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Version: Accepted Version

### **Proceedings Paper:**

Abbott, P. orcid.org/0000-0002-4680-0754 (2024) A social justice analysis of an African open science initiative. In: Chigona, W., Kabanda, S. and Seymour, L.F., (eds.) Implications of Information and Digital Technologies for Development: 18th IFIP WG 9.4 International Conference, ICT4D 2024, Cape Town, South Africa, May 20–22, 2024, Proceedings, Part I. 18th IFIP WG 9.4 International Conference, ICT4D 2024, 20-22 May 2024, Cape Town, South Africa. IFIP Advances in Information and Communication Technology, 708 . Springer Nature Switzerland , pp. 385-399. ISBN 9783031669811

https://doi.org/10.1007/978-3-031-66982-8\_27

This version of the contribution has been accepted for publication, after peer review (when applicable) but is not the Version of Record and does not reflect post-acceptance improvements, or any corrections. The Version of Record is available online at: http://dx.doi.org/10.1007/978-3-031-66982-8\_27. Use of this Accepted Version is subject to the publisher's Accepted Manuscript terms of use https://www.springernature.com/qp/open-research/policies/accepted-manuscript-terms

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# A Social Justice Analysis of an African Open Science Initiative

 $Pamela\ Abbott\ ^{1[0000\text{-}0002\text{-}4680\text{-}0754]}$ 

<sup>1</sup>University of Sheffield, Sheffield, United Kingdom p.y.abbott@sheffield.ac.uk

Abstract. The case study presented in this paper can be argued to embody the representation of two dominant discourses that frame the persistent problem of lack of African research visibility in global knowledge systems. The first proceeds from a deficit perspective, suggesting endemic dysfunctions within incountry research systems, while the second recognizes potential systemic injustices, which are deemed to create unequal opportunities for knowledge production and dissemination for African scholars. Four selected interventions from the case study are analyzed using a social justice framework, developed in the paper, that synthesizes these two critical perspectives. It was found that all but one of the interventions emanate from a country deficit discourse and that the actions taken tend mainly to ameliorate, not challenge this perspective. The paper concludes by demonstrating through the social justice lens why the African research visibility issue continues to persist and hints that counter narratives initiated by the case study could offer an alternative outcome.

**Keywords:** Research Infrastructures, Social Justice, African Scholarship, Open Science

### 1 Introduction

The lack of accessibility to, and visibility of, African research and scholarship has long been recognized as an issue both by scholars from the global North and from Africa [1–3]. The reasons for this vary depending on the source of the claims. For example, from a scholarly communications perspective, it may be presented as a problem of lack of discoverability in mainstream scholarly publication databases such as Scopus and Web of Science which tend to be dominated by outputs from the global North [4]. From an economic development perspective, it may also be seen as emanating from a lack of resources and infrastructure to support a research ecosystem in-country, thus leading to a paucity of research outputs [5]. This paper will identify two dominant discourses that appear to underlie assumptions as to the causes of the lack of accessibility and visibility of African research outputs. The first will be referred to as a country deficit discourse, a term which was first introduced concerning research done on open science in Rwanda [6] and which will be further developed as a conceptual perspective in this paper. The

second will be referred to as a systemic injustice discourse which includes critical and decolonial perspectives on the issue [7].

Positioning these perspectives as discourses [8] is helpful in understanding why this situation continues to persist even after many years of highlighting it as an issue and also after various research programs and projects have attempted to address it [5]. The case study presented in this paper is one such effort based on the tenets of open science [9]. In so doing, this paper follows Escobar's [10] assertions that practices associated with international development have been produced as an outcome of dominant discourses which portray regions of the world as "underdeveloped" and therefore encourage actions geared towards reversing this situation. Such actions, however, may have the pernicious consequences of maintaining powerful hegemonies which themselves paradoxically sustain the same conditions of which these dominant discourses speak. Escobar introduces the notion of "counter discourses" which challenge these dominant perceptions of development and offer more positive views of a country's development situation.

The paper also adopts a perspective on social justice which frames it as "parity of participation" [11–14]. In these terms, the Open Science movement, with its emphasis on the democratization of knowledge, promises equity and parity for African scholarship and a pathway to build systems of social justice through increasing inclusivity and equity in the availability and opportunity for knowledge production and dissemination through open publishing platforms [15] and enriching local research environments [16, 17]. Actual research into how open science does influence these local research environments, however, is scarce [18], raising questions of how this potential can be materialized. This paper will argue that, from Fraser's social justice perspective [11], actions taken to increase accessibility and visibility of African scholarship through open science initiatives can take either an affirmative or transformative approach. The former would be more likely to sustain prevailing discursive practices while the latter may introduce counter narratives to the prevailing discourse [14].

The overarching research questions for this paper are: How can the persistent lack of accessibility to and visibility of African scholarship be addressed by open science initiatives in a socially just way? What practical outcomes can be envisaged by the consequent approaches adopted? The paper reports on interventions from a seven-year action research initiative called LIBSENSE [19] currently being undertaken across Africa that is based on open science principles and imaginaries. The interventions are analyzed using a social justice framework. Further analysis is undertaken to determine whether and how prevailing discourses within this research program are being sustained or challenged by the interventions being undertaken. The paper concludes with observations on these findings.

#### 2 Literature Review

Given the complexity of the meaning of the term 'discourse' [8], it is not possible to provide a universal or all-encompassing definition in this paper. Rather, the logic of using the term and the manner in which it is being adopted will be described. This

paper is influenced by Escobar's writings on development discourse [10] and the concept of deficit discourses as outlined in [20–22]. Escobar aligns his work with the Foucauldian notion of discourse and takes a poststructuralist perspective on the relationship between discourse and practice, which are seen to be intertwined and mutually reinforcing and bound up with knowledge production and power relations [10]. According to Escobar: "Foucault's work on the dynamics of discourse and power in the representation of social reality, in particular, has been instrumental in unveiling the mechanisms by which a certain order of discourse produces permissible modes of being and thinking while disqualifying and even making others impossible" (p. 26). Similarly, Fforde et al.'s work on deficit discourses [21] has also been influenced by Foucault and other critical positions. Citing Kerins' research [23], they define 'discourse' as: "systems of thoughts composed of ideas, attitudes, courses of actions, beliefs and practices that shape reality by systemically constructing the subjects and the worlds of which they speak. Discourse plays a role in wider social processes of legitimation and power; emphasising the constitution of current truths, how they are maintained and what power relations they carry with them" [21] (p. 162-163). Both strands of work also demonstrate how counter discourses can influence the status quo. This paper is guided by these critical perspectives on how discourse and practice are co-constituted and influenced by power relations.

Although this paper does not attempt a discourse analysis, it demonstrates how the relative obscurity of African scholarship has been represented through various discourses presented in existing research on the topic. At least two dominant discourses of "country deficit" or "systemic injustice" can be identified which are used to frame the problem of the lack of accessibility and visibility of African scholarship. A "country deficit" discourse tends to emphasize the dysfunctional nature of a country's institutional, regulatory, educational and other complementary systems which puts it an inherent disadvantage in terms of research capacity and capability as compared to institutions in the Global North [6, 24, 25]. A systemic injustice discourse implies that endemic/systemic inequalities contribute to the persistence of this problem. These inequalities are argued to be part of a global ordering of knowledge production and dissemination and an unequal economic system around the production of knowledge [26]. These are further elaborated in the sections below.

#### 2.1 Country Deficit Discourse

The term "deficit discourse" is influenced by two streams of literature. The first pertains to studies in education, in particular, a strand of research about Australian indigenous people, that demonstrates how learners may be disadvantaged in current educational systems by injurious prejudices about their ability to learn brought about by negative perceptions induced by a language of deficit [20–22]. The Lowitga study frames the term thus: "'Deficit discourse' refers to disempowering patterns of thought, language and practice that represent people in terms of deficiencies and failures. It particularly refers to discourse that places responsibility for problems with the affected individuals or communities, overlooking the larger socio-economic structures in which they are embedded." (p. 1). The second influence is from the work of Escobar [10]

around the framing of "development" as constituted by discursive practices. Escobar argues strongly that socially constructed discourses have shaped the practice of development from its inception as a Western idea in the 1950's. Applying Foucauldian discourse analysis, Escobar deconstructs development discourse to proffer an alternative that he positions as postdevelopment: "Generally speaking, 'postdevelopment' arose from a poststructuralist and postcolonial critique, that is, an analysis of development as a set of discourses and practices that had profound impact on how Asia, Africa, and Latin America came to be seen as "underdeveloped" and treated as such." (p. xii). Combining both of these perspectives and progressing views expressed previously by the author [6, 27], gives rise to the label "country deficit discourse" to which can be applied this working definition: "a set of beliefs around what a country lacks in terms of resources, institutions and infrastructures and how it can 'catch up' to more developed country research contexts; deficit denotes lack or failure in comparison to the contexts of those actors generating the discourse". In other words, this discourse supports the view that the country's institutional, regulatory, educational and other complementary systems are dysfunctional, thus not able to support the research process and production of scholarly output that is on par with the Global North. This paper does not have the scope to build a cultural-historical account of the emergence of this discourse but will point to some elements that can be seen to influence general thinking about research environments in Africa. Below are examples of elements of this discourse.

Research infrastructures, comprising both technical and institutional elements [28], are thought to be a key supporting mechanism critical to functional research environments [29], but are often represented in literature from the narrow perspective of technical elements of connectivity [30]. This narrow focus aligns with a more pervasive digital divide discourse [31, 32] drawing attention away from critical institutional requirements. Attempts have been made in the literature to establish criteria on which countries' research environments/systems can be compared, calibrated and/or assessed [33]. This has led to the development of frameworks/models that measure indicators of suitability of research environments/systems to produce outputs that follow a typical research lifecycle of production, dissemination and uptake [29]. Countries that do not attain outcomes that are measurable or if measurable, do not attain the expected standards, are seen to be deficient, lacking in some way [34–36]. This leads to a dominant country deficit discourse on why scholarship is seen to be weak in some contexts, especially low-resourced countries.

From a country deficit perspective, the State's commitment and investment in research in Africa is portrayed as weak [37]. Investment in higher education is seen to lag in comparison to that of primary and secondary education [38]. These concerns are framed in the language of developing an African knowledge economy [39]. The level of government investment in research is compared to the OECD and other more advanced economies, with resulting data determined to be below par, e.g., investment at or below 0.5% of GDP [40]. Where research policies exist, they tend to mimic those of the global North, ignoring local conditions [41]. This may be influenced by the fact that North-South interventionist programs meant to improve research systems in the global South tend to employ models of performing research from the global North [42].

A strong country deficit perspective can produce these effects: it can frame the country's stage of development as the "problem"; it can ignore the wider, more pervasive and persistent systems of inequality and injustice in which this "problem" may be embedded; it can ensure that the "solution" to the "problem" is one which perpetuates the status quo of these inequalities, such that the dysfunctions are reproduced and become established and institutionalized. These issues mirror concerns similar to those of Escobar's development discourse [10] and Fforde et al.'s deficit discourse [21].

#### 2.2 Systemic Injustice Discourse

The "systemic injustice" discourse refers to institutionalized practices, beliefs, norms, etc. that engender inequalities that exist outside of the purview of the political apparatus of the state or government of a particular country, i.e., they are geopolitical or global but are seen to affect the systems and structures in-country that may lead to lack of accessibility and visibility of African scholarship. They may even be seen to contribute to the weak institutions and infrastructures assumed to underlie the country deficit discourse. These inequalities relate to hegemonies around knowledge production, sites of scholarly communication and publishing, research assessment norms, universality of English as the language of science, persistence of colonial legacies that embed Western values and ways of knowing even when not necessarily appropriate to the research context [7, 43]. Various terms are used in this discourse. Epistemic injustice [26, 44], for example, refers to the systemic and hegemonic oppression of indigenous knowledge systems by dominant and generally former colonial powers, also referred to as "epistemic violence" [45] and "epistemicide" [46]. Countering this violence calls for a plurality of voices and knowledge systems [47, 48]. Linguistic injustice refers to a skewed distribution of scholarly publication in the English language which privileges research emanating from the global North, in particular English-speaking countries and which effectively excludes those writing or publishing in different languages [49, 50]. Solutions to this inequality also point to including multilingual approaches to publishing [51]. There are also some postcolonial studies which argue that colonial and neocolonial practices based on neoliberal values are thought to contribute to marginalization of scholars from the global South [7, 52].

#### 2.3 A Social Justice Framework

Taking Fraser's [12] definition as a point of departure, social justice can be defined as: "the most general meaning of justice is parity of participation... justice requires social arrangements that permit all to participate as peers in social life. Overcoming injustice means dismantling institutionalized obstacles that prevent some people from participating on a par with others, as full partners in social interaction" (p. 73). Further, Fraser asserts that one can only comprehend justice by experiencing its opposite, injustice [13]. In earlier work [11], Fraser proposes two analytical distinctions of "injustice", one socioeconomic, e.g., being marginalized socially/economically, and the other, cultural/symbolic, e.g., being culturally dominated by beliefs, norms etc., from other cul-

tures or being rendered "invisible" or being maligned or disparaged by others. In further work, she introduces the political dimension of injustice, which concerns how decisions are made about who should be entitled to just actions [12]. Fraser also argues that injustices can be remedied by two types of action, one "affirmative" and the other "transformative" [11, 12]. Affirmative remedies are "aimed at correcting inequitable outcomes of social arrangements without disturbing the underlying framework that generates them" [11] (p. 23). Luckett and Shay [53] further elaborate: "An affirmative approach works for justice within a given framing or 'grammar' - it accepts the social structures and institutions that have framed the social practices that need changing". For the purposes of this paper, therefore, an affirmative approach to addressing an identified injustice would tend to do so within the confines of the prevailing discourse. According to Fraser, transformative remedies, on the other hand, are "aimed at correcting inequitable outcomes precisely by restructuring the underlying generative framework' [11] (p. 23). Hence, such actions would tend to operate within a counter discourse, challenging the status quo. Finally, the key injustices identified for each dimension of remedy are explained as: maldistribution (socio-economic), where resources are not distributed fairly leading to distributive inequalities; misrecognition (cultural), where people are unable to participate fairly due to systemic bias against their specific cultural characteristics; and misrepresentation (political), where people are denied the opportunity to decide how they can participate in actions that would benefit them [11, 12, 14]. In Table 1 below, the above views are synthesized to present a framework for analyzing dominant discourses around the scholarship visibility using a social justice

**Table 1.** A Framework Applying a Social Justice Lens to Dominant Discourses on African Scholarship Visibility

Dominant Discourses	Applying a Social Justice Lens	Social Justice Analytical Dimension	Injustice Remedies/Actions
Country Deficit	Lack of parity of participation in global knowledge production caused by dysfunctional in-country research environments due to lack of resources, institutions, infrastructures	Mainly aligned to so- cio-economic issues concerned with maldis- tribution of resources. Focus is within coun- try/State.	Affirmative: in line with prevailing discourses, e.g. addressing issues of maldistribution of resources.  Transformative: challenging prevailing discourses, e.g. changing structures through which maldistribution takes place.
Systemic Injustice	Lack of parity of participation in global knowledge production	Mainly aligned to cul- tural and political di- mensions and con- cerned with misrecog-	Affirmative: in line with prevailing discourses, e.g., ensuring representation and participation through quotas.

systems caused by hege-	nition and misrepresen-	Transformative: counter
monic oppression and	tation. Focus is supra-	narratives, e.g., address-
postcolonial legacies	national, global, out-	ing structural and sys-
	side of the State.	temic issues of misrecog-
		nition of misrepresenta-
		tion.

## 3 Methodology

This paper adopted a form of archival analysis [54]. First, a digital archive of documents was collated recording interventions that took place in the case study project, LIBSENSE, in which the author of this paper was involved. The archive material covers a period of seven years from October 2016 to the present date. The interventions recorded in the archive cover several kinds of activities. A research assistant was hired to complete this process, which took a period of three months. They used the following protocol to collate the documents:

- 1. Develop Python code to search Google folders containing relevant documents;
- 2. Extract information around the typology of interventions outlined in Table 2;
- 3. Using the coding frame in Table 3, code the documents using Nvivo;
- 4. Prepare a high-level chronology of the interventions.

There was considerable overlap in the documents extracted and this archive is still subject to further refinement, however, the documents serve to provide evidence of interventions falling under the categories identified in Table 2.

 Table 2. LIBSENSE Intervention Categories and Sub-categories

Typology Categories	Typology Sub-categories	Number of documents extracted
Research	Data Analyses; Data Gathering	187
Dissemination	Conferences; Articles/Papers	302
Interventions	Workshops; Webinars; Policy Development	320
Collaboration	Project Proposals; Partner Events; Partner Projects; Collaboration agreements	454

**Table 3.** Coding frame for coding documents in the digital archive

High-level Codes	High-level Code Description	Low-level codes	Low-level Code Description
Networks	Codes at high level any net- works observable in the case study	Networks of actors/activities	Actors/activities in the initiative

		Changing composition of networks	Networks changing according to goals/objectives/interests and so on.
Goals	Anything that like an objective or an aim that has been declared for the case study	Shared goals	Where more than one party shares the same goal
Open Re- search	Codes related to activities that promote any of the major themes of open research	Open Science	Objectives aligned with open science in general
		Open Access	Objectives aligned with open access in general
		Open Data	Objectives aligned with open data in general
Making African Scholarship Visible	Aligns with getting African Scholarship to be more dis- coverable, more visible to in- ternational audiences	N/A	N/A
Co-develop- ment	Any activities where co-developing with different groups is happening	Of research infrastructure	Activity involves building a research infrastructure
		Of research policy	Activity involves developing research policy, e.g, open access policy with others
Context	Any challenges or issues that might be happening in the environment surrounding this initiative	Funding	Sourcing funding for the initiative or projects thereof
		Librarians' changing profession	Librarians' changing skill- sets, capacity building etc.
		Higher education / university senior management	Lack of management support from higher education / universities
		Publishing	Ability or not to publish, e.g. lack of access to databases

# 4 Analysis and Discussion

# 4.1 LIBSENSE Case Study Description

LIBSENSE [19], an acronym for "Library Support for Embedding NREN Services and e-Infrastructure" is referred to as an initiative, a network or a programme of activities. Up until 2023, it was funded by Africa-Connect [54], a large infrastructural program

intended to provide the "last mile" connectivity of African higher education and research institutions to existing research and education networks in Europe. As part of AfricaConnect's remit, research and education network (REN) organizations (at national (NREN) and regional (RREN) levels) were instituted in Africa to provide coordinating structures through which network connectivity could be implemented in higher education and research institutions [30]. The REN concept was borrowed from Europe and was seen as a potentially successful structure in other LMIC contexts [55], in particular, in Eastern/Southern Africa, and was also actively pursued in the West African region. LIBSENSE was spearheaded in 2017 by the West and Central African Research and Education Network (WACREN) in partnership with two NGOs, Electronic Information for Libraries (EIFL) and Confederation of Open Access Repositories (COAR) and the University of Sheffield (UoS) Information School [56]. Given WACREN's remit as a coordinating body for 22 West African countries, their primary interest was in advocating for REN services such as federated networks, broadband connectivity, high performance computing, and building standards for next generation open access repositories (OARs). UoS helped to co-develop a research agenda around the adoption of open access/science policies and practices.

LIBSENSE became organized around three pillars: infrastructure development (open access journals, repositories for publications and data and open discovery services), policy development (open science policies, governance and leadership) and capacity building (communities of practice and training) [19]. The main activities were advocacy and awareness-raising workshops bringing together academic librarians with technical experts from the RENs. A key message was that technology would be no problem while RENs were involved in providing infrastructure needs, however, uptake and implementation of new standards and processes around open access/science would need to be catalyzed. After the initial advocacy and awareness-raising work, LIBSENSE is actively influencing future policy on how open science would evolve in higher education and research institutions. Some selected example interventions of this work are described and analysed in the following section.

#### 4.2 Analysis of Selected Interventions

#### LIBSENSE 3-region survey on Open Access Repository (OAR) development (2018

- **2019**). This intervention was a combination of a survey and corresponding workshop launched in three regions, West and Central, East and Southern and Northern Africa. In each of these regions there was a corresponding RREN organization that funded and hosted the workshop event as part of their annual conference/meeting. This intervention was meant to address the following perceived needs of the higher education institution (HEI) librarian community in these three regions: (1) to develop and implement a vision of African Open Scholarship led by African Librarian Communities of Practice; (2)To establish and understand the drivers for, and the hindrances against, change that would deliver on this promise; (3) to determine "e-readiness", i.e., the extent to which HEIs were building the necessary resources and capabilities to deliver digital innovations and (4) to determine the evolving role of the African HEI library in light of digitalization. A key expected outcome of this intervention was more collaboration

between academic libraries and the NRENs in their countries in the servicing and management of OARs in academic libraries. This collaboration was expected to provide complementary technical skills to build the librarians' capacity in this area.

Social Justice Framework Analysis. Key assumptions made when planning this intervention were: low implementation and uptake of OARs across Africa, gaps in higher education librarians' capabilities to support OAR development and inconsistent institutional support for OAR development. These assumptions can be interpreted as being mainly aligned to a prevailing country deficit discourse highlighting low levels of resources, skills, motivation and so on. The focus is also on within-country or within-continent issues. The intervention's approach was to raise awareness and build communities of practice around OAR development, both of which can be interpreted as affirmative, since they did not seek to address any systemic issues, but to work within the current status quo.

Skills Profiles Development Workshops (2020). This intervention emerged from the results of the 3-region surveys, which suggested there was low capacity around HEI librarians' skillsets for open science practices in general. The aim of these workshops was to discuss evolving skills profiles of the HEI librarians and to determine a set of preferred skills profiles to support ongoing digitalization (e.g., OAR development, data analytics, support for Open Science) that suit an African HEI context. This intervention was driven by feedback provided by the librarians themselves who expressed collectively skills deficits in the more technical aspects of supporting open science initiatives such as metadata development, back-end support of repositories, infrastructure support and other digital skills related to their work. Therefore, it was assumed that capacity development would be the appropriate way of addressing this. These assumptions aligned with the country deficit perspective by highlighting resource constraints.

Social Justice Framework Analysis. The approach to the intervention was to co-develop with leading African HEI librarians knowledgeable in open science practices a set of skills profiles that they believed would provide an 'imaginary' to which their peers could aspire if they wanted to meet digitalization challenges to their profession. Eight such profiles were developed, and the workshop revolved around break out discussions about these profiles. To some extent, the action taken was affirmative in that it was seen as a capacity-building, awareness-raising exercise but it was to a greater extent more transformative from the perspective of social justice. By creating a new 'imaginary' of what the African HEI librarian professional could aspire to, this intervention challenged the status quo and demonstrated how capacity building could be achieved through leveraging the power of the LIBSENSE network's own expertise. Since the workshops were held online, their transformative potential was amplified by their greater (virtual) reach.

**Policy Development Workshop** (2021-2022). The LIBSENSE initiative's alignment with the UNESCO recommendation on Open Science [57] led to an intervention which

was aimed at senior university executives who were recognized as key in supporting institutional change. The broad aim was to establish how to move from the high-level goals and principles articulated in the UNESCO recommendation on Open Science to how institutions could implement related policies. Once more, the power of the LIBSENSE network was leveraged to develop a set of case studies to illustrate how African HEIs had developed/implemented open access/open science policies in their institutions and the subsequent lessons learnt [58]. Workshop attendees were asked to consider how open science policy development in their own institutions could encourage research assessment reform and consequent potential benefits [60]. For example, such reformed practices could free African scholars from the 'publish or perish' imperative of striving inequitably for representation in elite Western journals, which are mostly inaccessible in resource-poor institutions.

Social Justice Framework Analysis. There were potentially two discourses driving the underlying assumptions of this intervention and the approaches used to address it. The assumption that senior HEI executives lacked sufficient exposure to open science policy implementation and its link to institutional research assessment reform points to institutional deficiencies aligning with a country deficit perspective. This was addressed mainly through awareness-raising and introduction to global ideas on research reform through DORA initiatives [62], which can be seen as an affirmative action. A systemic injustice discourse is also evident through the assumption that African scholarship faces an inherent bias in the Western-dominated scholarly communications system. To address this, the workshops promoted policy change to propagate open science initiatives at the institutional level which would change not just the system of publishing African academic outputs but also the incentive structures through which academics gained institutional recognition and reward (i.e., promotion/tenure). This type of action is transformative since it is agenda-setting, challenging the status quo.

RUFORUM Open Data Sharing Platform Collaboration (2021 – ongoing). In collaboration with RUFORUM, a pan-African network of agricultural research institutions, LIBSENSE will develop and pilot an agricultural research data repository [59]. This intervention seeks to upgrade RUFORUM's Knowledge Repository by providing research infrastructure for Agricultural research data sharing and management, Journal hosting and publishing and creation of open educational resources (OER) training material on research data management.

Social Justice Framework Analysis. The premise for this collaboration is technology obsolescence thus aligning with a dominant country deficit perspective. The choice of open science infrastructure, however, in the form of an open data repository represents a step change for the RUFORUM secretariat bringing with it the need for significant capacity-building. Both the infrastructure re-development and capacity building efforts represent affirmative actions under this country deficit perspective. Throughout these efforts however, co-development of the new platform with RUFORUM actors has been critical to its current progress. This attests to a transformative, co-creation approach, incorporating beneficiaries' views into decision-making about the infrastructure design

as it progresses. RUFORUM members are thus empowered to direct the development of the repository to assure their sovereignty over their datasets. This approach thus counters existing structures of decision-making by evolving a new approach as the repository is developed.

#### 5 Conclusion

The LIBSENSE case study, due to its wide-ranging remit and constellation of loose networks and relationships between actors aligned to the open science principles of doing research, can be represented as an encapsulation of both the country deficit and systemic injustices perspectives. Due to this, the initiative oscillates between actions that are affirmative in nature, and those that are transformative and challenge some of the structural inequalities that perpetuate the visibility issue that the initiative is attempting to address. The selected interventions align more closely with the country deficit perspective in attempting to address a lack or dysfunction in the research environment. This is done from both the affirmative (keeping status quo in place) and the transformative (challenging structures in place) positions. One of the interventions could be said to align to a more systemic injustice perspective, highlighting the need for equity in science participation from the global South as enshrined in the UNESCO recommendation on open science [61]. Here, however, the actions taken were more affirmative in attempting to influence policy and thinking but not addressing the cultural / political systemic issues that might be at play. This analysis has demonstrated the usefulness of a social justice perspective in understanding how prevailing discourses on the visibility of African scholarship could be sustained despite awareness of the injustice that this causes.

## References

- 1. Bai, Y.: Has the Global South become a playground for Western scholars in information and communication technologies for development? Evidence from a three-journal analysis. Scientometrics. 116, 2139–2153 (2018). https://doi.org/10.1007/s11192-018-2839-y.
- Tijssen, R.J.W.: Africa's contribution to the worldwide research literature: New analytical perspectives, trends, and performance indicators. Scientometrics. 71, 303–327 (2007). https://doi.org/10.1007/s11192-007-1658-3.
- 3. Gaillard, J., Mouton, J.: The State of Science, Technology and Innovation in Africa: Trends, Progress and Limitations. Sci. Technol. Soc. 27, 318–326 (2022). https://doi.org/10.1177/09717218221078548.
- Arowosegbe, J.O.: AFRICAN SCHOLARS, AFRICAN STUDIES AND KNOWLEDGE PRODUCTION ON AFRICA. Africa. 86, 324–338 (2016). https://doi.org/10.1017/S0001972016000073.
- Malapela, T.: Access to Scholarly Research Information in Sub-Saharan Africa: A Review. Libri. (2017). https://doi.org/10.1515/libri-2016-0060.
- Abbott, P., Cox, A.: Perceptions of Rwanda's Research Environment in the Context of Digitalization: Reflections on Deficit Discourses. In: Bandi, R.K., C. R., R., Klein, S., Madon, S., and Monteiro, E. (eds.) The Future of Digital Work: The Challenge of Inequality. pp.

- 50--64. Springer International Publishing, Cham (2020). https://doi.org/10.1007/978-3-030-64697-4\_6.
- Ndlovu-Gatsheni, S.J., Seesemann, R., Vogt-William, C.: African Studies in Distress: German Scholarship on Africa and the Neglected Challenge of Decoloniality. Afr. Spectr. 57, 83–100 (2022). https://doi.org/10.1177/00020397221080179.
- Guardado, M.: 5. What is discourse? In: 5. What is discourse? pp. 70–78. De Gruyter Mouton (2018). https://doi.org/10.1515/9781614513841-005.
- 9. Chan, L.: Contextualizing openness: situating open science. (2019).
- Escobar, A.: Encountering development: the making and unmaking of the third world. Princeton University Press, Princeton, N.J (2012).
- Fraser, N.: Justice Interruptus: Critical Reflections on the Postsocialist Condition. Taylor & Francis Group, Florence, UNITED KINGDOM (1997).
- 12. Fraser, N.: Reframing Justice in a Globalizing World. New Left Rev. 69–88 (2005).
- 13. Fraser, N.: On Justice. New Left Rev. 41–51 (2012).
- 14. Hodgkinson-Williams, C.A., Trotter, H.: A Social Justice Framework for Understanding Open Educational Resources and Practices in the Global South. J. Learn. Dev. 5, (2018). https://doi.org/10.56059/jl4d.v5i3.312.
- Raju, R., Badrudeen, A.: Social justice driving open access publishing: an African perspective. J. Electron. Publ. 25, (2022). https://doi.org/10.3998/jep.1910.
- Chan, L., Okune, A., Sambuli, N.: What is open and collaborative science and what roles could it play in development? Presented at the August (2015).
- Hillyer, R., Posada, A., Albornoz, D., Chan, L., Okune, A.: Framing a Situated and Inclusive Open Science: Emerging Lessons from the Open and Collaborative Science in Development Network. Expand. Perspect. Open Sci. Communities Cult. Divers. Concepts Pract. 18–33 (2017). https://doi.org/10.3233/978-1-61499-769-6-18.
- Rappert, B., Bezuidenhout, L.: Data sharing in low-resourced research environments. Prometheus. 34, 207–224 (2016). https://doi.org/10.1080/08109028.2017.1325142.
- LIBSENSE; LIBSENSE; The Power of Open Access and Science, https://libsense.ren.africa/en/, last accessed 2023/06/26.
- 20. The Lowitja Institute: Deficit Discourse and Aboriginal and Torres Strait Islander Health Policy Summary Report. The Lowitja Institute, Australia (2018).
- Fforde, C., Bamblett, L., Lovett, R., Gorringe, S., Fogarty, B.: Discourse, Deficit and Identity: Aboriginality, the Race Paradigm and the Language of Representation in Contemporary Australia. Media Int. Aust. 149, 162–173 (2013). https://doi.org/10.1177/1329878X1314900117.
- 22. Aikman, S., Robinson-Pant, A., McGrath, S., Jere, C.M., Cheffy, I., Themelis, S., Rogers, A.: Challenging deficit discourses in international education and development. Comp. J. Comp. Int. Educ. 46, 314–334 (2016). https://doi.org/10.1080/03057925.2016.1134954.
- 23. Kerins, S.: Caring for Country to Working on Country. Presented at the (2012).
- Gwynn, S.: Access to research in the Global South: Reviewing the evidence | INASP, https://www.inasp.info/publications/access-research-global-south-reviewing-evidence, last accessed 2022/06/28.
- 25. Ngongalah, L., Emerson, W., Rawlings, N.N., Muleme Musisi, J.: Research challenges in Africa an exploratory study on the experiences and opinions of African researchers. bio-Rxiv. 446328 (2018). https://doi.org/10.1101/446328.
- Berger, M.: Fostering Epistemic Equality with Library-Based Publishing in the Global South. Association of College and Research Libraries 2023. New York City College of Technology, City University of New York (2023).

- 27. Cox, A., Abbott, P.: Librarians' Perceptions of the Challenges for Researchers in Rwanda and the Potential of Open Scholarship. Libri. 71, 93–107 (2021). https://doi.org/10.1515/libri-2020-0036.
- 28. Anderson, S.: What are Research Infrastructures? Int. J. Humanit. Arts Comput. 7, 4–23 (2013). https://doi.org/10.3366/ijhac.2013.0078.
- GDN: Doing Research Assessments: Understanding Research Systems in Developing Countries, http://www.gdn.int/sites/default/files/GDN%20-%20Theoretical%20Framework.pdf, (2017).
- 30. Harle, J.: Data, dialogue and development why the last kilometre matters, https://blog.inasp.info/data-dialogue-development-kilometre-matters/, last accessed 2022/06/30.
- 31. Friederici, N., Ojanperä, S., Graham, M.: The Impact of Connectivity in Africa: Grand Visions and the Mirage of Inclusive Digital Development. Electron. J. Inf. Syst. Dev. Ctries. 79, 1–20 (2017). https://doi.org/10.1002/j.1681-4835.2017.tb00578.x.
- Sahay, S., Sein, M., Urquhart, C.: Flipping the Context: ICT4D, the Next Grand Challenge for IS Research and Practice. J. Assoc. Inf. Syst. 18, (2017). https://doi.org/10.17705/1jais.00478.
- 33. Mouton, J., Waast, R.: Comparative study on national research systems: findings and lessons. In: Meek, V.L., Teichler, U., and Kearney, M.L. (eds.) Higher education, research and innovation: changing dynamics: report on the UNESCO forum on higher education, research and knowledge 2001-2009. pp. 147–169., Paris (2009).
- Kahn, M.J.: The Status of Science, Technology and Innovation in Africa. Sci. Technol. Soc. 27, 327–350 (2022). https://doi.org/10.1177/09717218221078540.
- 35. Pouris, A., Pouris, A.: The state of science and technology in Africa (2000–2004): A scientometric assessment. Scientometrics. 79, 297–309 (2009). https://doi.org/10.1007/s11192-009-0419-x.
- 36. Research Consulting: Strengthening Research Institutions in Africa: A rapid assessment of best practices in research capacity strengthening and research needs in 7 African countries. (2019). https://doi.org/10.26303/HJJ8-EE09.
- 37. Simpkin, V., Namubiru-Mwaura, E., Clarke, L., Mossialos, E.: Investing in health R&D: where we are, what limits us, and how to make progress in Africa. BMJ Glob. Health. 4, e001047 (2019). https://doi.org/10.1136/bmjgh-2018-001047.
- 38. Fonn, S., Ayiro, L.P., Cotton, P., Habib, A., Mbithi, P.M.F., Mtenje, A., Nawangwe, B., Ogunbodede, E.O., Olayinka, I., Golooba-Mutebi, F., Ezeh, A.: Repositioning Africa in global knowledge production. The Lancet. 392, 1163–1166 (2018). https://doi.org/10.1016/S0140-6736(18)31068-7.
- 39. Collins, C.S., Rhoads, R.A.: The World Bank, support for universities, and asymmetrical power relations in international development. High. Educ. 59, 181–205 (2010). https://doi.org/10.1007/s10734-009-9242-9.
- 40. Beaudry, C., Mouton, J., Prozesky, H.: The Next Generation of Scientists in Africa. African Minds (2018).
- 41. Boshoff, N.: Neo-colonialism and research collaboration in Central Africa. Scientometrics. 81, 413–434 (2009). https://doi.org/10.1007/s11192-008-2211-8.
- 42. UNESCO: Mapping research systems in developing countries: country review template. University of Stellenbosch, South Africa (2009).
- 43. Nyamnjoh, F.B.: 'Potted Plants in Greenhouses': A Critical Reflection on the Resilience of Colonial Education in Africa. J. Asian Afr. Stud. 47, 129–154 (2012). https://doi.org/10.1177/0021909611417240.

- Fricker, M.: Epistemic Justice and a Role for Virtue in the Politics of Knowing. Metaphilosophy. 34, 154–173 (2003). https://doi.org/10.1111/1467-9973.00266.
- 45. Morris, R.C. ed: Can the Subaltern Speak?: Reflections on the History of an Idea. Columbia University Press (2010).
- 46. Ndlovu-Gatsheni, S.J.: Epistemic Freedom in Africa: Deprovincialization and Decolonization. Routledge, London (2018).
- 47. Piron, F., Dibounje Madiba, M.S., Regulus, S.: Justice cognitive libre accès et savoirs locaux. [Cognitive justice, free access and local knowledge]. Science and Commonwealth Editions, Quebec, Canada (2016).
- 48. Reilly, K.M.A.: Open Data, Knowledge Management, and Development: New Challenges to Cognitive Justice. In: Smith, M.L. and Reilly, K.M.A. (eds.) Open Development: Networked Innovations in International Development. MIT Press, Cambridge, UNITED STATES (2014).
- 49. Graham, M., Hale, S., Stephens, M.: Geographies of the World's Knowledge, https://ora.ox.ac.uk/objects/uuid:a737b5c3-069f-4044-ade8-2ce6c95a0d4c/download\_file?file\_format=application%2Fpdf&safe\_filename=convoco\_geographies\_en.pdf&type\_of\_work=Report, (2011).
- 50. Soler, J.: Linguistic injustice in academic publishing in English: Limitations and ways forward in the debate. J. Engl. Res. Publ. Purp. 2, 160–171 (2021). https://doi.org/10.1075/jerpp.21002.sol.
- 51. Salager-Meyer, F.: Scientific publishing in developing countries: Challenges for the future. J. Engl. Acad. Purp. 7, 121–132 (2008). https://doi.org/10.1016/j.jeap.2008.03.009.
- 52. Berger, M.: Bibliodiversity at the Centre: Decolonizing Open Access. Dev. Change. 52, 383–404 (2021). https://doi.org/10.1111/dech.12634.
- 53. Luckett, K., Shay, S.: Reframing the curriculum: a transformative approach. Crit. Stud. Educ. 61, 50–65 (2020). https://doi.org/10.1080/17508487.2017.1356341.
- 54. AfricaConect: Africaconnect, https://archive.geant.org/projects/africaconnect/ac1/Pages/Home.html, last accessed 2023/06/26.
- 55. Foley, M.: What is an NREN.pdf. GEANT, GEANT Publish (2016).
- IFLA: LIBSENSE: Building Library/NREN Collaborations around Open Science, https://www.ifla.org/publications/libsense-building-library-nren-collaborations-aroundopen-science/, last accessed 2022/06/29.
- 57. LIBSENSE Working Group on Open Science policies, governance and leadership: LIBSENSE Statement on Open Science in Africa. (2020). https://doi.org/10.5281/ze-nodo.4017999.
- 58. LIBSENSE: LIBSENSE Regional Open Science Policy Development Workshop. (2022). https://doi.org/10.5281/zenodo.6467216.
- 59. LIBSENSE-RUFORUM LIBSENSE, https://libsense.ren.africa/en/ruforum/, last accessed 2023/06/30.
- WACREN: LIBSENSE initiates conversation on research assessment reforms in Africa, https://wacren.net/en/libsense-initiates-conversation-on-research-assessment-reforms-inafrica/, last accessed 2023/06/30.
- 61. UNESCO: UNESCO Recommendation on Open Science. UNESCO (2021). https://doi.org/10.54677/MNMH8546.
- LIBSENSE-DORA: LIBSENSE-DORA-Webinar-on-Research-Assessment-in-Africa.pdf, https://libsense.ren.africa/wp-content/uploads/2022/05/LIBSENSE-DORA-Webinar-on-Research-Assessment-in-Africa.pdf, last accessed 2024/01/05.