

The Power of Open Science

Accessibility, Visibility, Reproducibility & Societal Impact — a session for the **LIBSENSE**
ECR Network Leadership Workshop

NIGERIAN ECR LEADERSHIP WORKSHOP

2-DAY PILOT PROGRAMME



Why Open Science Matters — Right Now

Science has always advanced through the sharing of ideas — but traditional research culture has often locked knowledge behind paywalls, institutional barriers, and opaque methodologies. **Open science changes that.**

For Nigerian and African researchers, open science is not merely a philosophical preference. It is a strategic lever: a way to amplify your research impact, assert your voice in global scholarly conversations, and build a research culture that serves your communities directly.

As emerging leaders, you are uniquely positioned to be the catalysts of this shift — starting within your own institutions.

The Core Pillars We'll Explore

- Accessibility — opening doors to knowledge
- Visibility — amplifying your research reach
- Reproducibility — building trust in science
- Societal Impact — connecting research to people

Accessibility: Knowledge Without Barriers

Open access removes the financial and institutional gatekeeping that prevents researchers, practitioners, and communities from engaging with new knowledge.

What It Means

Making research outputs — articles, data, code, and materials — freely available to anyone with an internet connection, regardless of institutional affiliation or income.

Why It Matters in Nigeria

Many Nigerian institutions lack subscription access to major journals. Open science ensures your peers, students, and policymakers can read and build on your work — and you on theirs.

Your Role as an ECR Lead

You can advocate for open access policies, support colleagues in using institutional repositories, and model best practices in your own publishing choices.





Case Study: UCT Libraries – Diamond Open Access in Action

The Challenge

The University of Cape Town (UCT) Libraries launched an open access publishing programme in 2016 with a deliberate social justice mission: to dismantle information poverty and "denorthenise" the publishing landscape – making African scholarship freely available to African readers.

The Open Science Response

UCT adopted a diamond open access model – free to read AND free to publish – covering both journals and monographs. Accessibility was built in from the start: formats were designed around students' actual internet access and learning contexts, not assumed infrastructure.

The Result

African scholarly content that had been marginalised or locked behind paywalls became freely discoverable and reusable – advancing the decolonisation of knowledge and serving as a model for other African institutions.

Key Takeaway for ECRs

- Diamond OA = no cost to author, no cost to reader
- Accessibility must account for local infrastructure realities
- Your institution's library can be a publishing partner, not just a resource provider
- Source: UCT Libraries Publishing Programme (openbooks.uct.ac.za)

Visibility: Being Seen on the Global Stage

Research that is openly published consistently receives **more citations, more downloads, and more collaborative enquiries** than work locked behind paywalls. For early-career researchers, visibility is career currency.

Open science practices — preprints, open data, ORCID profiles, and active engagement on scholarly networks — ensure your work is discoverable, attributable, and impactful from the moment it is shared.

 Studies consistently show that open access articles receive **25–250% more citations** than equivalent closed-access work in the same field.



Global Discoverability

Open repositories and preprint servers ensure your research surfaces in international searches and databases.



Persistent Identity

Tools like ORCID and DOIs link your work permanently to your name — protecting your scholarly reputation.



Collaboration Opportunities

Visible research attracts co-authors, funders, and cross-institutional partnerships that advance your career.

Case Study: South African Journal of Science – Diamond OA at 120 Years

The Challenge

African scholarly journals have long struggled to sustain quality publishing without charging fees – either to authors (APCs) or readers. Many journals face pressure to adopt commercial models that exclude the very communities they serve. The South African Journal of Science, published by the Academy of Science of South Africa (ASSAf), has operated for over 120 years as a multidisciplinary journal publishing high-quality research from Africa or on African-relevant issues – for scholars, educators, policymakers, and the general public.

The Diamond OA Model

The journal operates as a true Diamond OA publication: free to read, free to publish, with no article processing charges (APCs) of any kind. Institutional and government support – rather than author fees – sustains the journal. In 2024, the journal received a grant through the EIFL/AJOL/WACREN "Collaboration for Sustainable OA Publishing in Africa" project (funded by Wellcome), which helped develop more efficient peer reviewer selection and recognition processes, and expanded the journal's reviewer database – strengthening quality without introducing fees.

The Result

The journal demonstrates that Diamond OA is not only viable but scalable: a century-old publication maintaining rigorous peer review, broad discoverability, and genuine accessibility – with no financial barriers for African researchers or readers. It serves as a model for how institutional commitment and collaborative funding can sustain equitable scholarly publishing.

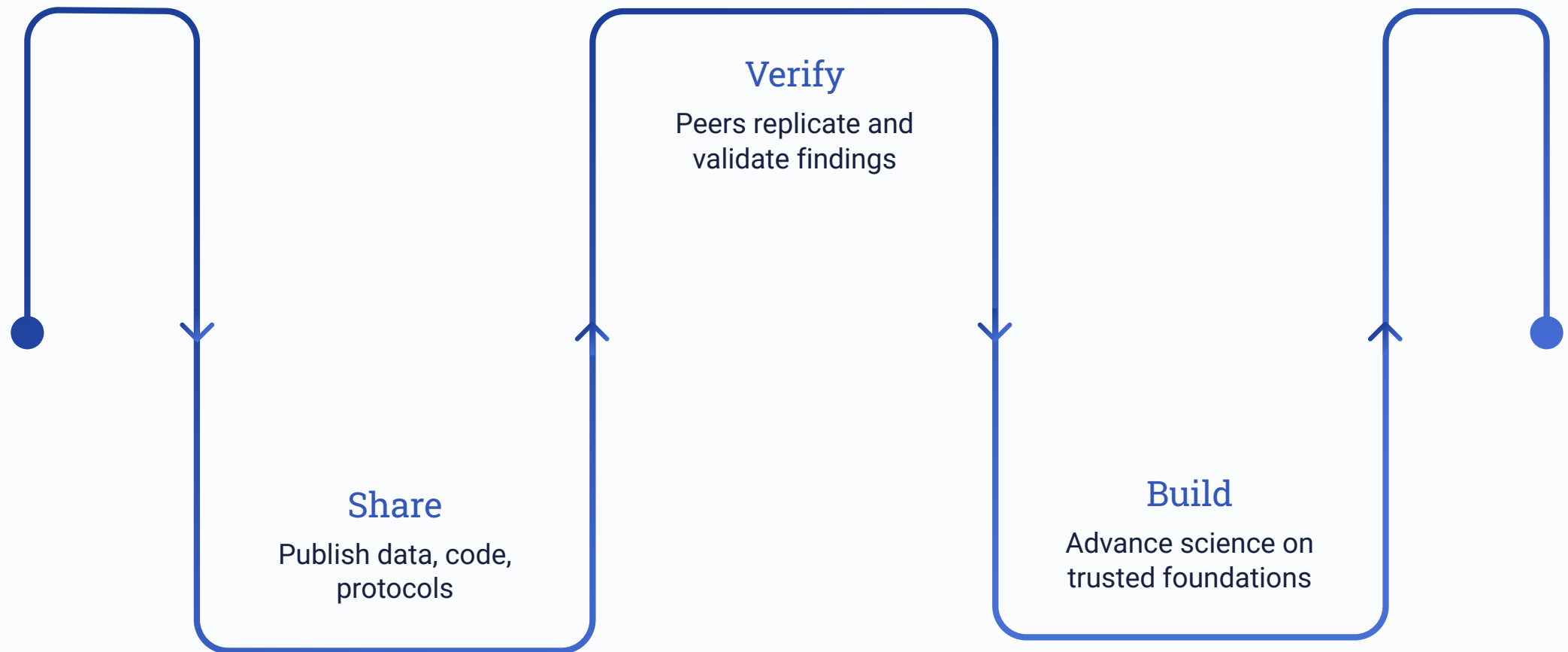
Key Takeaway for ECRs

- Diamond OA = no cost to author, no cost to reader – sustained by institutions, not fees
- Quality and open access are not in tension: the SAJSci has maintained both for 120+ years
- Institutional grants and government support are viable alternatives to APC-based models
- Publishing in Diamond OA journals advances equity without sacrificing visibility or impact
- Source: EIFL/AJOL/WACREN Collaboration for Sustainable OA Publishing in Africa (Wellcome, 2024); Academy of Science of South Africa (ASSAf)



Reproducibility: The Bedrock of Trustworthy Science

A finding that cannot be reproduced is a finding that cannot be trusted. Open science practices — sharing data, code, protocols, and materials — make it possible for others to verify, replicate, and build confidently upon your work.



Reproducibility is not about distrust — it is about **strengthening the credibility of African research** in global conversations. When your methods are transparent, your findings carry greater weight with international journals, funders, and policymakers alike.



Case Study: AREN — Building a Culture of Reproducible Science Across Africa

The Challenge

Despite growing global emphasis on reproducibility, most African researchers lacked awareness of open science infrastructure — data repositories, pre-registration platforms, open protocols — and received no training on how to use them. This left African research vulnerable to credibility challenges in international peer review.

The Open Science Response

The African Reproducibility Network (AREN), supported by eLife, deployed a network of trained ambassadors across the continent to bridge the gap. Ambassadors ran workshops, created local communities of practice, and advocated for reproducibility standards within their institutions — building capacity from the ground up.

The Result

AREN expanded to cover researchers in over 20 African countries, creating a peer-support infrastructure for open and reproducible science. Participating researchers reported greater confidence in sharing data and methods, and stronger engagement with international open science communities.

Key Takeaway for ECRs

- Reproducibility is a skill — and it can be taught and championed locally
- Pre-registration, open data, and open protocols are the practical tools
- You don't need to wait for institutional policy — peer networks drive change
- Source: AREN / eLife Inside eLife, 2023

Societal Impact: Research That Reaches People

The ultimate measure of research is not a journal ranking — it is **the difference it makes to people's lives**. Open science dramatically shortens the distance between a discovery and its real-world application.

Policy & Governance

Openly available research is more readily cited in policy briefs, enabling evidence-based decision-making at national and local government levels.

Public Health

During COVID-19, open preprints and data-sharing accelerated vaccine development by months — a vivid demonstration of open science saving lives.

Community Relevance

When communities can access and engage with research about their own contexts, it fosters trust, co-ownership, and more ethical research relationships.

Economic Development

Openly licensed research outputs and datasets can be adopted by local innovators, startups, and NGOs — turning knowledge into tangible development outcomes.

Case Study: H3Africa – Open Genomics Research Shaping African Health Policy

The Challenge

Genomics research in Africa had long been conducted by external institutions, with data and findings rarely returning to benefit African communities or inform local health policy. African researchers lacked both the infrastructure and the governance frameworks to lead their own genomic science.

The Open Science Response

The Human Heredity and Health in Africa (H3Africa) consortium – led by African scientists – published its Framework for Best Practice for Genomics Research and Biobanking in Africa openly on Open Research Africa (formerly AAS Open Research). The framework was made freely accessible to all African researchers and publics, with no charge.

The Result

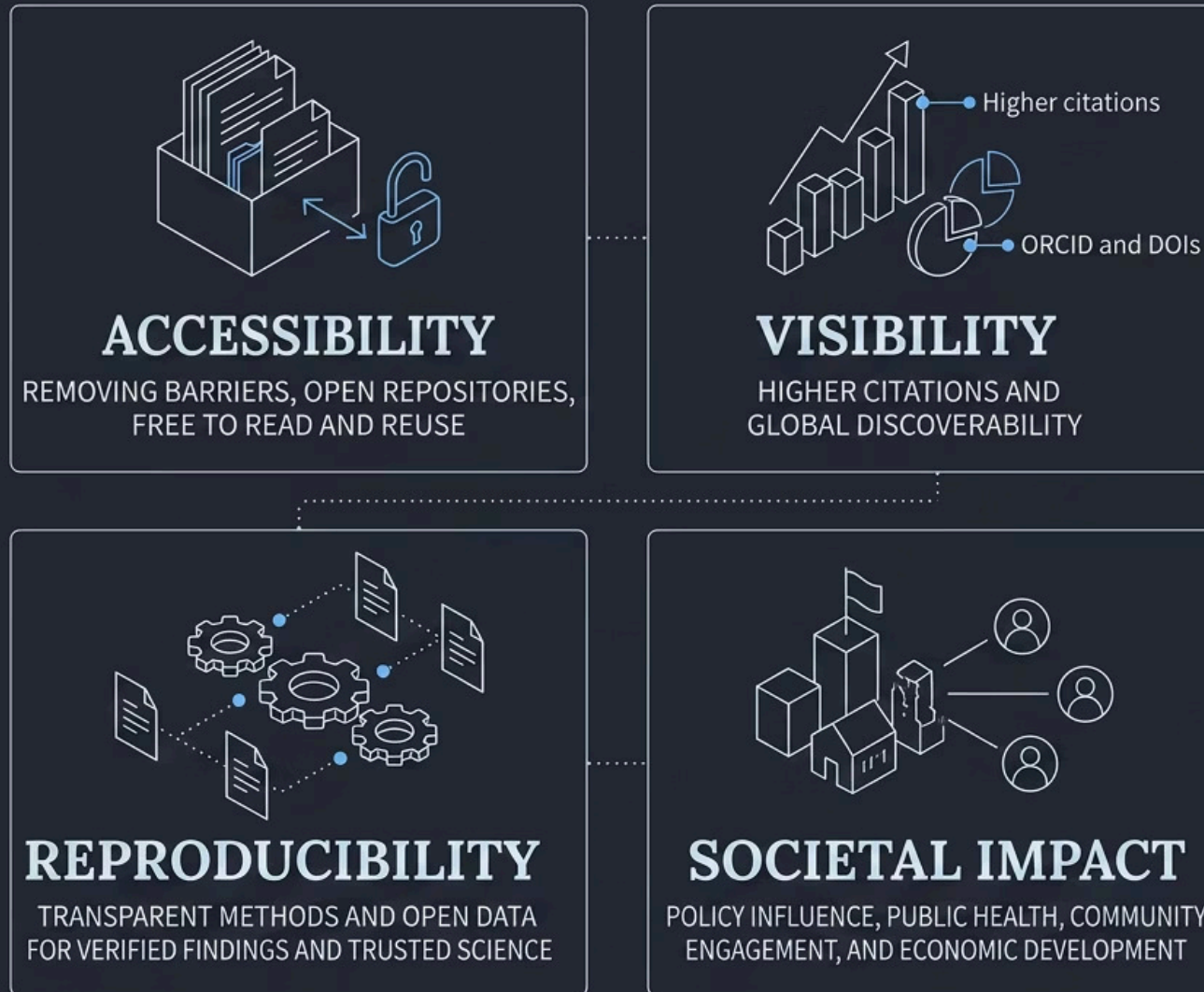
The openly published framework was cited in over 30 subsequent publications and directly influenced national health research ethics guidelines in Ethiopia, Uganda, and South Africa. It was also cited by the World Economic Forum – demonstrating how open African science can shape global governance.

Key Takeaway for ECRs

- Open publication of frameworks and guidelines multiplies their real-world impact
- African-led, openly published research can and does influence global policy
- Open Research Africa (openresearchafrica.org) is a dedicated platform for this
- Source: H3Africa / Open Research Africa / F1000, 2023



The Four Pillars at a Glance



Together, these four pillars reinforce one another — accessible research is more visible, visible research is more reproducible when methods are shared, and reproducible science generates greater societal trust and impact. Adopting open science is not a single action; it is a **holistic shift in how you practise and share your work.**

Your Role as a LIBSENSE ECR Network Lead

This workshop is not simply training — it is the beginning of your leadership journey. As one of **30 newly developed ECR Network Leads**, you will return to your institution equipped to drive meaningful, lasting change.

01

Advocate Within Your Institution

Engage department heads, library leadership, and research offices to champion open science policies — armed with evidence, frameworks, and peer support.

03

Use and Share the Toolkit

Co-created during this workshop, the open access toolkit gives you ready-made resources to sensitise colleagues and onboard new advocates at your institution.

02

Build Your Campus Community

Establish or strengthen a local ECR network that provides peer learning, mentorship, and a safe space to experiment with open practices.

04

Shape the Regional Framework

As pilot participants, your feedback directly informs the LIBSENSE ECR model before its wider rollout across Africa — your voice shapes the future.

What You'll Take Away From This Workshop

1

Skills & Capabilities

Practical competencies in open science advocacy, change management, and institutional engagement — developed through hands-on, interactive sessions.

1

Leadership Identity

Recognition as a LIBSENSE ECR Network Lead — a credible, structured role within the growing African open science movement.

2

A Co-Created Toolkit

An open access, shareable collection of resources for ECR network-building, ready to deploy the moment you return to your institution.

2

Institutional Strategy

A personal action plan for implementing change management programmes that promote open science principles at your specific institution.

3

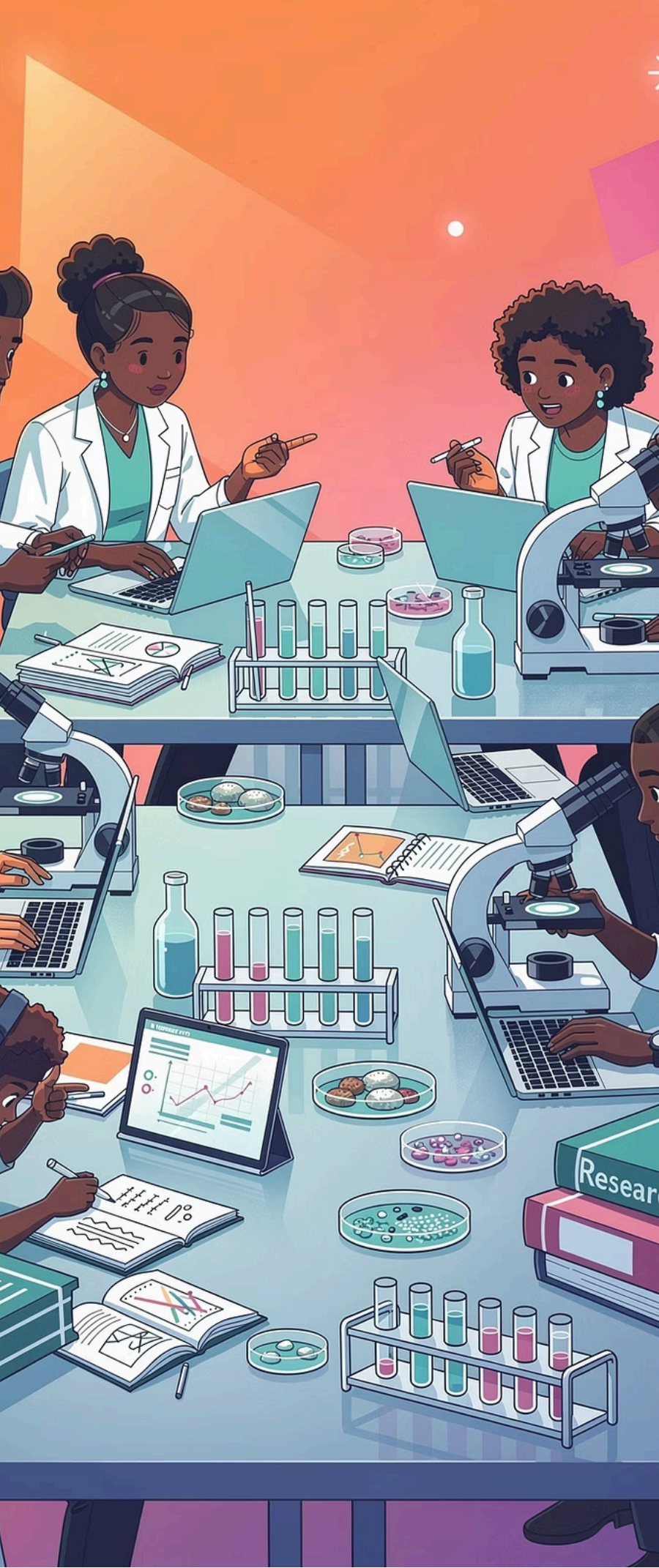
A Peer Network

Connections with 29 fellow Nigerian ECRs who share your commitment to transforming research culture — your support system for the journey ahead.

3

Regional Legacy

As pilot participants, you co-shape a model for the wider African research community — your experience becomes the blueprint for hundreds of future ECR leaders.



Case Study: LIBSENSE Open Science Nigeria – ECRs Driving Change from Within

The Challenge

Nigerian higher education institutions lacked coordinated Research Data Management (RDM) policies, open access infrastructure, and research ethics governance. Early-career researchers were navigating these gaps without institutional support or peer networks to draw on.

The Open Science Response

A group of ECRs from universities across Nigeria – including Federal University of Technology Minna, University of Nigeria Nsukka, Lagos State University of Science & Technology, and ABU Zaria – came together under the LIBSENSE programme to form a national advocacy group. Working collaboratively, they conducted a national survey on open science perceptions and practices, ran workshops with librarians and researchers, and engaged national bodies including the Association of University Librarians of Nigerian Universities (AULNU) and the Committee of Vice Chancellors.

The Result

The group produced a set of concrete national-level outputs: a new common repository metadata schema, a national report on Diamond Open Access journals, a call to action on research assessment reform, and institutional RDM work plans – all co-created by ECRs and now informing policy discussions across Nigerian universities.

What This Shows

- ECRs can drive institutional and national policy change – not just respond to it
- Peer networks are a powerful mechanism for scaling open science practice
- Concrete outputs (schemas, reports, work plans) give advocacy real traction
- Source: LIBSENSE / WACREN / EIFL, 2024

Become a Catalyst for Open Science in Nigeria

This is your moment to move from participant to pioneer.

For Your Institution

Implement lasting open science policies and build communities that outlive any single workshop or programme.

For Your Peers

Create pathways for fellow ECRs to access, share, and benefit from open knowledge — raising the bar for Nigerian research.

For Africa

Help establish a replicable model of open science leadership that can be adopted by early-career researchers across the continent.

"Open science is not just a set of practices — it is a commitment to the idea that knowledge belongs to everyone."

Your leadership begins here.

