University of Sheffield

Research Visibility: Leveraging Institutional Repositories (IR)

How can open access/science work in low-resourced settings?

Dr Pamela Abbott, Senior Lecturer
Information School, University of Sheffield

28-05-2024

Talk Outline

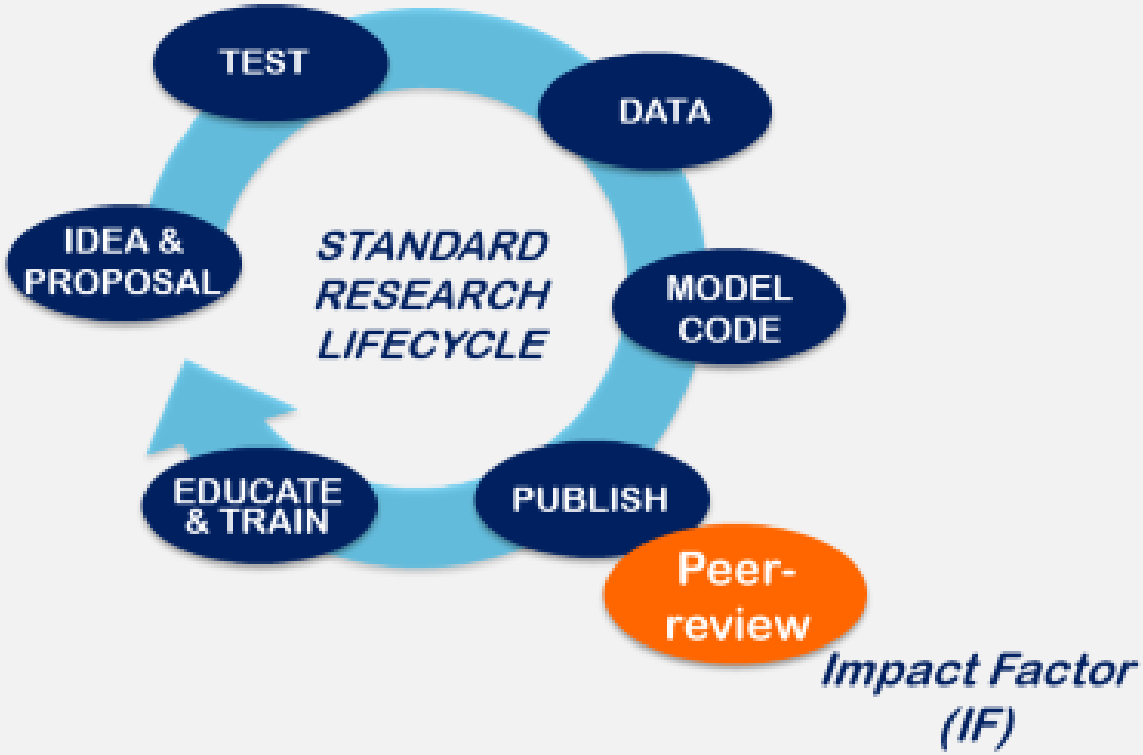
- Introduction.
- Opening the Research Lifecycle.
- African Research Visibility.
- The LIBSENSE Approach.
- A Case Study from Rwanda.
- Ways Forward.



Opening the Research Lifecycle

The Research Process

From …



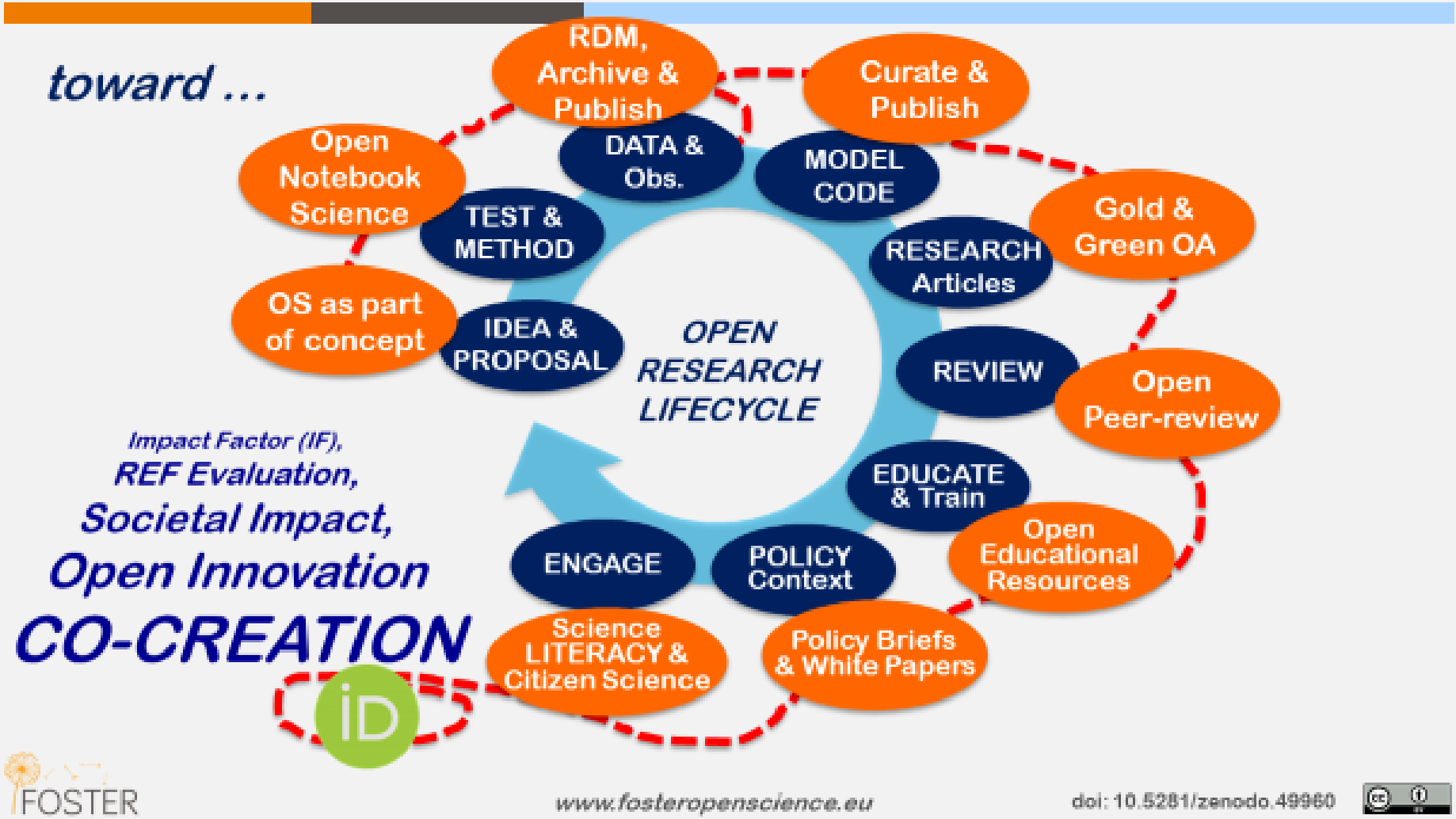
Research process – depicted here as a *research lifecycle* or the stages of knowledge creation and production from idea/concept to the dissemination of results and further engagement with beneficiaries

"Research Cycle" adapted from Tenopir et al., (2011) doi:10.1371/journal.pone.0021101
http://www.plosone.org/article/info:doi/10.1371/journal.pone.0021101

The Research Process & Digitalisation

Digitalisation – processes through which social norms and structures are being increasingly influenced by the use of digital technologies

Digitalisation and the research process – application of digital technologies to any, or a combination, of the stages of the research process, e.g. Open Science, where technologies are used to 'open' the stages of the research process to collaboration and transparency



Open Science Research Lifecycle - one example of how digitalisation could potentially have a transformative effect on the research process

Gold Open Access

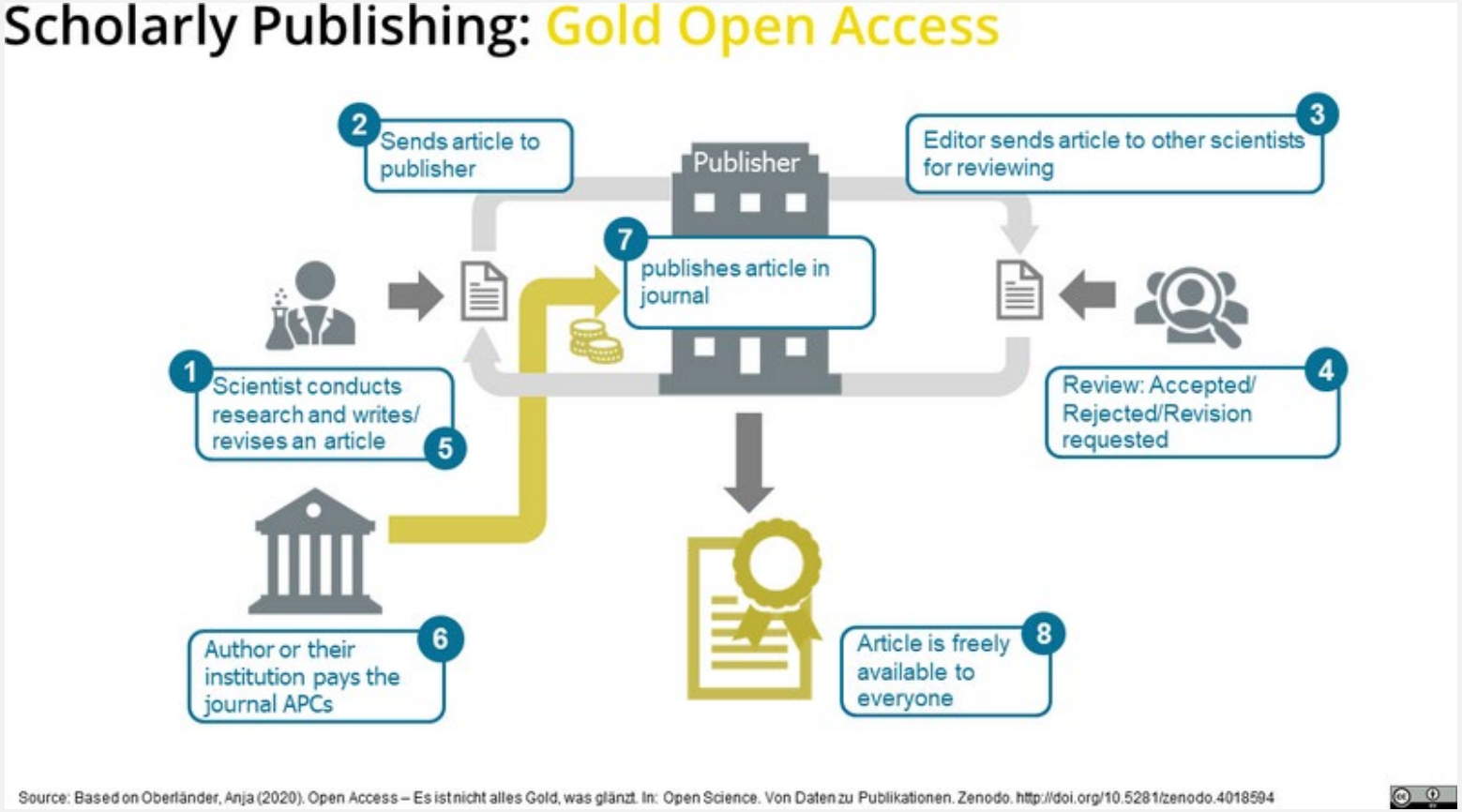
Publication of scholarly work in open access journals, conference proceedings and/or other open access publication outlets.

Publisher and author agree upon the rights of use of the material.

Application publishing charges (APCs) apply.

The costs of APCs often alienates scholars/institutions that cannot afford these changes.

A potential 'digital' divide in publishing occurs as a result.



Source: based on Oberländer, A. (2020). Open Access – Es ist nicht alles Gold, was glänzt. In: Open Science. Von Daten zu Publikationen. Zenodo. http://doi.org/10.5281/zenodo.4018594 (CC BY 4.0 International)

Green Open Access

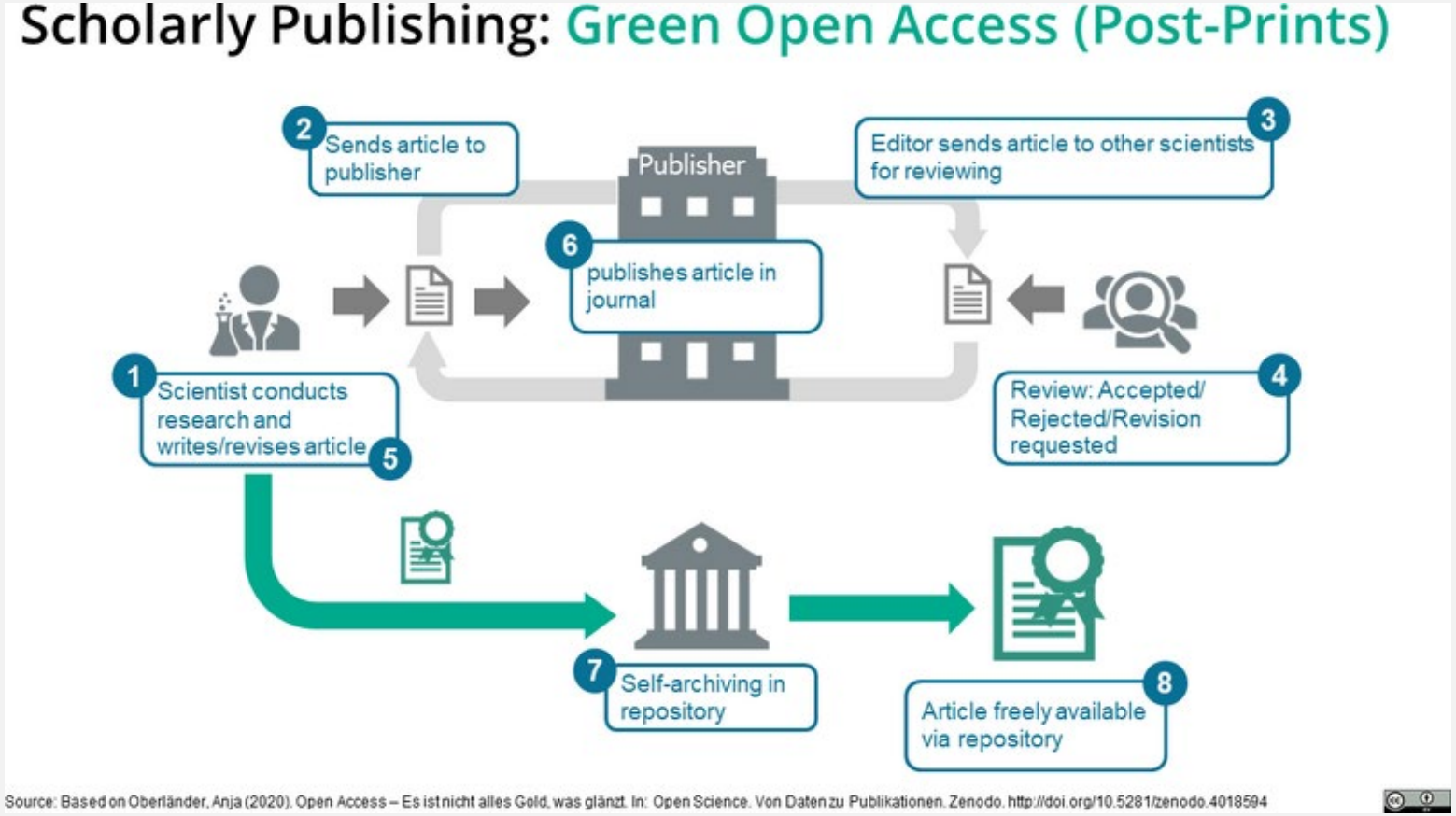
Making published work available to the public through institutional open access repositories (OARs).

The work can be pre-prints or post-prints.

A pre-print has not yet undergone peer review or has just been submitted to a journal for consideration.

A post-print has undergone peer review and been accepted for publication.

The author's accepted manuscript (AAM) is often the 'version of record' published in the OAR.



Source: based on Oberländer, A. (2020). Open Access – Es ist nicht alles Gold, was glänzt. In: Open Science. Von Daten zu Publikationen. Zenodo. http://doi.org/10.5281/zenodo.4018594 (CC BY 4.0 International)



African Research Visibility

Research About the Visibility of African Scholarship



"Africa's long-term publication output trends indicate that its contribution to global knowledge production has slipped slightly during the 1990s. Sub-Saharan Africa has fallen behind quite dramatically; from a 1% share in 1987 to 0.7% in 1996, with no sign of recovery (Figure 1). Africa has lost 11% of its share in global science since its peak in 1987; Sub-Saharan science has lost almost a third (31%)". (Tijssen, 2007, p. 307)

"Following a long period of relative stagnation, Africa's share of world publication output more than doubled since 2003 to reach 3% today. This is a notable but contrasted progress." (Gaillard & Mouton, 2022, p. 319)

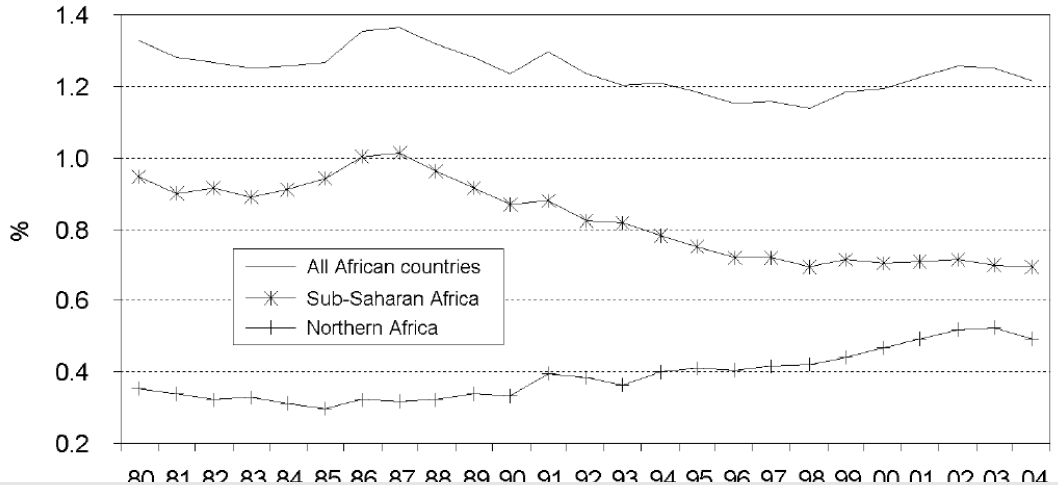


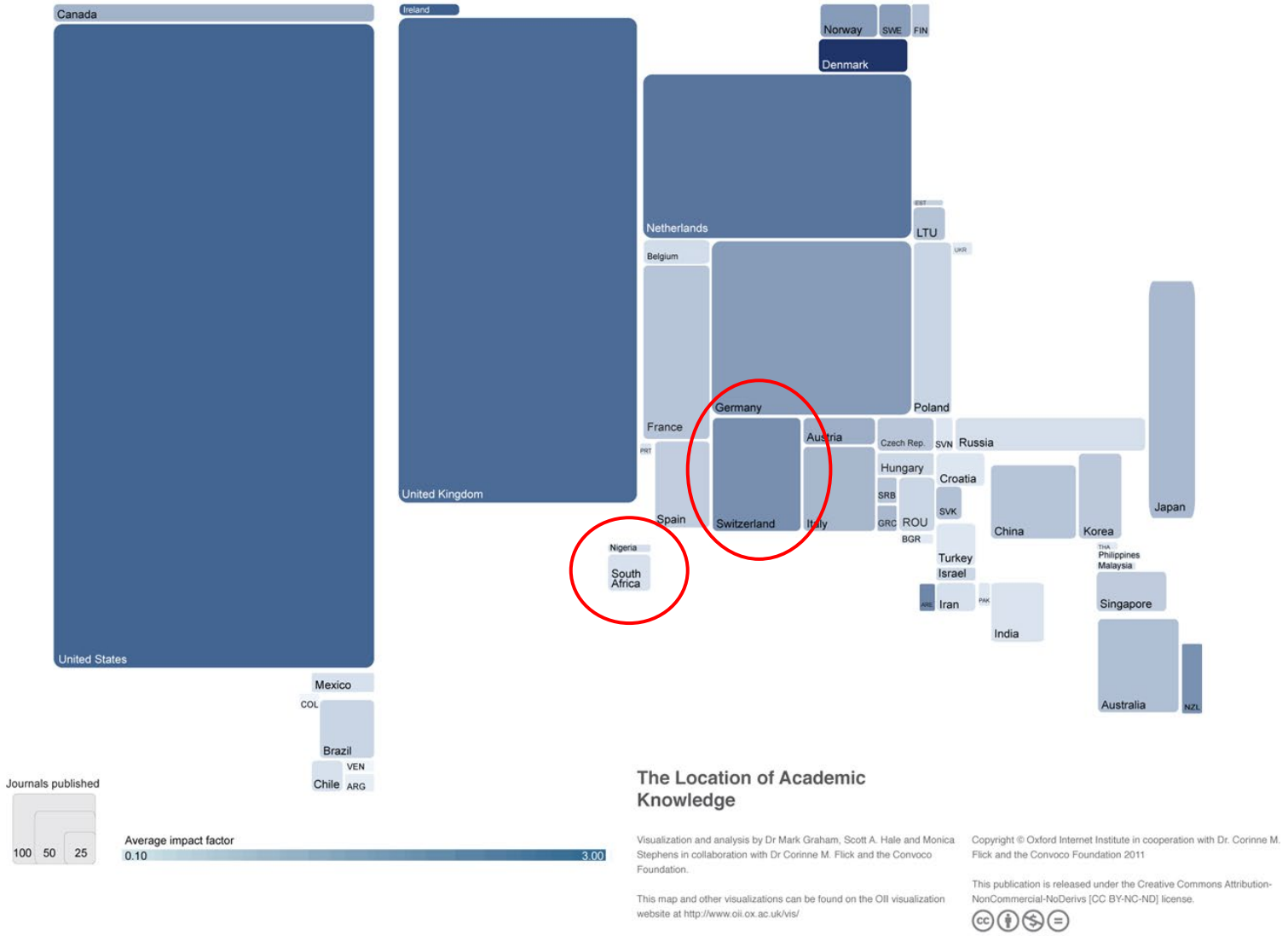
TABLE 3
Scientific Production (World Share of Scientific Publications) in Developing Countries

	World share (%) of scientific publications		
Areas/Countries	*2001*	*2006*	*Evolution 2006/2001*
Asia (excluding Japan)	9.4	14.8	+87
China	3.6	7.0	+96
ASEAN	0.7	1.0	+42
Latin America (including Mexico)	2.6	3.2	+46.4
Brazil	1.2	1.6	+35
Africa	1.2	1.2	0
North Africa	0.5	0.5	+11
South Africa	0.4	0.4	–9
Near and Middle East (excluding Israel)	0.5	0.8	+90
Total Developing Countries	13.7	20.0	

Source: Thomson Scientific data (OST 2008).

Reproduced from (Gaillard, 2010)

Knowledge Divides



The Location of Academic Knowledge (Graham et al., 2011)

"This map reveals a staggering amount of inequality in the geography of the production of academic knowledge. The United States and the United Kingdom publish more indexed journals than the rest of the world combined. One of the starkest contrasts is that Switzerland is represented at more than three times the size of the entire continent of Africa" (Graham et al., 2011, p. 14)

Extracted from research done at the OII on the Location of Academic Knowledge: https://geography.oii.ox.ac.uk/the-location-of-academic-knowledge/

The Problem

- Lack of ***accessibility*** to and ***visibility*** of African research and scholarship
- Potential reasons:
  - ***Scholarly communications perspective -*** Lack of discoverability in mainstream scholarly publication databases such as Scopus and Web of Science
  - ***Research ecosystem perspective*** - lack of resources and infrastructure to support a research ecosystem in-country, thus leading to a paucity of research outputs
- A longitudinal action research project called LIBSENSE which started as a grassroots movement attempts to address the inequities of this situation through an open science approach



The LIBSENSE Approach

The LIBSENSE Project

Library ***S***upport for ***E***mbedding ***N***REN ***S***ervices and ***e***-Infrastructure

- Formally launched in 2017
- Co-founded by four partners – 3 NGOs and 1 HEI :
  - West and Central African Research and Education Network **(WACREN)** [Lead Partner]
  - Electronic Information for Libraries **(EIFL)**
  - Confederation of Open Access Repositories **(COAR)**
  - The University of Sheffield **(UoS) Information School**
- LIBSENSE is a continent-wide initiative ***to expand open science in Africa*** based on strategies that work in the African context
- Referred to as a ***network***, i.e., the members of the community who identify with its goals and vision
- Referred to as an ***initiative***, i.e. a broad-based programme of activities undertaken by members of the community it spawned
- Operating under the ***broad remit*** of advocacy work, agenda-setting, policy development, proof-of-concept work, through pilot projects, workshops and research activities.

Original Idea of LIBSENSE

HEI LIBRARIAN COMMUNITIES
- Networks of mobilisation and influence
- Liaisons (e.g. institutional focal points)
- Information & Knowledge expertise
- Technical expertise
- Institutional embeddedness

NRENS
- REN-NREN structures
- Liaisons (e.g. focal points)
- Technical expertise
- Infrastructure

CONTENT PROVIDERS
- Knowledge producers/ consumers/prosumers
- Scientific communities of practice
- Universities/research institutes/HEIs

E-INFRASTRUCTURE PLATFORM (E.G. KNOWLEDGE REPOSITORY)

NREN contribution – technical expertise and infrastructure architecture/ federated digital platform developers

CONTENT PROVIDER contribution – custodians, implementers of repositories, research data, outputs, information needs

HEI LIBRARIAN COMMUNITIES contribution – design and management of knowledge discovery and curation mechanisms, technical expertise in repositories implementation

LIBSENSE: Pan-African Library/NREN Collaborations around Open Science at the Institutional, National and Regional Levels

Pamela Abbott, Senior Lecturer, University of Sheffield, UK, p.y.abbott@sheffield.ac.uk
Omo Oaiya, Chief Strategy Officer, WACREN, Ghana, Omo.Oaiya@wacren.net
Iryna Kuchma, Open Access Programme Manager, EIFL, Lithuania, iryna.kuchma@eifl.net

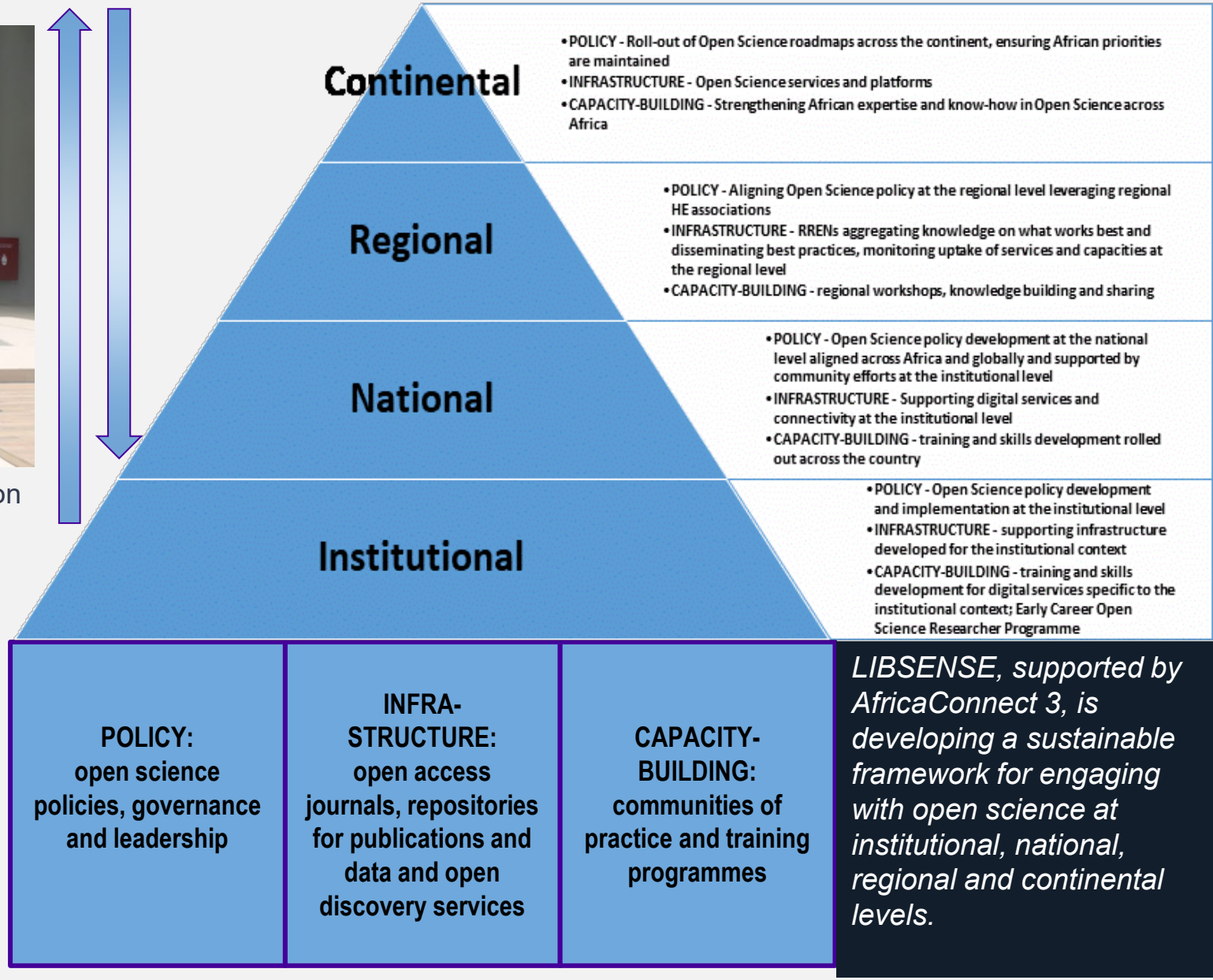


LIBSENSE focuses on bottom-up and grassroots programmes of action initiated by its community

E-mail: libsense@ren.africa
Website: https://libsense.ren.africa

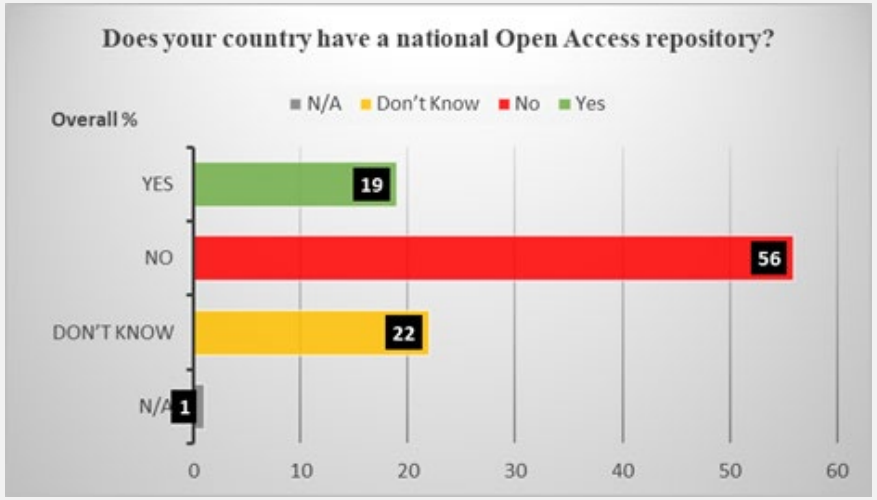
LIBSENSE
STRENGTHENING OPEN SCIENCE IN AFRICA

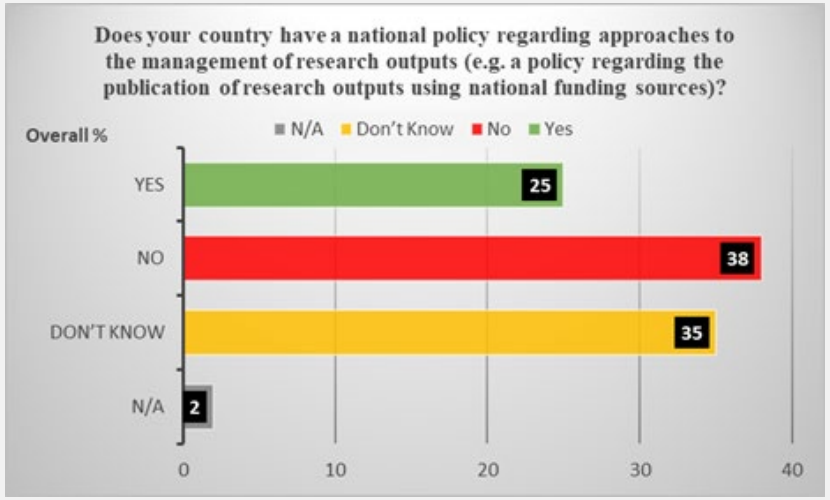
Africa Connect 3



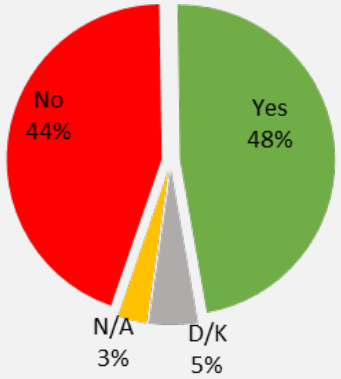
LIBSENSE, supported by AfricaConnect 3, is developing a sustainable framework for engaging with open science at institutional, national, regional and continental levels.

Open Access Repositories – Findings from a LIBSENSE Survey (2019)





Availability Of Policy Regarding Deposit Of Research Outputs in Open Access Repositories (%)

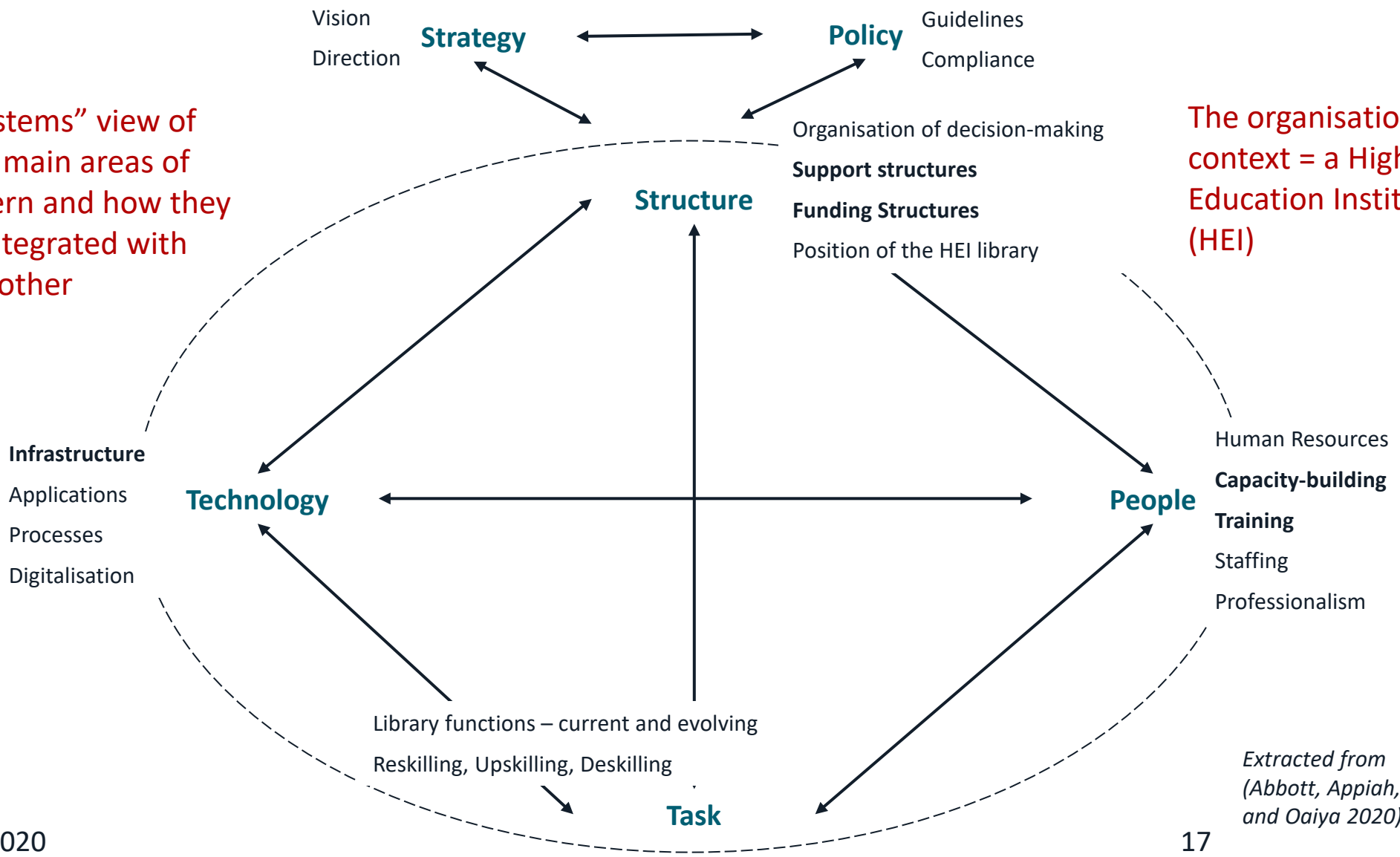


Extracted from (Abbott, Appiah, and Oaiya 2020)

Lessons learnt from the survey:

- Knowledge of OA/OS was minimal – more advocacy was needed
- Institutional support became a focal point of the findings – it affected policymaking, financing, training, supporting structures and resources
- Technology was only one small part of the problem – context was a bigger one.

A "systems" view of the 5 main areas of concern and how they are integrated with each other



The organisational context = a Higher Education Institution (HEI)

Extracted from (Abbott, Appiah, and Oaiya 2020)



A Case Study from Rwanda

Studying Rwandan Research Challenges (Abbott & Cox, 2020a)

A chain of logic?

- African scholarship is not visible; research outputs are not accessible
- Open science is a movement that can address inequities in how science works
- Open science may be able to address the invisibility of African scholarship

An exploratory study…

- Exploring Rwandan librarians' experiential knowledge of the research process in their country
- Mapping their discussions to a framework centred on the 'research lifecycle'
- Why the 'research lifecycle'?
  - One way of looking at the production and dissemination of academic knowledge from a country's research environment
  - Open science seen as 'opening up' aspects of the 'research lifecycle' --- ICT enabling new ways of doing research that enable collaboration, sharing of data and outputs, free access to published outputs

OS & the Inequality of Research & Scholarship in Africa – 3 perspectives

Inequalities in the Scholarly Communication System

- Powerful scholarly communication system dominated by global North industry leaders who effectively exclude African scholars through high costs, setting global research agendas and operating closed networks of knowledge production
- Open science could reduce this inequity, however, as with other digital divides, it tends to exacerbate existing inequalities and could open scholars to exploitation due to infrastructural advantages of global North scholars

Deficits in the In-Country Research Environment

- A web of in-country issues assumed to render the country deficient in resources and infrastructure to support a workable research environment
- In this view open science initiatives are also under-invested and under-resourced, i.e. ineffective to engender change

Cognitive Injustices

- Domination and erasure of local knowledge through power structures in play since colonisation and enduring within current economic and political systems
- Open science can bring change but not within these dominant power structures

Findings

Research Lifecycle	Idea generation		Data coll. & analysis	Dissemination of results		
Themes	Motivation	Access to literature		Local publication	Publication in international journals	Open
Researcher position	Publish or perish model | Limited funding for research, mostly from external funders, disconnected from local agendas | Teaching loads			International journal publication needed for promotion	High rejection rates Predatory publishers	Lack open dates
Costs	Lack of financial motive to do research | Doing extra teaching is easier than doing research	High cost of access to literature content	Lab costs | Data collection costs – paying participants' travel or fees		Publication costs: reviewing costs, APCs (notwithstanding discounts)	
National and institutional support infrastructure		Poor technical infrastructure: electricity, computer ownership, bandwidth, software and IT support | ICT support staff leave quickly when they have been trained Hard to work from home because of network cost | Librarians low status				No rc cess i instit Lack main infras
Skills		Lack of reading habits | Lack of search skills | Low English skills			Low English skills Lack of academic writing skills | Lack of understanding of publishing process	Little of IP conte
Access		Lack of local content | High cost of subscriptions			Rwanda has graduated out of Research4Life	

- All aspects of the 'research lifecycle' affected at some level
- The most affected aspects were 'Access to Literature' and 'Publication in International Journals'
- All aspects expressed as weaknesses of the research environment
- Issues raised were strongly related to in-country deficits
- From this perspective, open science unlikely to help, but would rather amplify the existing problems

Implications for Open Science

RQ1. What are Rwandan librarians' perceptions of the challenges for research in their country?

- Presented with a dominant in-country deficit view:
  - The country and its own particular context are 'blamed' for the problem
  - Implication: the problem is situated locally; the solution is to increase resources and capacity and improve infrastructure, i.e. to model the global North research systems
- Less support for alternative views:
  - The problem is systemic and/or structural, the in-country issues are part of broader systems of inequality or injustice
  - Implication: understanding these influences helps to identify why these situations endure and opens them up to question
- Build understanding for the Rwandan 'normal' not the global North 'normal'
  - Local cultural norms, language, knowledge

Implications for Open Science

RQ2. How is open scholarship relevant to addressing these challenges?

- In-country deficit view:
  - OS not relevant – all aspects of the research lifecycle already weak and hence not improved by addition of OS
- Alternative views:
  - OS as a way of rethinking research processes that do not work in this context
    - Engaging citizens in open debate
    - Democratising access and participation
    - Encouraging local knowledge production



Ways Forward

Research Environments/Systems & Country Deficit Discourses (Abbott & Cox, 2020b)

Research Environments/Systems: institutions, infrastructures, processes and other contextual factors that provide support for in-country knowledge creation and dissemination (the research process).

Assumption: strong research systems → strong research processes & conversely, weak research systems → weak research processes

The Country Deficit perspective: supports and promotes the view that a country lacks the resources to support its research environment and hence is presumed to be 'failing'.

Examples of the Country Deficit perspective from the Sub-Saharan African context:

- Published accounts about the low incidence of research outputs and scholars from Sub-Saharan Africa
- Reports and articles about the in-country lack of:
  - Investment in tertiary education
  - Funding, equipment, support, mentoring
  - Research methods training
  - Influence of research on policy
  - Reliable electricity supply, computer ownership, internet access and bandwidth
  - Resources, access to scholarly content
- Assessments of the research environment as being dysfunctional

Advantages of Equality in Scholarship & Publishing (Chan et al., 2011)

The LIBSENSE initiative through addressing some aspects of the research "system" could have potential outputs as related by Chan et al. (2011)

- Strengthening the importance of "local" scholarship
- South – South interchange of knowledge
- Local scholarship having an impact on local outcomes, local development & local problems
- Global knowledge commons
- Leveraging the power of the network
- Less about mimicking the West and more about local knowledge discovery
- International opportunities with limited resources
- Network accessibility growing to enable more opportunities
- How knowledge is valued and measured – reform of research assessment

This demonstrates how some form of "success" can be achieved even though an in-country deficit position is deemed to exist, it concentrates on what can work rather than what does not.

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THANK YOU!

