauzu, 2019). This invisibility is not a product of research quality alone; it is a structural consequence of the political economy of global scholarly communication, in which the dominant mechanisms of research discovery — Web of Science, Scopus, high-impact international journals — were designed around institutional and financial conditions that systematically disadvantage scholars from lower-income countries (Altbach, 2013; Boshoff, 2010).

The consequences of this invisibility are practical as well as symbolic. Nigerian policymakers who seek evidence-based guidance on health, agriculture, education, and governance challenges are frequently driven to cite international scholarship rather than the domestically produced research that is more directly applicable to

Nigerian conditions — because that domestic research is difficult to discover, difficult to access, and not organized within the bibliographic structures that policymakers and their advisers use to search for evidence (Aina et al., 2019; Okafor & Njoku, 2023). Nigerian scholars face perverse incentive structures that reward publication in expensive international journals — often at prohibitive personal cost — over publication in African-based outlets that might better serve continental knowledge needs and knowledge users. And the global academic community is deprived of the perspectives and findings that Nigerian scholarship would contribute if it were adequately visible.

Open access publishing — broadly defined as the provision of immediate, permanent, online access to peer-reviewed scholarship free of charge to the reader — represents the most systematically developed institutional response to these structural inequities (Budapest Open Access Initiative, 2002; Suber, 2012). Yet OA implementation in Nigeria has been uneven, contested, and complicated by institutional resource realities, the predatory publishing crisis, and the absence of a national OA policy framework. This paper provides a critical analysis of the current state and future potential of OA in Nigerian universities, drawing on Nigerian and African library science literature and proposing a national strategy framework for improving the visibility of Nigerian research.

Objectives

1. To examine the current state of scholarly communication and open access publishing practices in Nigerian and Sub-Saharan African universities, with emphasis on institutional repository development and journal accessibility.
2. To analyze the structural barriers affecting open access adoption and research visibility in Nigerian academia, including APC costs, predatory publishing, and policy limitations.
3. To evaluate the effectiveness and suitability of different open access publishing models (gold, green, diamond, and bronze) for improving the discoverability and global visibility of Nigerian scholarly output.

LITERATURE REVIEW

Research Visibility and Bibliometric Marginalization in Nigeria

Onyancha and Ngulube (2021) provide the most comprehensive bibliometric analysis of Nigerian research output and visibility, drawing on Web of Science and Scopus data to document the systematic underrepresentation of Nigerian university research in international citation databases. Their analysis finds that while Nigerian research output has grown significantly in absolute volume since 2010, citation impact remains low relative to output, and the proportion of Nigerian research accessible through major bibliographic databases remains a fraction of total national research production. Omotayo and Ahiauzu (2019) focus specifically on institutional repository development in Nigerian university libraries, documenting that fewer than 40 of Nigeria's 157 accredited universities maintain operational institutional repositories, and that among those that do, metadata quality, interoperability with international aggregators, and content population rates are consistently inadequate.

The NUC accreditation framework has been identified by multiple scholars as both a driver and a constraint for OA development in Nigerian universities. Omoba and Iwu-James (2020) argue that NUC's emphasis on publication in internationally indexed journals — particularly Web of Science and Scopus-indexed outlets — as a criterion for academic promotion and institutional accreditation creates structural incentives that divert Nigerian scholars away from African-based OA outlets toward expensive international journals with high APC barriers. This dynamic is self-reinforcing: the international focus of Nigerian academic promotion criteria reduces investment in African-based OA journals, which in turn reduces their quality and impact, which reinforces the preference for international publication.

Open Access Models and Their Nigerian Applicability

The four principal OA models — gold (author or funder pays APC for immediate open access), green (author self-archives accepted manuscript in institutional or subject repository), diamond (no charges to authors or readers, costs borne by institution or scholarly society), and bronze (publisher makes content freely readable

without explicit OA license) — present very different cost structures and institutional requirements that map differently onto Nigerian conditions. Okafor and Njoku (2023) provide the first systematic evaluation of OA model applicability in the Nigerian university context, finding that the diamond and green routes are structurally most suitable for Nigerian institutions while gold OA — the model dominant in European and North American contexts following funder mandates — is largely inaccessible to Nigerian scholars due to APC barriers.

The APC economy represents the central structural barrier to Nigerian participation in gold OA. Morrison et al. (2022) document average APC costs of USD \$1,500–\$11,000 for gold OA publication in high-impact international journals — sums that typically exceed the entire annual research travel and publication budget of individual scholars at many Nigerian universities. While APC waiver programmes operated by major publishers nominally extend gold OA access to researchers from lower-income countries, Okafor and Njoku (2023) find that Nigerian researchers encounter significant barriers in accessing these waivers, including complex application processes, inconsistent publisher compliance, and, in several documented cases, outright failure to honour approved waivers.

Predatory Publishing in Nigeria

The predatory publishing crisis — involving journals and publishers that nominally adopt OA APC models while failing to deliver credible peer review, editorial oversight, or archiving — constitutes a particularly acute challenge for Nigerian scholarly communication. Okafor and Njoku (2023) document that Nigeria consistently ranks among the top source countries for papers published in predatory journals identified in Beall's list and its successors, reflecting both the 'publish or perish' pressures of the NUC accreditation system and the limited institutional infrastructure for helping scholars evaluate publication venue quality.

Omoba and Iwu-James (2020) find that early-career Nigerian scholars are disproportionately represented among predatory journal victims, with dissertation-derived papers and conference papers particularly targeted by aggressive solicitation emails. The reputational and career consequences of predatory publication — including retraction, exclusion from legitimate scholarly conversation, and disciplinary proceedings — are documented in the Nigerian context by Fabunmi and Asubiojo (2023).

Table 1. Open access publishing models: definitions, cost structures, and applicability to Nigerian and Sub-Saharan African institutional contexts.

OA Model	Author Cost	Reader Cost	Funder Model	Nigerian Applicability	Example
Gold OA	APC \$500–\$11,000+	Free	Author/funder-pays	Low – APC barriers prohibitive without waivers	PLOS ONE; Nature Communications
Green OA	None (self-archive)	Free (repository)	Institution funds repository	Moderate – requires IR infrastructure	arXiv; DSpace; Zenodo
Diamond OA	None	Free	Society/institution/public fund	High – no financial barrier to authors or readers	AJOL diamond journals; SciELO Africa

Bronze OA	None	Free (limited)	Publisher discretion; no formal OA license	Variable – no licensing guarantee	Selected Elsevier free-to-read articles
Hybrid OA	APC within subscription journal	Free (OA articles only)	Mixed subscription + APC	Very low – double-dipping; high cost	Springer Nature; Wiley hybrid journals

METHODOLOGY

This study employs a systematic literature review methodology, drawing primarily on Nigerian and African library science literature supplemented by essential international scholarship. Database searches were conducted on AJOL, LISTA, Google Scholar, Scopus (Nigerian-authored articles), the Journal of the Nigerian Library Association, and the Nigerian Journal of Library and Information Practice using the terms: ("open access" OR "scholarly communication" OR "institutional repository") AND ("Nigeria" OR "African university" OR "Sub-Saharan Africa") AND ("research visibility" OR "bibliometric" OR "predatory publishing" OR "APC"). The search period covered January 2015 to November 2024. Following deduplication and screening against Nigerian/African focus and empirical or analytical engagement with OA in African academic contexts, 39 sources were incorporated in the synthesis. Institutional data on Nigerian university repositories was drawn from OpenDOAR (2024) and AJOL's annual statistics report (2024).

The Current OA Landscape in Nigeria

Institutional Repository Infrastructure

The institutional repository (IR) represents the principal infrastructure through which green OA is operationalized, and its development in Nigerian universities provides the most direct indicator of OA readiness across the sector. OpenDOAR (2024) records 47 Nigerian institutional repositories as of November 2024, representing a growth from 12 in 2015 — a significant expansion that nonetheless represents fewer than 30% of Nigeria's accredited universities. Omotayo and Ahiauzu (2019) provide the most detailed assessment of Nigerian IR functionality, finding that fewer than half of registered Nigerian repositories are actively populated — with content deposited on a regular basis — and that metadata quality, standardization, and interoperability with international aggregators such as OpenAIRE and BASE are consistently inadequate at most institutions.

The University of Ibadan, Obafemi Awolowo University, the University of Lagos, Ahmadu Bello University, and Ajayi Crowther University represent institutional exceptions where IR development has received sustained attention, though even at these institutions, the challenge of achieving comprehensive population — capturing all or most of the institution's research output — remains unresolved. Omotayo and Ahiauzu (2019) identify the absence of institutional OA mandates — formal policies requiring academic staff to deposit published or accepted manuscripts in the institutional repository — as the single most significant factor explaining low IR population rates. Without a mandate, deposit rates remain voluntary and low; with a mandate, international experience consistently shows substantial improvements in IR content and discoverability.

AJOL and Continental OA Aggregation

African Journals OnLine (AJOL), founded in 1998 and headquartered in South Africa, represents the most significant continental OA infrastructure for African scholarly publishing, and its role in Nigerian research visibility deserves specific attention. As of 2024, AJOL hosts 74 Nigerian journals across disciplines including library and information science, medicine, agriculture, education, and social sciences — a substantial portion of Nigeria's indexed scholarly journal output. Approximately 61% of Nigerian journals on AJOL are available on a full OA basis (AJOL, 2024), representing the most accessible channel through which Nigerian research currently reaches international readers.

Onyancha and Ngulube (2021) demonstrate empirically that AJOL-indexed Nigerian journals achieve substantially higher citation rates than comparable Nigerian journals not indexed on AJOL, providing quantitative evidence of the visibility premium that AJOL indexing confers. However, AJOL indexing itself is not a guarantee of broader bibliographic discoverability: Nigerian journals indexed on AJOL but not also indexed in Scopus, Web of Science, or Emerging Sources Citation Index (ESCI) remain effectively invisible to the majority of international researchers who rely on commercial database searches for literature discovery. Advocacy for the indexing of high-quality Nigerian journals in Scopus and ESCI — through the quality improvement investments in peer review, editorial standards, and metadata that these applications require — represents an important complementary strategy to OA publishing for improving Nigerian research visibility.

Table 2. Institutional repository status in selected Nigerian universities (OpenDOAR and institutional records, 2024).

Institution	Repository System	OA Mandate	OpenDOAR Status	Scopus/WoS Indexed Journals	Development Stage
University of Ibadan	DSpace (UI IR)	No formal mandate	Registered; partially active	3 Scopus-indexed journals	Established
University of Lagos	DSpace (UNILAG IR)	No formal mandate	Registered; partially active	2 Scopus-indexed journals	Established
Obafemi Awolowo University	DSpace (OAU IR)	No formal mandate	Registered; low deposit rate	1 Scopus-indexed journal	Developing
Ahmadu Bello University	DSpace (ABU IR)	No formal mandate	Registered; low deposit rate	2 Scopus-indexed journals	Developing
University of Nigeria Nsukka	DSpace (UNN IR)	No formal mandate	Registered; low deposit rate	1 Scopus-indexed journal	Developing
Ajayi Crowther University	DSpace (ACU Repository)	Under development	Registered	None currently	Emerging
Covenant University	Institutional platform	Partial mandate	Registered; moderate activity	1 Scopus-indexed journal	Developing
Lagos State University	DSpace	No formal mandate	Registered; inactive	None currently	Early stage

Barriers to Open Access Adoption in Nigerian Universities

APC Costs and Economic Exclusion

As documented above, the APC economy represents the dominant structural barrier to Nigerian participation in the gold OA model that prevails in European and North American academic contexts. Okafor and Njoku (2023) estimate that fewer than 5% of Nigerian academic staff publish in high-APC gold OA journals without external funding support, and that the proportion is lower still outside the STEM disciplines where international research grant funding is most available. The Nigerian Research and Innovation Council (NRIC) and the Tertiary Education Trust Fund (TETFund) the two primary national sources of research funding for Nigerian universities

do not currently include APC payments within their eligible expenditure categories, creating a policy gap that further constrains Nigerian OA publishing access.

Predatory Publishing and Reputational Risk

The predatory publishing crisis imposes both direct costs through wasted APC payments to illegitimate journals and indirect costs, through reputational damage to Nigerian scholarship and the diversion of research output into publishing channels that provide no genuine value-adding editorial or peer review services. Okafor and Njoku (2023) estimate that between 2015 and 2023, Nigerian scholars collectively paid approximately \$2.3 million USD in APC fees to journals subsequently identified as predatory a substantial loss of research funding that could have supported legitimate OA publication or IR development.

The NUC's accreditation criteria, which count publications in any 'peer-reviewed international journal' toward promotion and accreditation requirements without adequate mechanisms to exclude predatory journals, is identified by Omoba and Iwu-James (2020) as a key systemic driver of Nigerian predatory publishing vulnerability.

Awareness and Policy Gaps

Beyond financial barriers, Omoba and Iwu-James (2020) document significant awareness gaps among Nigerian academic staff regarding OA publication options, institutional repository deposit procedures, and the identification of legitimate versus predatory journals. Their survey of 420 academic staff across ten Nigerian universities found that 62% were unaware of their institution's OA policy (where one existed), 74% had never deposited a paper in an institutional repository, and 58% could not correctly identify a predatory journal from a list of publication options.

Library-led OA awareness and education programmes integrating predatory publisher identification, IR deposit training, and OA licensing literacy represent an immediate and practical intervention within the existing scope of library professional competence.

Table 3. Barriers to open access adoption in Nigerian universities, with severity assessment and proposed responses.

Barrier	Severity	Nigerian-Specific Dimension	Proposed Response
APC costs	High	TETFund/NRIC do not fund APCs; no national APC waiver agreements	TETFund policy revision; NUC negotiate national APC waiver agreements with publishers
Predatory publishing	High	Nigeria among top source countries for predatory journal papers	NUC revise promotion criteria; library-led predatory journal awareness training
Absence of OA mandates	High	No university or national OA deposit mandate in Nigeria	NUC model OA mandate; institutional IR deposit policies at university level
Low IR awareness	Medium	74% of surveyed staff never deposited to IR (Omoba & Iwu-James, 2020)	Library OA roadshows; embedded IR deposit training in postgraduate induction
Metadata quality	Medium	Nigerian IRs have low OpenAIRE/BASE interoperability compliance	OAI-PMH standard implementation; NUC IR technical guidelines

Promotion criteria bias	Medium	WoS/Scopus publication required for promotion; discourages African OA journals	NUC revise promotion criteria to formally recognize AJOL-indexed journals
Underfunding of IR	Medium	Most IR infrastructure development relies on donor funding or individual initiative	NUC recurrent IR funding line in university budget accreditation requirements

A National OA Strategy Framework for Nigerian Universities

Addressing the systemic research visibility deficit of Nigerian universities requires action at multiple institutional levels simultaneously. This paper proposes a five-component National Open Access Strategy Framework for Nigeria, drawing on the recommendations of Omotayo and Ahiauzu (2019), Okafor and Njoku (2023), Omoba and Iwu-James (2020), and international OA strategy models. The framework is aligned with UNESCO's (2021) Recommendation on Open Science, which Nigeria endorsed as a UNESCO Member State.

Component 1 — National OA Policy Mandate: The NUC and NRIC should adopt and enforce a national OA mandate requiring the deposit of all publicly funded research outputs in institutional or designated national repositories within 12 months of publication, modelled on the UK Research and Innovation (UKRI) open access policy and adapted to the Nigerian institutional context.

Component 2 — Diamond OA Journal Investment: TETFund and the NUC should establish a dedicated funding mechanism for the development and sustainability of diamond OA journals operated by Nigerian and African scholarly societies, prioritizing journals in disciplines of highest national policy relevance. AJOL should be positioned as the primary national aggregator for diamond OA Nigerian journals.

Component 3 — IR Interoperability Mandate: All NUC-accredited universities should be required, as a condition of institutional accreditation, to maintain operational institutional repositories that comply with OAI-PMH harvesting protocols and COAR-aligned metadata standards, enabling international aggregation through OpenAIRE, BASE, and AJOL.

Component 4 — Predatory Publishing Literacy: The NLA and LRCN should develop and disseminate nationally standardized training materials on predatory journal identification and legitimate OA publication options, delivered through library-led workshops integrated into all postgraduate research induction programmes.

Component 5 — Revised Promotion Criteria: The NUC should formally revise institutional accreditation criteria for academic promotions to recognize publication in AJOL-indexed, DOAJ-listed, and other quality-assured African OA journals on equivalent terms to Scopus and WoS-indexed international publications, removing the structural incentive that currently drives Nigerian scholars toward expensive international venues.

CONCLUSION

The structural marginalization of Nigerian research within global scholarly communication circuits is not an inevitable consequence of research quality differentials — it is an artifact of the political economy of academic publishing, the inadequacy of Nigerian IR infrastructure, the perverse incentives of the NUC accreditation system, and the predatory publishing crisis. Open access publishing, particularly through the diamond OA and green self-archiving routes, offers a technically feasible and financially realistic pathway toward greater research visibility for Nigerian scholars that does not require capitulation to the APC economy that dominates publishing in the Global North.

The realization of this potential requires a coordinated national response encompassing policy mandates, institutional infrastructure investment, revised promotion criteria, and library-led awareness and training programmes. The five-component national OA strategy framework proposed in this paper provides a structured starting point for this response, building on the existing work of AJOL, OpenDOAR, and the growing number of Nigerian library professionals committed to improving the visibility of Nigerian scholarship. Nigerian

scholars produce research of genuine national and international significance. The imperative is to build the infrastructure — repositories, diamond journals, interoperability standards, policy frameworks, and professional capacity — through which that research can be discovered, engaged, and built upon by the global knowledge community it deserves to reach.

LIMITATIONS AND FUTURE RESEARCH

This study has several limitations that should be acknowledged. The research relies primarily on secondary data and systemic literature review methodology, which, while appropriate for a mapping and synthesis study of this scope, limits the depth of insight attainable into the lived experiences of researchers, librarians, institutional administrators and policymakers engaged with open access publishing in Nigeria and sub-Saharan Africa. The absence of primary data collection through structured interviews, focus groups means that the barriers and opportunities identified in this paper are derived from published accounts rather than from direct empirical validation.

This constrains the ability to verify whether the structural challenges documented in the literature fully reflects current conditions on the ground, particularly given the pace of change in Nigerian University and OA infrastructural development.

Future research should address these limitations by incorporating primary data collection through qualitative and mixed methods approaches. In-depth interviews and focus groups involving researchers, academic librarians, publishers, institutional administrators and national policymakers would provide a more comprehensive and practitioner-grounded understanding of the practical challenges associated with open access adoption in Nigerian Universities.

Nationwide surveys of academic staff attitudes toward OA, institutional repository usage patterns, and predatory publishing vulnerability would generate empirical data to validate the barrier framework proposed in this paper. Such evidence would substantially strengthen the policy recommendations offered here and contribute to the development of an evidence base for Nigerian OA strategy design that is rooted in the direct experiences of those most affected by the structural inequities this paper has identified

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