LIBSENSE

STRENGTHENING OPEN SCIENCE IN AFRICA

A Compendium of Open Access/Open Science Policy Case Studies from African Higher Education Institutions

LIBSENSE Regional Open Science Policy Development Workshops

Table of Contents

INTRODUCTION

The LIBSENSE Open Science Policy Development workshops are a series of regional workshops bringing together decision-makers in African higher education settings whose remit covers research and innovation within their institutions. These workshops are part of LIBSENSE activities in the AfricaConnect 3 programme[1]. The case studies in this compendium have been solicited from LIBSENSE partners throughout Africa. They represent a broad range of institutional open access/open science policy development initiatives from the perspectives of those involved in developing and implementing them. The representative universities cover a range of public and private institutions where research activity is taking place. Each partner was asked to give an overview of their institution's OA/OS policy development using a specified template:

- **Who and Where**: University's profile & context;
- **What:** Policy description - what changed and the key elements of change;
- **Why:** Motivation for change;
- **How:** Processes and dynamics for developing, implementing and managing change (including specific obstacles faced);
- **When:** Timeline for development and implementation.

The compendium of case studies covers policies providing a range of services that support open access/open science initiatives, including open journal publishing, open access repositories, research data management etc. Altogether, they give perspectives on OA/OS policy development at the institutional level, including the motivations, successes, challenges and outcomes. In this compendium, we also include one case study outlining policy development efforts coordinated at a regional level in Francophone Africa.

Through these workshops, LIBSENSE envisages an opportunity to align institutional level policy with ongoing efforts to deliver on national open science roadmaps[2]. This is part of the broader Open Science agenda that LIBSENSE wants to achieve across Africa[3]. It is also the impetus for its alignment with UNESCO's Recommendations on open science[4] embracing its own Open Science vision on implementing UNESCO open science principles in an African context[5] In support of this, the compendium also includes a recommended checklist for universities to follow when implementing UNESCO recommendations on open science (see Appendix 1).

The case studies should be read in-depth before the policy development workshops. They are presented in both English and French depending on the originating country of the study. They will used as sources for the discussion sessions at the workshops.

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[1] For more information see: https://spaces.wacren.net/display/LIBSENSE/LIBSENSE+in+AfricaConnect3

[2] See: https://spaces.wacren.net/display/LIBSENSE/National+Open+Science+Roadmaps

[3] See the IFLA Blog on LIBSENSE NREN/Library collaborations: https://www.ifla.org/publications/libsense-building-library-nren-collaborations-around-open-science/

[4] Read more about this at: https://en.unesco.org/science-sustainable-future/open-science/recommendation

5 The statement is entitled "Open Science Africa: Principles and Actions for Global Participation" and is available at: https://zenodo.org/record/4017999#.YOhrIehKiUk

INSTITUTIONAL LEVEL POLICY DEVELOPMENT CASE STUDIES

CASE STUDY 1: ADDIS ABABA UNIVERSITY, ETHIOPIA

PREPARED BY: Dr Melkamu Beyene Ababu, Assistant Professor, School of Information Science, Director, Addis Ababa University Library

Addis Ababa University Data Repository, Sharing and Use Policy Implementation Case Study

1. Background of Addis Ababa University

Addis Ababa University (AAU) was established in 1950 as the first public university in Ethiopia with 33 students and nine faculty members. Since its establishment, AAU has expanded both in the number of programs and students. As of 2021, the University had about 50,000 students, 2,987 faculty, 4,497 administration staff and 1,202 health professionals who are mainly engaged in health service provision in different University-owned Hospitals. The University runs its teaching and learning, research and community services in 10 colleges and 13 research institutes operated in 20 campuses including the Veterinary Medical College located at Bishoftu, two rural campuses (Butajira Rural Health Program and Ziway Community Health Rural Team Training Program) for students from medicine, nursing, pharmacy, dentistry and laboratory schools. The university has 366 graduate programs.

Throughout its lifetime, its faculty and students have been collecting a huge amount of data including, qualitative, statistical, biomedical, seismological, astrological, linguistic, geological, anthropological, plant and animal based and other academic discipline-based datasets in relation to collaborative and university's own studies. Since the past two decades, a wealth of research data has been collected due to the introduction of graduate studies where research is mandatory as partial fulfillment of the MSc and a full requirement for a PhD program. Apart from collaborative and graduate studies, different colleges have been generating community-based data for exploration, following development, change in population and teaching purposes.

2. Policy Brief Description

This policy is designed in line with the previous ministry of science and higher education open access policy. It is based on the principle that data should be as open as possible and as closed as necessary.

The policy applies for all data generated by AAU staff and students using public money. The policy also applies for data generated using collaborative projects based on prior agreements. The policy includes all digital statistical, qualitative and biological material based on the nature, time and sensitivity of the data. This includes but not limited to statistics, textual records, images, sounds, audiotapes, videotapes, photographs, films, standard operation procedures, methodologies and workflows, models, algorisms and scripts, biological materials. Such research data are results from observations from field work, surveys, interviews, experiments, measurements, observation and follow-ups of geological survey and related data, biological data generated for research, teaching or for sentinel surveillance.

In general, the policy enforces all researchers who receive public funding to submit their data management plans to research offices and to university libraries for approval, to confirm that data will be handled according to international FAIR data principles. The policy

document includes statements about the different tasks to be done in order to meet the desired quality and standards. Immediately after the adoption of the policy, the university designed its own data repository (https://rdm.aau.edu.et). Training sessions are conducted for PhD students and researchers. The policy and the data repository are promoted on the university website. Other university-wide training is planned for graduate students and researchers on the use of the system in collaboration with the University research office.

3. Motivation for the Policy

The main motivation towards implementing this policy can be stated as follows: first, requests are coming especially from life science researchers about the need to manage their research data in university-owned repositories or some other platforms. Second, researchers request research data management services such as how to anonymize research data and protect research data from unauthorized access. Third, we use this opportunity to promote open science.

4. How: processes and dynamics for developing, implementing and managing change (including specific obstacles faced)

The journey to achieving the new policy was too long and it comes after the launching of the National open access policy of Ethiopia. The AAU research office and the library played a crucial role to prepare the policy document. The secret behind achieving success was that the vice-president for research and technology transfer of AAU is an open access champion. Getting approval of the AAU senate was tough. Finally succeeded and the AAU senate approved the policy on 2020 and the effective date is July 2020. During the processes of approving the OA policy of AAU, awareness among many in the university community was limited. There was role conflict, the research office was an open access champion, but there was resistance from the staff, senate members and implementation challenges (data curation skill among librarians low). We perceived fierce resistance from the academic community who were worried that their work would be plagiarized and a poor network infrastructure system was observed.

When: Timeline for the policy development and implementation

September 30, 2019-July 2020

CASE STUDY 2: AMBO UNIVERSITY, ETHIOPIA

PREPARED BY: Yared Abera, Lecturer, School of Technology and Informatics

Implementation of National Academic Digital Repository (NADRE) as Institutional Repository and National Academic Digital Library (NADL) of Ethiopia

Author: **Yared Abera**

Brief status of the digital repository implementation at Ambo University with special focus on Waliso Campus

Ambo University is located 111 KM away from Addis Ababa, Ethiopia.

Who: Organization profile:
https://www.ambou.edu.et

Country: Ethiopia

Better Future through Knowledge and Wisdom!

Who is involved?

Ambo University is a university that belongs to the 2nd generation universities in Ethiopia. Ambo University consists of 4 campuses: the Main Campus, Hachalu Hundesa Institute of Technology Campus, Guder Mamo Mezemir Campus and Waliso Campus.

Ambo University like all the other Ethiopian public universities are linked with the Ethiopian Research and Education Network (EthERNet). The issuance of the National Open Access Policy of Ethiopia for Higher Education (https://nadre.ethernet.edu.et/record/4193#.YXvKJC8RpbU) by the Ethiopian Ministry of Science and Higher Education (MoSHE) in 2019 brought all Ethiopian public universities into the same position in terms of Open Access Policy.

Ambo University is using NADRE from the very beginning. Per Oct. 31, 2021 there are 8,711 artifacts are uploaded. Not all Ambo University Campuses and Faculties use NADRE in the same way. The Waliso Campus for example is using NADRE extensively and follows the principles in line with the NADRE certification and compliances: OAI-PMH Registration Records, ROAR, OpenDOAR, OpenAIRE as well as the Ethiopian National Open Access Policy. Additionally, the digital object identifier (DOI) and the application of creative common licences bring clarity to researchers' concerns about their intellectual properties' rights.

The workflow for the NADRE has been harmonized by MoSHE for all Ethiopian universities following the National Open Access Policy of Ethiopia for Higher Education.

What: What changed and the key elements of change

The use of the NADRE and the National Academic Digital Library (NADL) as institutional repository and digital library has changed how academic staff, researchers and learners interact when it comes to achieving the very objective of the campus. Especially the NADRE platform has created the following benefits for Ambo University:

- Lecturers are enabled to integrate the platforms to the traditional teaching learning environment in reaching out to students and providing instructors comfort, flexibility and confidence in their job.

- It keeps both parties engaged in their work and bridges the gap of educator's absence from the normal schedule.

- It has enabled the Ambo University to continue the implementation of the Government Education Policy Roadmap that required ICT facilities and platforms for quality education as well as accessibility of learning resources for all students at any place, and time.

- It has boosted knowledge of digital literacy as well as remote teaching and learning skills for both - learners and educators.

- The 24/7 accessibility of resources without (hardware) interruption has provided confidence to the ICT-management and has created expectations for the platform's further use.

- It has created a business-like environment for students in view of self-organised learning environment as well as an additional learning source for students.

- Ambo University research works uploaded to NADRE can be found globally. It has increased the citation rate of local lecturers and has become an important tool for internationalizing the research and learning environment.

Among the notable key elements of change observed the active involvement of the stakeholders such as the academic director, school deans, instructors, students and ICT officers has been significant.

Why: Motivation for change

The implementation and use of the NADRE and NADL as institutional repository and digital library came into practice because of the multifaceted needs:

- The new Ethiopian Educational Policy Road Map seriously addresses the need to integrate ICT in educational settings and requires learners and educators to become IT savvy. This hasn't only come for the obvious reason that ICT based teaching provides for contemporary teaching and learning methodologies but also it helps Ambo University to deliver quality education for areas under developed (under resourced) and reduces the pressures from the government to reach out to these

areas. It also vividly increases the efficiency of resource usage and effectiveness of the resources brought to learners and in the collaboration of others.

- Ambo University is highly interested in the implementation of ICT based platforms and tools in order to increase the need to bridge the academic gap observed on graduates when every learner is expecting to get fully equipped with knowledge, skills and attitude required in the local as well as global market.

- NADRE has created Ambo University's window on the world. The NADRE is providing Ambo University researchers insights, what is ongoing around the globe in their disciplines as well as sharing Ambo University's research activities with the world.

- The global COVID-19 pandemic has made it clear that the existing workplaces at Ambo University were not always well suited to provide for the health and safety of occupants. In the months following the massive shutdown of workspace around the world owners, occupiers and their advisors have developed significant measures. Not only to address immediate concerns around COVID-19, but also to make the workplace more resilient in the face of other health crises that are inevitable in the future.

How: Processes and dynamics for developing, implementing and managing changes (including specific obstacles faced)

At first Ambo University demanded to integrate ICT infrastructures and resource platforms to enhance and capacitate parties engaged in the learning and teaching process.

Following the 3 pillars of Ethiopian Higher Education Institutions, all Ambo University campuses are engaged in the teaching and learning process, research and community service works. On its search for digital platforms for publishing and communicating findings to stakeholders such as policy makers and researchers in the various fields the NADRE and NADLE has been discovered as very useful. The resources and the readymade platform of the NADRE were directly applicable and have met the demand. Immediate adjustments of its existing infrastructure and implementation of the platforms to its settings have been no special challenge.

In addition to this, COVID-19 crisis has created unprecedented and unparalleled demands for immediate and far-reaching organizational changes. Stakeholders in the institution starting from managing directors, librarians and further to frontline staff and students are grappling with the pace, breadth, and depth of these demands. The field and practices of organizational changes have been heavily challenging in terms of needs for change.

Later the pressures were considered as an opportunity to digitize the campus and managers, which has attracted many learners, educators and researchers.

Challenges faced during the implementation process and change management

Changes require information, promotion and collaboration. Everyone who was affected by the introduction of the NADRE at Ambo University added experiences and has contributed to the current campus system. The team who has been working on the digitization of the content followed the adaptive approach set out by EthERNET during the implementation. Numerous challenges happened along the way:

- ¬ Staff was hesitant to upload some of their profound research works and teaching materials. One of the main reasons was the fear to loose control over ownership and copyright issues on the uploaded document.

- ¬ Students' and academic as well as research staff were lacking of skills on online resource utilization and digital literacy.

- ¬ The problem of constant internet connectivity and poor infrastructures at the campuses still challenges the team working on NADRE.

- ¬ Confusion arose from the fact to manage the own institutional repository, the national repository (NADRE) and the digital academic library that is only accessible to its community and controlled by the campuses.

- ¬ Lack of confidence the staff and researchers showed towards the quality of contents produced and the attempt to avoid critics.

- ¬ Lack of a well-orchestrated commitment from stakeholders (especially programme leaders) to use the resources and to contribute to the platforms.

- ¬ Fear that the platforms may go down without university's consent and contents will be gone forever. There is no binding agreement made between the university and the Ethiopian Research and Education Network (EthERNet) as service provider.

Considerable efforts - both on individuals and institutional level – were undertaken to overcome the doubts and fears of stakeholders in order to get the staff ready to implement and to use the platforms.

The management went for an organizational readiness for change which included factors such as motivation, adequacy of resources, staff attribution and organizational climate.

When: Timeline for development and implementation

The implementation of NADRE as institutional repository at Ambo University came in 2019 when NADRE was introduced by MoSHE to all public universities of Ethiopia. Prior the launch of NADRE the Higher Education and Strategy Center (HESC) and EthERNet coordinated trainings for NADRE key persons from universities. Once NADRE has been launched HESC and EthERNet supported the university on demand. The outreach to departments as well as academic and research offices at the Ambo University campuses was

through pamphlets and a brochure. The NADL has come to the attention of the institution during the outbreak of COVID-19 in Ethiopia.

CASE STUDY 3: ARBA MINCH UNIVERSITY, ETHIOPIA

PREPARED BY: Sisay Tumsa Senbetu, Director, Library and Information Service Center

Arba Minch University

AMU OA/RDM policy

AMU Open Access(OA)/Research Data Management (RDM) Policy

1. University Profile & Context

1.1 Introduction

Established in 1986, Arba Minch University is a non-profit public higher-education institution located in the suburban setting of the small city of Arba Minch. The University was initially founded as Arba Minch Water Technology Institute (AWTI) and it was officially inaugurated as a full -fledged university in June 2004 and started offering both undergraduate and post-graduate programs in the following institutes, colleges and schools:

- Arba Minch Institute of Water Technology

- Arba Minch Institute of Technology

- College of Agriculture

- College of Business and Economics

- College of Natural Sciences

- College of Medicine and Health Sciences

- College of Social Sciences and Humanities

- School of behavioral and pedagogical sciences

- School of law

- Sawla Campus (a multi-disciplinary Academic areas campus)

Arba Minch University (AMU) is currently classified as one of National Research Universities and has more than 36,000 registered students in regular, evening, weekend and distance programs in first (bachelor degrees), second (master degrees) and third (PhD degrees) programs. This 35 years old Ethiopian higher-education institution has a selective admission policy based on entrance examinations and students' past academic record and grades. Moreover, the university has given scholarships for several students under salient schemes.

In addition, the university has given scholarships in both undergraduate and postgraduate programs for surrounding countries like South Sudan and Somaliland.

1.2 Policy Description

Arba Minch University aspires to be one of the leading universities in Ethiopia and the world in general. This dream of aspiration can be achieved through different mechanisms such as by enhancing academic, research and community service, research and community service quality via the multitude of options, practices such as conducting national as well as international level research projects, organizing scholarly events collaborating with different institutions and universities both at the national and international level. In addition, as indicated in the introduction section, the university is designated as one of the research

universities in Ethiopia and therefore it needs to create a conducive research environment which can facilitate the robust data and research repository and management system practices. This can enable the research staff and scholars to better collaborate, communicate and recompute the existing data assets for multifold cost cutting and optimum utilization of resources i.e., data as a crude oil is one of them. This new buzz and research data repository, usage, and management practice will certainly create a new paradigm shift in Ethiopian universities. This makes conducting and implementing various researches the pillar of the university to achieve its aspirations.

However, in the past couple of decades multiple obstacles hinder the rapid and effective research development and implementations within the university as well as the Southern Nations and Nationalities People Region (SNNPR) catchment areas.

This mainly includes unavailability of data (especially health and medical related), unorganized data, negligible scientific repository and management of the collected data, redundant practices of collecting the same data rather than sharing also the missing culture of shareability of Open access data and optimum utilization of national resources. Moreover, there is also lack of knowledge and data sharing platforms available within the university as well as lack of willingness by the researchers for knowledge and data sharing. Every time university sponsored or grant researches are proposed, the researcher is required to collect all the required data from scratch even if similar or related research has been conducted previously. This in turn creates associated problems such as poor time management, poor resource (material as well as money) usage and management and so on that hinder the development and delivery of sound research outputs to the university as well as to the community. Sometimes; It has been observed that research conducted for the same territory with similar datasets conflicts with the research outcomes. Such challenges hamper the real sanctity of the implementation of the research outcomes. In addition, historical, legacy and legal documents need to be preserved for future references and the judicious usage in the research studies.

To eradicate such challenges and alleviate the aforementioned problems for the successful and efficient delivery of research outputs, the AMU's Library directorate proposes to design, develop and implement an effective use and implementation of Open Access/ Research Data management Policy (OA/RDM).

Upon implementing the OA/RDM policy, the university will be committed to increase, diffuse, and maintain the knowledge as part of its mission of offering relevant and quality education and training, conducting problem-solving and indigenous knowledge integrated research, and adapting or transferring skills and technologies which have high values to socio-economic upliftment and sensible development of the community. Furthermore, this will help in preservation of documentary heritage, intervention of Information and Communication Technologies (ICTs) and Information System Sciences (ISSs) in education, science and cultural research, including Open Access to scientific data, information and research outcomes. Also, the researchers and students could gain increased access to data, information and knowledge. The publications will receive greater visibility, readership, and citations and the potential impact of research will be highlighted. Increased access to, and

sharing of data, information and knowledge leads to opportunities for equitable economic and social development, intercultural dialogue, and has the potential to spark innovation for the country's all-round development.

2. The University after adopting AO/RDM and the key elements of change

2.1. The importance of OA/RDM policy?

The University will be committed to provide free and open access to the research and scholarly output of its university community including research data, in accordance with the university legislation as well as common research ethical norms and standards. The University's open access approach will:

- Facilitate the worldwide communication of its research and scholarly publications and research data, passing on the benefits of research findings to other researchers, professional practitioners and the wider community; and

- Enhance its research profile, maximizing the impact of the University's research and scholarly achievements.

- The University will support and promote an open access approach through the dissemination of scholarly research outputs lodged in the open access Institutional repository, other open access archives and through support for publication in open access journals. Since, the library Services provides advice on all aspects of open access publishing including:

- Copyright issues;

- Metadata verification of material in the institutional repository; and

- Support to facilitate open access dissemination of scholarly outputs.

and therefore, wherever possible, material representing the total publicly available research and scholarly output of the University is to be deposited in the University's open access institutional repository, including:

- Research publications and associated data which are outputs of AMU's sponsored or other public funding agency grant;

- University scholarly works such as un-refereed research literature, journal articles, conference contributions, chapters in proceedings (the accepted draft), technical or project reports, white papers, periodicals, newsletters and grey literature not submitted for publication and that can be made available via open access;

- Higher degrees by research dissertations such as Doctor of Philosophy, Doctor of Philosophy by publication, Masters by Research, Masters by Coursework containing a significant research component and Honors theses, (except for where an embargo is in place);

- Research data which can be described and made openly available under license, or via negotiated or controlled access. Where deposit of the full-text material, or

dataset, is not possible due to publisher embargo, or is not permissible due to copyright or licensing restrictions, or where the publication is available in a peer-reviewed open access publication or another open access archive, the metadata describing the publication or dataset will be included in the institutional repository; and

- Material deposited on the advice of the relevant Senior Management staff or Senior Executives such as grey literature, organograms, monograms, decision reports, legislations, by laws or engineering projects.

Note: Material intended for commercialization or containing confidential information should not be submitted to the repository.

- University scholarly outputs/works, research data and primary research materials, research data management records and other research related documents deposited into the institutional repository for preservation and access will be subject to any legal, contractual, privacy or cultural restrictions in accordance with the University's policy, Library Services Records Disposal Schedules and a Copyright Act.

2.2   Copyright Issues

Depositing material in the institutional repository does not transfer copyright to the repository. The repository exists to preserve and make available that material but does not assume ownership rights. Copyright remains with the author or publisher, as per the agreement or license made at the time of publication. Authors are encouraged to retain copyright in their work wherever possible, and if the publisher insists on a transfer of copyright, they should assert their right to deposit their work in the University's open access institutional repository using a suitable agreement addendum.

3.   Motivation for change (Need of the new Policy)

- A World Health Organization survey carried out in the year 2000 found that researchers in developing countries claim access to subscription-based journals to be one of their most pressing problems. Wider availability of research articles democratizes information and spurs further innovation and progress. By removing legal, commercial and technological barriers to access of scientific information the research process becomes more efficient and the research results more visible. Furthermore, Open Access prevents duplication, fosters knowledge and technological transfer and promotes innovation. More specifically, by requiring Open Access to the research they fund, funding agencies will:

- Be able to better monitor the quality and transparency of the research they fund.

- Enhance the innovation potential of research institutions and reduce redundant practices.

- Enable new and innovative ways of performing research, such as, for example, Text and Data Mining Big Data, Cloud Computing and machine-intensive research methods.

- Enable new collaborations and the paving of new, cross disciplinary or interdisciplinary and internationally-driven research paths.

- Foster science-literate and research-literate citizens and enhance citizen science.

- Minimize conflicts amongst the research outcomes on the common issues

- Gradually may expect to save financial resources otherwise spent on expensive subscriptions.

- Overall obtain a higher return on their investment (RoI) on research through Open Access both by reducing (cost) and re-using (resources) and by the redoing (research) for higher visibility of the research results they fund.

4. **Implementation Processes and Dynamics (Processes and dynamics for developing, implementing and managing change (including specific obstacles faced))**

This can be achieved through:

1. Formation of the Taskforce for the Implementation Process

2. Creating awareness amongst both the higher officials as well as academic, researchers' community

3. Providing training to the stakeholders involved in the process including academic staff and researchers.

4. Designing, and developing a prototype of the institutional repository.

5. Designing and developing the well-structured processes implementation and management systems for maintaining the repositories

6. Collecting, encoding and storing the primary, secondary and tertiary data resources

7. Evaluating the implementation status of the Policy and compile the success indicators

8. Protecting the privacy of data related to health, legal, legacy/historical and educational credentials.

5. **Timeline (Tentative) When: Timeline for the policy development and implementation**

- Formation of Task force for AMU (3 days)- November 8, 2021

- Training to the task force (2 days Workshop)

- Survey on the existing state of art Practices of the selected Universities (5 days)

- Draft Proposal for the Policy documentation based on aforementioned findings (5 days)

- Final design of the Policy Document in line with AO/RDM mission goals (15 days)

- Approval of the policy document by the competent authorities of the partner units (7 days)

- Training to the academic, research and community service staff get benefit from the Open Access Policy implementation (21 days in 6 rounds)

- Implementation Plan of the AO/RDM aligned Open Access Policy at AMU (2 days)

- Assessment Success factors and Indicators (2 days)- January 11, 2022

CASE STUDY 4: KENYATTA UNIVERSITY, KENYA

PREPARED BY: Gitau Njoroge, Chief University Librarian

Kenya OA policy implementation case study for senior university management policy workshop

Who and where: Your University's profile, context

Kenyatta University (KU) is a public university with its main campus in Nairobi County, Kenya. It acquired the status of university in 1985. The university has 9 campuses. There are 19 Schools at KU offering a rich and wide range of programmes at both undergraduate and postgraduate (masters and doctoral) levels. The institution has invested heavily in infrastructure and facilities to offer students and staff the best experience in learning.

What: Your policy description. What changed in the University after adopting it and the key elements of change?

Policy description

The Kenyatta University OA Institutional Repository (IR) Policy was published in 2014. The policy is registered with the Registry of Open Access Repository Mandates and Policies (ROARMAP). It covers the following key areas:

- Open Access Policy Statement

- Access Policy

- Repository Content Policy

- Submission Policy

- Metadata Policy

- Selection, Retention, Replacement and Withdrawal

- Intellectual Property/Copyright

- Quality Control

- Preservation Policy

- Compliance and Monitoring

What changed in the University after adopting it and the key elements of change

- There was increased awareness of the open access concept

- The Kenyatta University Institutional Repository was implemented using Dspace

- The Library created the Digitization Section with the mandate of implementation and management of the IR

- The IR became one of the University's metrics of measuring researchers' productivity and performance

- Retrospective digitization of theses that were in print format became part of the library's workflows

- It became a requirement that postgraduate students submit an e-thesis in addition to the print copy of their thesis

- The e-thesis made it easier to spot cases of plagiarism. This accelerated the development of the KU plagiarism policy

- Kenyatta University developed and published the Anti-Plagiarism Policy and Guidelines in 2017

- The University invested in the Turnitin text matching software

- Increased availability of resources for research

- The IR is currently one of the University's performance targets

Why? Motivation for change

- The University was under pressure to improve its Webometrics ranking. The IR contributed directly to the parameter of *Size*. Although the parameter was recently discontinued, IRs' content affects the ranking indirectly through the parameter of *Transparency* or *Openness*, which measures citations from the Top 210 authors from respective institutions.

- The OA movement spearheaded by the Library increased awareness of the emergence of and the need for Institutional Repositories

- The need to archive KU research output online

How: Processes and dynamics for developing, implementing and managing change (including specific obstacles faced)

- The University's top management support was instrumental in the success of developing and implementing the OA policy.

- Initially, researchers feared and were concerned that their work would be plagiarized if uploaded in the IR. The concerns were addressed through intensive training and awareness creation

- Laxity in submitting research work to the repository. The library countered this obstacle by archiving on behalf of the authors. The process involves mining and harvesting of research output available on various search engines

- Legal implications in retrospective application of the policy to allow uploading of theses done before the publication of the policy. This obstacle was mitigated by publishing a notice in the dailies that provided an opportunity for KU alumni and staff to raise any objections they may have had

- Some publishers declined to publish research papers that were extracted from the e-thesis on the basis that they constituted previously published works. The University allows for requests for embargo periods that give the researchers time to publish articles before the theses are uploaded online.

- The university is committed to academic integrity and the management was therefore concerned about potential plagiarism cases. To counter the risk, the Kenyatta University Anti-Plagiarism Policy and Guidelines were developed and implemented. This was complimented by subscription to Turnitin text matching software. All theses are checked for plagiarism before being uploaded.

Timeline for the policy development and implementation

- The first document was uploaded in the KU repository on 2011-05-09

- The Kenyatta University Open Access Institutional Repository Policy was adopted on 9th January 2014

- The total number of documents uploaded by 6th October 2021 is 16,503

- The first version of the Kenyatta University Antiplagiarism policy was published in 2017. The policy was revised in 2020.

CASE STUDY 5: UNIVERSITY OF NAIROBI, KENYA

PREPARED BY: Rosemary Otando, Deputy Director, Technical
Library and Information Services

UNIVERSITY OF NAIROBI
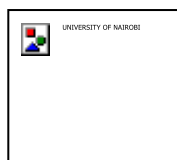
UNIVERSITY OF NAIROBI OPEN ACCESS POLICY

UNIVERSITY OF NAIROBI PROFILE, CONTEXT.

The University of Nairobi is a collegiate research university based in Nairobi, Kenya. The University is the pioneer institution of university education in Kenya and the region. Its inception is traced back in 1956 with the establishment of the Royal Technical College, which was later transformed into the second University College in East Africa in 1961 referred to as Royal College, Nairobi.

In 1963, the University of East Africa was created which led to renaming of the Royal College to University College Nairobi as a constituent college of the University of East Africa. In 1970, the University College Nairobi became the first national university of Kenya and was renamed the University of Nairobi.

The university offers about 326 academic programmes spread over eleven faculties. Currently, the total student population is approximately 84,000.

UNIVERSITY OF NAIROBI OPEN ACCESS POLICY DESCRIPTION: WHAT CHANGED IN THE UNIVERSITY AFTER ADOPTING IT AND THE KEY ELEMENTS OF CHANGE

Open Access policy is a guideline or a commitment towards supporting open access scholarship.

The University of Nairobi values information and has taken deliberate steps to capture, preserve and disseminate knowledge through provision of a conducive environment that facilitates quality education and research. The university is committed to the global open access initiatives as evidenced by signing of the Berlin Declaration on Open Access to knowledge in the Sciences and Humanities. In December 2012, the Vice- Chancellor approved the university's open access policy.

The open access policy states the obligation of the university towards embracing open access initiatives and highlights the university commitment to free and open access to scholarship and its responsibility for the dissemination of its research output. It states that "all members of the University community are required to submit their scholarly output to the University Digital Repository" to enhance free access. To encourage open access publishing, the policy declares that "a member of the University Community who publishes in an Open Access Journal shall not be disadvantaged during promotion and tenure considerations"

The scope of the research stipulated in the policy include both "Green" and "Gold" funded by the institution or owned by the staff, students and visiting researchers and students. The policy describes types of content that include both full-text and metadata to be uploaded in the repository. Other areas described in the policy include: accessibility, submission guidelines, quality assurance, replacements, legal policy framework, preservation and withdrawal of items.

The policy supports the implementation of open access initiatives in the university and provides scholars with the opportunity and platform to promote their scholarly works.

On adoption, the policy helped in capturing the university's output to a larger extent since all students graduating with masters and PhD have to submit their research work for uploading on the institutional repository. When the theses and other research publications are uploaded to the repository, apart from enhancing the institution's visibility, the individual researcher's visibility also increases. There are higher chances of funding and collaborations when research work gains global visibility. Having research captured in one platform in an institution leads to promotion of quality standards in research management and better preservation of the same. In addition, the policy has enhanced citation and impact of the research output as well as archiving of the scholarly works.

Advocacy and management support are key elements in driving the change. All the university stakeholders have to be brought on board since each has its own role starting with the university managers, lecturers, students and library staff.

MOTIVATION FOR CHANGE

As a result of the consolidated and well-managed research output, the university has had improved results in the Ranking Web of universities which is the largest academic ranking of Higher Education Institutions, and other global university rankings. The primary objective of Ranking of Universities is to promote openness to the knowledge generated by the universities. The best strategy to improve ranking is to increase quantity and quality of web contents of which the policy plays a great role in achieving this.

The role of the library has changed from being passive to an active participant in the research communication cycle.

Implementation of the policy has improved visibility and impact of the University's research output and researchers' profiles. In addition, it has enhanced collaboration with the global research community thus promoting competition and scientific discovery.

Implementation has also led to long-term preservation of local content and reduced duplication in collecting, creating, transferring and re-using scientific material, hence speeding up scientific discovery through sharing materials and data. This improves science's reliability, transparency and quality of research.

PROCESSES AND DYNAMICS FOR DEVELOPING, IMPLEMENTING AND MANAGING CHANGE (INCLUDING SPECIFIC OBSTACLES FACED)

Developing and implementing open access policy requires representation for all the institution stakeholders in order to avoid conflicts at the implementation stage. It is important to have personnel with different professional backgrounds so as to combine the views. When it comes to implementation of the policy, the approach that works better is whereby the university management understands the policy and supports it. This makes implementation easier because the rest of the staff is likely to follow suit.

Implementation of the policy in the University of Nairobi involved various strategies. All students graduating were mandated to submit their theses and dissertations in soft copy to facilitate the archival process. Backlog hard copy theses were digitized and microfilms converted to digital format for preservation and posterity. Archival local content created by the university was harvested or acquired and preserved in the digital repository.

A digital repository unit was established in the library to coordinate Open access (OA) initiatives in the university and ensured sustainability of the OA projects through including them in the library budget.

Moving towards implementing open science to make scientific research, data and their dissemination available globally has been a challenge. Scholars are hesitant to make scientific processes and results more transparent and accessible globally. Some researchers opt to keep their data private due to being afraid that some scrupulous researchers globally may "steal" their idea and publish, and benefit unfairly without putting in much effort before the original researcher has opportunity to do so. In addition, scholars are reluctant to publish in OA journals and to deposit their research in OA repositories for fear of their work being plagiarized. To counter this, the university has purchased plagiarism detection software to enhance academic integrity. On adoption of open data/science initiatives, the university has formed a committee to develop a framework on implementation of an open data system.

Balancing openness and protection of scientific information, and Intellectual Property Rights, and security of information has been a major concern. The university is tempted to use the principle of "as open as possible, as closed as necessary" to protect intellectual property rights.

Other challenges include developing an open access policy and aligning it with other university policies. For instance, the open access policy may contravene the university research policy.

Lack of incentives in the academic community is a major factor to the implementation of the policy. There is need to put in place incentives and rewards mechanisms in place for researchers to encourage them to publish in open access journals.

Other challenges include inadequate infrastructure and skills and sustainable funding. Spearheading some projects including open science and open journal systems may require designated personnel.

TIMELINE FOR THE POLICY DEVELOPMENT AND IMPLEMENTATION

The policy development began way back in 2008 when the concept of open access repositories was adopted. Several sensitization programs were conducted for senior management to support the open access initiatives.

The University signed the Berlin Declaration on Open Access to knowledge in October 2012 and the same year, a committee was formed to look into a draft OA policy formulated by the library. In December 2012, the policy got approved by the Vice-Chancellor to provide scholars the opportunity and platform to promote their academic works.

To enhance visibility of the OA initiates, the policy was registered in ROARMAP

The university is currently in the implementation and evaluation stage. The impacts of the policy formulation include; growth in numbers of items deposited in the university repository, high levels of usage noted from the statistics, excellent performance of the University in Webometrics Ranking, and visibility of the local research.

CONCLUSION

Successful policy implementation depends on commitment from top-level managers, researchers, librarians and ICT support. In addition, instituting required infrastructure and sustainability are vital elements in the implementation of the policy.

REFERENCES

Martelo-Landroguez, S., & Cepeda-Carrión, G. (2016). How knowledge management processes can create and capture value for firms? *Knowledge Management Research & Practice, 14*(4).

Scarso, Lee, and Bolisani (2017). Knowledge management: the new challenge for the twenty-first century. *Journal of Knowledge Management*, Vol. 3 No. 3

Spender, J., Corvello, V., Grimaldi, M., & Rippa, P. (2017). Startups and open innovation: a review of the literature. *European Journal of Innovation Management, 20*(1).

University of Nairobi open access policy, December 2012. University of Nairobi.

CASE STUDY 6: MZUZU UNIVERSITY, MALAWI

PREPARED BY: Felix P. Majawa, University Librarian

Open Access Policy Development Experience from Mzuzu University in Malawi

Who and where

Mzuzu University (Mzuni) was established by an Act of Parliament in 1997.

There are <u>six faculties</u>: Faculty of Education; Faculty of Environmental Sciences; Faculty of Health Sciences; Faculty of Humanities and Social Sciences; and Faculty of Science, Technology, and Innovation.

The University has about <u>ten thousand students.</u>

What

The policy covers the following <u>priority areas:</u> Administration, Contents, Access, Metadata Presentation Format and Data Usage.

The policy presents the following guidelines:

- Contents guidelines

- Submission guidelines

- Metadata guidelines

- Format guidelines

- Article Access guidelines

- Selection and retention guidelines

- Replacement guidelines

- Withdrawal guidelines

- Intellectual property guidelines

- Privacy guidelines

- Quality control guidelines

- Preservation guidelines

On selection, retention and withdrawal, it was agreed that the policy should state clearly that depositing in Mzuzu University Institutional Repository would attract no economic benefits.

<u>Repository Workflow:</u>

A. Mandatory submission of research outputs by the author to the Institutional Repository Manager and Quality Assurance Officer.

B. Published documents included in the repository are consistent with publisher's copyright rules and conditions.

C. University Librarian coordinates and manages the Institutional Repository.

Why

A digital repository policy is very necessary for the proper management and function of a digital repository – "A policy was needed to provide guidelines that will help to define characteristics of resources that can be included; terms for depositing such resources and use of the resources among others" (Mzuzu University Digital Repository Policy 2018).

How

Consultative workshop on 12-14 December 2017 that included deans, directors, assistant registrars', management accountant, librarians and a guest facilitator, Rosemary Otando, Deputy University Librarian from University of Nairobi; opened by the Deputy Vice Chancellor, Late Prof. Fred Msiska.

Key issues raised: the need for full time repository staff and the need for Open Access Committee with a composition of Deputy Vice Chancellor, University Librarian, University Registrar, Director of Research, Coordinator of Intellectual Property, ICT Director, and Librarians. This committee would report to the University Senate. The mandate of this committee is to preside over policy issues whilst overall management of the Open Access Institutional Repository would fall into the hands of the University Librarian as the manager of the repository.

The policy approval process: University Library Committee, Senate and University Council.

Challenges

- Low response from the stakeholders after input from the workshop

- Took time to be considered for discussion at Senate

- Referred back at Senate level for consultation with the Heads of Departments

- Very few Heads of Departments responded

- Printing costs led to print of few copies

- Implementation plan was not developed

When

The Digital Repository Policy development process started in 2015 and went a long way in facilitating stakeholders' meetings and approval processes among other things.

Impact

Since its approval by Mzuzu University Council in 2018, a number of positive developments have been registered albeit with a few challenges too.

The operationalization of the policy has led to the following positive developments:

- Constituting of a Library Digital Repository Committee to oversee the establishment and operations of the open access repository.

- Setting up of a Digital Repository Unit in the Technical Services Section of the Library and identifying of staff to run routine jobs of the section.

- Facilitated capacity development of staff to manage the day-to-day activities of the open access repository.

- Assisted in the designing, installation and configuration of a new and more vibrant repository using web technologies which can be accessed from http://repository.mzuni.ac.mw/

- Helped in the speedy growth of the collections of the Repository which currently stands at 138.

- Facilitated increase in the use of the digital repository as statistics indicate that there were 7,054 item views and 1,716,663 searches from March 2019 to 16 September 2021.

COVID-19 restrictions that compelled staff to work from home slowed down activities related to the Repository such as collection development and marketing.

Conclusion

Digital Repository Policy development process needs to be highly consultative for the policy to reflect all the necessary guidelines for operation.

Quality control tends to lengthen the process of approval:

- Library Committee

- Senate

- Council

Top management support is critical for the policy to be developed and implemented.

MZUZU UNIVERSITY

Self-Reliance ‖ Service ‖ Perfection

DIGITAL REPOSITORY POLICY 2018
Version 1
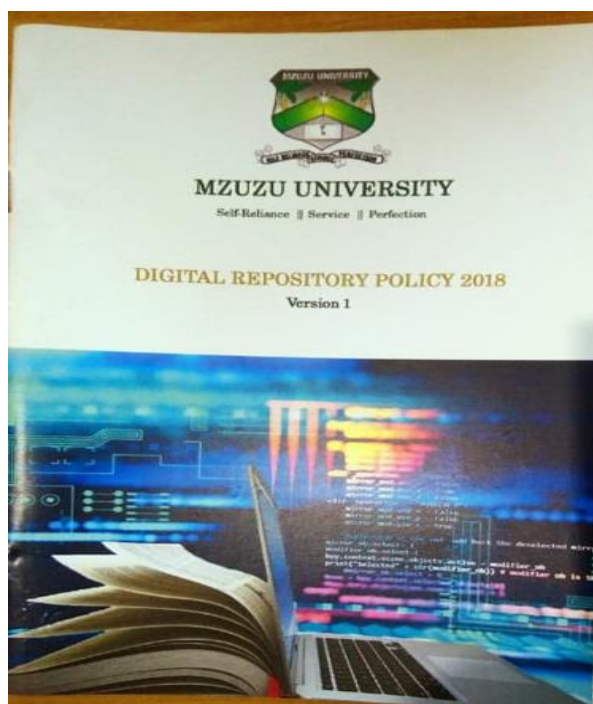
CASE STUDY 7: COVENANT UNIVERSITY, NIGERIA

PREPARED BY: Prof. Conrad Omonhinmin, Professor, Plant Biotechnology (Molecular Systematics & Plant Genetic Diversity), Co-Ordinator, Open Access @ Covenant University (Oacu), NCP OA2020

Open Access @ Covenant University

Covenant University is a Nigerian Christian Mission University founded in February of 2002. It currently has four colleges and twenty-two departments.

Covenant aspired to be among the globally recognized universities and sought to improve its research output and visibility through the scholarly publication of its research efforts, pedagogy, and learning outcomes. Similarly, Covenant sought to engage best practices in research, innovation, and discovery and ensure that outputs from these sources are globally visible. In addition, Covenant sought to encourage research engagements that are globally competitive and constitute one of the critical tools for fair and responsible hiring, promotion, and tenure of faculty.

What: What changed and the key elements of change

In 2012, Covenant University proposed its global recognition and visibility plan to its faculty and student communities. In 2013 the University faculty and senate adopted three policies, namely:

i. ***Open Access (OA) scholarly communication policy:*** To emphasize institutional rather than individual funding of scholarly publication. It also required that research works be published via Open Access outlets (gold, green, or hybrid).

ii. ***Open Educational Resources (OER) policy***: To promote pedagogy and study for improved and impactful student learning outcomes through access to numerous free learning, teaching, and research materials.

iii. ***Open-Access Repository (Open Archive) policy:*** To promote self-archiving, deposition of research theses and dissertations, and other materials for free user access, students' engagement, teaching, and research on an interoperable format according to the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH).

Adopting the **Open Access** (OA) scholarly communication policy is strategic because funding research publications in Nigeria is generally researcher-centred. The model eliminated that hurdle for researchers in Covenant. Researchers gained the liberty to access a wide range of journal outlets and, most importantly, retain rights to their research works while demanding instant access by readers to their published works through the university funding support for OA publications.

Feedback for the model has been overwhelmingly encouraging from researchers. The model increased the research outputs from the University's stables, promoted interdisciplinary and multidisciplinary research engagements, improved collaboration by the university researchers, and improved the University and researchers' global visibility.

Covenant University Scholarly Publication 2014-2021 - Scival 2021
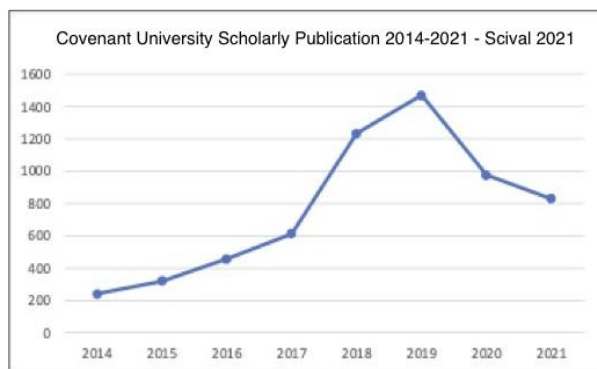
One of the highlights of the model's adoption is the increase in research publication outputs by researchers in the University. The scholarly publication output rose by over 500% in six years, only slowing down in the COVID-19 period as captured on Scival. Following this, the University commenced its participation in the Times Higher Education rankings. Emerging 601-800, with a citation score of 36.9 in its maiden year (2019); its research visibility improved 52.93% with a citation score of 78.4 and ranked 401-500 in its second year (2020). Covenant ranked 1st amongst universities in Nigeria and West Africa and 5th in Africa within six years of adopting the model. The University has remained amongst the top universities in Africa since 2019, driving research quality, development and progression for both researchers and institutions.

Covenant University Research Rank - Scimago 2021
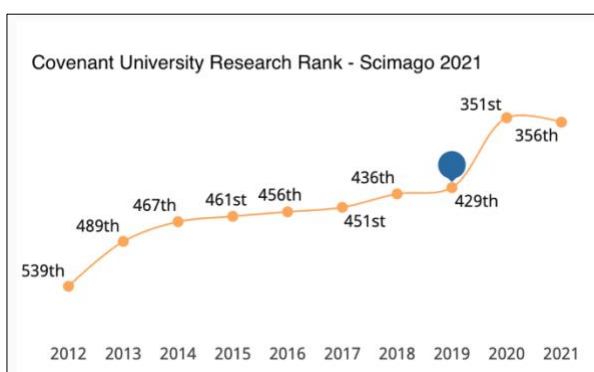
Why: Motivation for change

The vision to pursue global recognition and visibility as an institution, deploy best practices in research, learning, teaching, and archiving research outcomes was a major motivation for the change.

Changes at Covenant were primarily internal, in part by a desire to be relevant at national, regional, and global levels and the non-existing governmental funding for privately operated universities. The willingness to participate at international levels in research, teaching, and learning; access to national and global personnel and funds, and creating responsible and stimulating research, teaching, and learning environments were also key motivations. In 2019 the University won a World Bank Centre of Excellence grant for Applied Informatics and Communications.

How: Processes and dynamics for developing, implementing and managing change

Covenant has a dynamic management system that prioritizes research and research-based teaching and learning and implements these policies to drive Openness in the University.

The institution has an Open Access unit that co-ordinates and advises on the policies and their implementations. Covenant has a robust Centre for Research, Innovation, and Discovery that co-ordinates research, research funding and works with the Open Access co-ordinating unit to promote OA scholarly publications, negotiations with publishers, and advise researchers on Open Access publishing. The university library works with the OA unit to operate the Open Archives. The institutions, Academic Planning Unit, the Centre for Systems and Information Services, and the Open Distance Learning programme work with the OA unit to operate the OER.

After adopting the Open Access policies in 2013, the University evolved commensurate hiring, retention, promotion, and tenure criteria to accommodate the growing University's profile, retain faculty and attract top-level personnel (faculty and research positions.) Feedback from outside and within the institution has been pivotal to improving the institution rewards system around research and research publication, learning environment and outcomes, teaching quality, and internal controls.

Key obstacles faced are:

- initial poor awareness of the Open Access position on research outcomes and research funding;

- the apathy to switch from the well-enshrined closed access publication model to the Open Access model;

- resistance to the research assessment reform following the adoption and its potential benefits to researchers;

- poor co-ordination among the relevant actors within the institution at the inception of the model.

When: Timeline for development and implementation

Covenant University proposed to seek global relevance and visibility in its research, pedagogy, learning, and industry engagement in 2012 and set a ten-year timeline. In 2013 it adopted the three policies to promote Openness as a platform to pursue its global agenda. The three OA policies were revised in 2016 to accommodate feedback from a wide range of stakeholders. In 2019, Covenant entered the Times Higher Education World University Rankings. It emerged top in the national, regional, and international rankings, berthing among the top 500 universities globally by 2020, among several recognitions for undergraduates and graduates' impacts.

After 2022, Covenant hopes to revamp her commitment to the Openness drive and forge ahead to more significant national and global engagements and relevance. Covenant assented to the [Bethesda Statement on Open Access Publishing](#), the [Budapest Open Access Initiative](#), and the [Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities](#) and has been a signatory to the last two since 2013.

Who: Organization profile

Country:	Nigeria
Profile of institution:	Comprehensive University or equivalent
Number of FTE researchers/Faculty:	> 500
Organization of research evaluation:	Faculty/department levels Institutional/university level research unit levels or clusters

Who is involved?	University management/academic leadership policy/ staff research department/ staff research support/Open Access unit

References

1. Open Access Policy For Scholarly Communication at Covenant University (2016). Retrieved 15 October 2021, https://oer.covenantuniversity.edu.ng/images/image/oa_policy.pdf

2. Covenant University Policy for Development and Use of Open Educational Resources (OER) (2016). Retrieved 15 October 2021, https://oer.covenantuniversity.edu.ng/images/image/oer_policy1.pdf

3. Covenant University Repository (Covenant University Institutional Repository (CUSpace) Operations Policy). 15 October 2021, http://eprints.covenantuniversity.edu.ng/policies.html#.YWrT8J5KhDY

4. Conrad Omonhinmin, Adebayo Akomolafe, Omolola Omotosho, Aderemi A. Atayero (2014). Policy for development and use of open educational resources in covenant university: An open access policy in covenant university. International Conference on Web and Open Access to Learning (ICWOAL), 2014. DOI: 10.1109/ICWOAL.2014.7009198

5. Conrad Omonhinmin, Edwin Agbaike, Aderemi A. Atayero (2014). Implementing Open Access in a Private Nigerian University: A case study of Covenant University. . International Conference on Web and Open Access to Learning (ICWOAL), 2014. DOI: 10.1109/ICWOAL.2014.7009197

6. Conrad Omonhinmin, Demola Olopade, Abolade Afolabi, Aderemi A. Atayero (2014). Open education and digital scholarly communication in covenant university. International Conference on Web and Open Access to Learning (ICWOAL), 2014. DOI: 10.1109/ICWOAL.2014.7009199

7. Covenant University Repository. http://eprints.covenantuniversity.edu.ng. Retrieved 15 October 2021. http://roar.eprints.org/3307/

8. Scimago Institutions Ranking. Retrieved 15 October 2021. https://www.scimagoir.com/institution.php?idp=6135.

9. Times Higher Education World University Rankings. Retrieved 15 October 2021. https://www.timeshighereducation.com/world-university-rankings/2022/worldranking#!/page/0/length/25/sort_by/rank/sort_order/asc/cols/stats

CASE STUDY 8: UNIVERSITY OF CAPE TOWN (UCT), SOUTH AFRICA

PREPARED BY: Dr. Reggie Raju Director: Research and Learning Services, UCT Libraries & Jill Claassen, Section Manager: Scholarly Communication and Research, UCT Libraries

OA/OS policy implementation case study at UCT for the Ubuntunet Alliance LIBSENSE senior university management policy workshop

1. University's profile, context

The University of Cape Town (UCT) is South Africa's oldest university founded in 1829 and is currently one of Africa's leading teaching and research institutions.

The university has 6 faculties - Commerce, Engineering & the Built Environment, Law, Health Sciences, Humanities and Science – which are all supported by the Centre for Higher Education Development, which addresses students' teaching and learning needs.

UCT also has more than 80 specialist research units that provide supervision for postgraduate work and is home to more than a third of South Africa's A-rated researchers – academics who are considered world leaders in their fields.

Vision[6]

UCT is an inclusive and engaged research-intensive African university that inspires creativity through outstanding achievements in learning, discovery and citizenship; enhancing the lives of its students and staff; advancing a more equitable and sustainable social order and influencing the global higher education landscape.

UCT is the highest-ranked African university in the QS World University Rankings, the Times Higher Education World University Rankings, and the Academic Ranking of World Universities, and its Commerce, Law, and Medicine Faculties are consistently placed amongst the hundred best internationally.

The 2015 Rhodes Must Fall student protest movement contributed significantly to a wider movement for the decolonisation of the education system across South Africa. At a UCT Senate meeting, there was widespread support for curriculum reform.

The drive for a decolonised higher education contributed to the conceptualisation and roll-out of a publishing service.

2. What: Policy description. What changed and the key elements of change

There are four significant changes to the current Open Access (OA) policy, and these include:

- social justice driving the open access movement;

- linking of Research Data Management policy with the OA policy;

- introduction to diamond OA: and

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[6] this is important as it serves as the foundation document for the amendment to the open access policy

- incorporation of library publishing.

Social justice driving OA

The purpose of the Open Access Policy:

for taking forward open scholarship and open education as part of the University's commitment to social justice through the widest distribution of its scholarly output.

The preamble extended the reach with specific reference to the contribution to the continent.

… the University commits to the social justice principles of Open Access and actively seeks to:

- *share research and learning content that addresses South African and African research and teaching and learning imperatives;*

- *share research and learning content that contribute to South African and African social and economic development;*

Linking of Research Data Management policy with the OA policy

This policy must be read in conjunction with the University of Cape Town's Research Data Management Policy. Collectively, the policies address the sharing of scholarship which includes, where permissible, the published content and data, both processed and unprocessed data which should be lodged in UCT's data repository, ZivaHub.

Introduction of diamond open access

"Diamond open access" means a route followed where the article is immediately open access without a charge to the author nor the reader. There is no subscription cost as the article is available open access and the author does not pay an article processing charge (APC);

Incorporation of library publishing

The University offers, via its Libraries and other relevant departments, an institutional repository service as well as a publishing service. The institutional repository (OpenUCT) collects digital copies of scholarly articles, essays, books, peer reviewed conference papers, reports (where permitted by a funder of the research leading to the report), educational resources, scholarly multi-media material, audio-visual works and digital representations of pictorial and graphical materials. The 'library as a publisher' service offers a diamond open access publishing service for the publication of open journals, open monographs and open textbooks.

The specific section regarding *Library as a publisher service* reads as follows:

The University offers, via its Libraries and other relevant departments, a 'library as publisher' service to grow the number of local journals that are available open access. The Libraries also provides a platform and support for the publication of open monographs and open textbooks. This diamond open access journals and monograph option will complement

current publishing processes to meet the need for more local and decolonised content: such content will be accessible globally.

3. Why: Motivation for change

As indicated above, UCT is one of the leading research universities on the African continent. The Library was of the view that, as a leading research university, there was a moral obligation to freely share as much of its research output as possible. Driven by the University's social responsiveness goal, the Library lobbied for the OA policy to be underpinned by social justice imperatives.

The second driver for the amendments to the policy was the response to the National Research Foundation (NRF), the funding agency, requirements. The NRF made it mandatory for all datasets to accompany theses and dissertations. This gave the library the leverage to link the OA policy with the RDM policy.

UCT Libraries was one of the first libraries to have an article processing charges (APC) budget. However, the budget was expended very quickly with support for less than 5% of the annual research output. Using this as a lever, there was successful lobbying for library publishing to be incorporated into the policy. Further, the need for decolonised content to support the change in curriculum was also leverage for the adoption of library as publisher service which is now embedded in the policy.

4. How: Processes and dynamics for developing, implementing and managing change
(including specific obstacles faced)

It would seem that UCT was not immune to the international challenge of the additional administrative burdens of researchers for the deposit of their outputs. The research rewards system together with the approved list of accredited publications from the national Department of Higher Education make it extremely difficult for authors NOT to publish with commercial publishers who charge exorbitant prices to buy that research back for use by UCT researchers and students. The continuous support for publications in international journals goes against the grain of making the research accessible to the rank and file.

In response to the 'sale' of the research output to commercial publishers was the introduction of author agreements. Unfortunately, the guidelines were much easier to draft than to implement. Again, another administrative burden that the researchers could do without. Below is an extract from the policy, "UCT strongly encourages the use of UCT's author addendum to prevent the ceding of copyright to publishers. This addendum will provide authors with leverage to engage with publishers their need to comply with UCT's policy so it is consistent with the permissions granted by the staff member to the University…". Again, well intended guidelines but not very implementable.

Another challenge was the mandatory submission of articles (self-archiving) to the policy. There was debate that should work as there was no stick to this section of the policy – there

will be no compliance. The University was not prepared to introduce a stick neither could we find a carrot. The compromised position was to include mandatory submission in the hope that solutions will be found to provide the carrot.

5. When: Timeline for development and implementation

Document Name/type	Date of Approval/working	Comment
Signing of The Berlin Declaration on Open Access to the Sciences and Humanities	1 November 2011	The Vice-Chancellor signed the Declaration as an intent to promote an open access approach to UCT's scholarship, including open educational resources
Draft proposal for an Open Access Policy at UCT	December 2013	Amendments to draft policy as recommended by Senate Executive Committee (SEC)
Open Access Policy	March 2014	Submitted to Council for approval
Open Access Policy as adopted by Council	June 2014	Inclusions as per Council approval. Changes to March 2014 document. **5. Policy** **5.1. Author responsibilities** Grant holders are required to comply with any conditions for publishing scholarly content as set out by the funder. (Note 1: inclusion of funder requirements) **5.3 Student Theses and Dissertations** In line with the provisions of the Intellectual Property Policy and institutional student rules, UCT is granted a right to publish student research theses (doctoral degrees) or dissertations (master's degrees). Research reports submitted by candidates for professional master's degrees are exempt from this requirement. A student shall, either through self-submission or assisted submission upload the final corrected version of the thesis or dissertation into the officially designated Institutional Repository (OpenUCT) prior to

Document Name/type	Date of Approval/working	Comment
		graduating. Students whose dissertations or research reports are less than sixty credits do not upload these dissertations or research reports. The designated Institutional Repository shall make provision for the delayed public release of any thesis or dissertation for up to twenty-four months (and, in exceptional cases, for longer defined periods) provided the necessary criteria for doing so have been met (Note 2: broadening of items that need to be uploaded onto the repository. Previously it was full theses and dissertations). **7. Related UCT Policies, Rules and Guidelines** • Intellectual Property Policy • Metadata and Information Architecture Policy • Guidelines OpenUCT: Publication of Theses and Dissertations after Conferment of the Degree (Note 3: addition of supplementary policies) **This policy is informed by the following** National Research Foundation (NRF) Statement on Open Access to Research Publications
Guidelines for OpenUCT: publication of theses and dissertations after conferment of the degree	February 2015	Approval of Guidelines for OpenUCT which was approved by SEC.
University of Cape Town Board for Graduate Studies	31 May 2016	Inclusion of amendments as a result of the change to NRF requirements. **3.3 Amendment to the Open Access Policy**

Document Name/type	Date of Approval/working	Comment
		It was mandatory for NRF grant holders to upload their research and data sets (data supporting the research) to the institutional repository.
Amendments to *Open Access Policy as adopted by Council, June 2014*		Inclusion of social justice and library publishing. First reference to: • diamond open access publishing • social justice driving OA • alignment of RDM policy and OA policy
Amended Open Access Policy was adopted by Council	11 September 2020	

CASE STUDY 9: UGANDA CHRISTIAN UNIVERSITY, UGANDA

PREPARED BY: David Bukenya, Ag. University Librarian

UCU OA policy implementation case study for the forthcoming LIBSENSE online workshop for senior university management.

Who and where: Your University's profile, context

Uganda Christian University, inaugurated in 1997, runs over 70 programmes at undergraduate and postgraduate levels. As a university, it fosters its research mandate with a research agenda and structures that support staff and students to carry out research. In 2013, UCU took keen interest in Open Access via the support of CUUL and EIFL. Subsequently, the institution supports Open Access and has a repository, OA Journal System and an approved policy supporting the implementation.

What: Your policy description. What changed in the University after adopting it and the key elements of change

"…This is the reason for the UCU OA Digital Repository Policy. It is a vital policy that addresses the dual duties of preservation and diffusion of UCU's intellectual output. It is a truism that the modern academic world has advanced in global integration thus allowing exchange of ideas to astronomical proportions. This means that universities are under obligation to exercise 'give and take' for their knowledge output. For UCU to remain relevant, it's incumbent upon our academic pursuits to actively interface with academics elsewhere and ensure that our own knowledge is placed in the public sphere, to benefit more than this university." John Senyonyi, Former UCU Vice Chancellor, excerpt from policy foreword.

UCU OA Policy provisions

- The Policy declares UCU is committed to free and open access scholarship for all, and takes responsibility for the dissemination of its own research outputs.

- The Policy then requires all members of the UCU community to submit their scholarly work to the UCU OA Digital Repository.

- The policy also requires the author to grant UCU certain non-exclusive rights to future and existing research articles authored or co-authored by faculty members. This binding, global licence allows UCU to distribute scholarly articles for any non-commercial purpose.

- Applying retrospectively, this policy covers all scholarly works completed before and after the adoption of the policy.

- The policy encourages members to publish their scholarly work in peer-reviewed Open Access journals. It also assures members who publish in Open Access Journals of positive consideration for promotion and tenure.

These sort of policies that provide for automatic rights retention of scholarly articles and a commitment to provide copies of articles for open dissemination were preferred for the benefits they offer:

1. Authors retain ownership and control of their works, subject only to UCU's prior, nonexclusive license. This allows them to retain broad use and reuse rights.

2. Faculty can apply their copyright in any way they deem useful. They can also transfer it to a publisher, if they so wish. In such a case, UCU still retains its licence and the right to distribute the work from the UCU Digital repository.

3. With ease, the policies allow UCU to help authors in openly diffusing their research works for wider access and impact.

Key elements of change:

- Increased awareness on Openness and appreciation of benefits of having more publishing channels and their work more accessible and citable. There was a fair level of mindset change toward Open Access.

- Increased publishing in Open Access journals while ensuring careful checks of where they publish, with advice from the library.

- Increased deposits in the UCU Repository despite the apathy toward making the deposits personally; preferring mediated deposits.

- The policy adoption, was a motivation in building support for OA, and helped implement good practices. It also supported the change of the student research submission policy from print to electronic theses and dissertations.

- Research assessment. Academic promotions Committee, was modified to now include a librarian to provide quality checks; of particularly OA publishers. HR Office was involved.

Why: Motivation for change

- The quest to have the UCU research output more accessible and visible. This also was envisioned to solve the conundrum of managing and making theses and dissertations more accessible.

- It would provide accountability and statistics for the UCU research output.

How: Processes and dynamics for developing, implementing and managing change (including specific obstacles faced)

1. The Open Access conversation started with the library and its involvement in the EIFL/SPIDER OA Project in 2013.

2. This conversation progressed to the Joint Academic Management Committee of Senate, which agreed to appoint a taskforce to manage what was required to implement OA and draft the policy. The seven-person team constituted:

    - The University Librarian

- The Dean, School of Research and Postgraduate Studies

- Head of Research, (School of Research and Postgraduate Studies)

- Director, Teaching and Learning

- Systems and Technical Services Librarian

- Research Administrator (School of Research and Postgraduate Studies)

- Head of Systems (University ICT Services)

The key terms of reference were:

- Draft and OA policy

- Consult stakeholders about the policy

- Install appropriate software for the repository and plan implementation of the policy

3. Evaluated OA readiness based on:

   - the availability of OA infrastructure (repository software),

   - the awareness of OA by authors

   - the availability of structures (Library, IT support, etc.) to coordinate the working procedures. Consultations with faculty members about key elements of the policy.

4. Policy development started in February 2014; the library led the development after involvement in the SPIDER OA project.

5. Had two bench-marking visits to the University of Nairobi and Kenyatta University, which were already implementing their policies.

6. Preliminary policy drafted. We used the Harvard, Kenyatta and Nairobi Universities policies as guides. The draft was reviewed by the taskforce and faculty consultations started in May to September 2014. During this period we prepared key questions for the stakeholders. Some themes included were:

   a) Their understanding and views about Open Access and OA Publishing and whether they would consider publishing in this model.

   b) Views of making their work freely and widely accessible and whether they would deposit their work in the IR.

   c) Discussion on copyright, non-exclusive rights to institution and CC licenses

Some issues that came up during consultations
- Expression of skepticism about the principle of open access; having their work freely accessible by anyone. Feared copyright violations and plagiarism

- Were concerned about the high cost of Gold OA via the Article Processing Charges (and the lack of funding)

- Not sure about the quality of the Open Access Journals

- Several asked what their benefit would be.

When: Timeline for the policy development and implementation

The process started in February 2014 through to October 2015 when the UCU Senate approved the policy. The repository was launched during the International OA Week that year. The implementation started then and is still ongoing.

Obstacles during implementation.

- We found out that approving and adopting an OA policy is much easier than actually implementing one. The challenge was ensuring the deposits are made. It's still an ongoing process.

- Issue with adopting authority – even after the consultations and many nods, it took more effort including one-to-one meetings to get more faculty adopting the policy and leading the campaign.

- Although UCU faculty members are now more strongly mandated to submit a postprint of their work, the university has not yet established a time limit for submission.

- There is an enduring question mark about the 'postprint', and for some reason, most authors don't quite get it and don't have a copy.

ÉTUDE DE CAS 10: L'UNIVERSITE VIRTUELLE DE CÔTE D'IVOIRE, CÔTE D'IVOIRE

PRÉPARÉ PAR: Prof. KONE Tiémoman, Dr COULIBALY Cécile, Prof. KOUAME Fernand, Université Virtuelle de Côte d'Ivoire

UNIVERSITE VIRTUELLE DE CÔTE D'IVOIRE

Politique du Libre Accès et de la Science Ouverte de L'Université Virtuelle de Côte D'Ivoire

Prof. KONE Tiémoman, Dr COULIBALY Cécile, Prof. KOUAME Fernand
Université Virtuelle de Côte d'Ivoire

1. PROFIL DE L'UNIVERSITE VIRTUELLE DE CÔTE D'IVOIRE

L'Université Virtuelle de Côte d'Ivoire (UVCI) créée en 2015 *(décret N° 2015-775 du 09 décembre 2015)* a pour mission de développer et de vulgariser le numérique dans la formation et l'employabilité des diplômés, la recherche et la science ouverte. A ce titre, elle est chargée :

1. **D'accompagner les établissements** dispensant les enseignements **en présentiel** dans le développement de l'offre de formation ouverte à distance, la production de format numérique de cours magistraux, des travaux dirigés et travaux pratiques ;

2. **De rendre les ressources pédagogiques** des domaines de formation **disponibles et accessibles** à travers une plateforme commune de formation dédiée ;

3. **De mettre en place** un **réseau international de partenariat** dans le domaine de l'enseignement à distance ;

4. **D'assurer à travers une plateforme,** la **diffusion des connaissances et la culture du scientifique.**

De par ses missions et attributions, l'UVCI conduit la politique de transformation digitale des Institutions et établissements d'Enseignement Supérieurs et de Recherche du Ministère de l'Enseignement Supérieur et de la Recherche Scientifique de Côte d'Ivoire (MESRS).

En tant que démonstrateur de la pédagogie numérique, l'UVCI dispose de nombreuses plateformes et forme aux métiers du numérique dans les niveaux Licence, Master et Doctorat. Elle développe aussi des MOOCS, des RELs et des FOAD pour l'ensemble de ses partenaires académiques pour permettre l'hybridation des dispositifs académiques. En quelques années seulement, l'UVCI a accueilli plus de 10.000 étudiants de plusieurs nationalités réparties dans le monde entier d'où son slogan : *« mon université avec moi, partout et à tout moment ».*

En matière de recherche l'UVCI dispose d'une Unité de Recherche et d'Expertise Numérique (UREN) composée des équipes : (i) Analyse, Information et DEcision (AIDE) ; (ii) Architecture, Systèmes et Réseaux (ASR) ; (iii) Signal, Traitement de l'Image et Multimédia (STIM) ; (iv) Apprentissage et Patrimoine Numérique (APN) ; (v) ECOnomie des RESeaux (ECORES), d'une école Doctorale, d'une bibliothèque virtuelle, d'un fablab « voisinage ».

2. Description de la politique du libre accès de l'UVCI

Bénéficiant de l'appui du MESRS, la politique du libre accès de l'UVCI est un cadre consensuel et formel, élaboré à la suite d'un processus participatif et collaboratif des différentes parties prenantes (personnel technique, enseignant-chercheurs, instances de décisions) qui a débuté en 2016 et qui vise à : (i) soutenir et favoriser la transition vers le libre accès et la science ouverte par des actions d'éducation, de formation et de sensibilisation des chercheurs et autres personnels, (ii) assurer la gestion des données en lien avec les politiques nationales et celles des agences de financement ; (iii) poursuivre les actions de déploiement de la bibliothèque virtuelle de l'enseignement supérieure et de la recherche scientifique de Côte d'Ivoire y compris l'archive ouverte institutionnelle ; (iv) mettre à disposition les infrastructures et les services appropriés ; (v) intégrer les pratiques de la science ouverte dans les critères de recrutement, d'évaluation de la recherche ; (vi) mettre en place des principes et des processus de diffusion des connaissances respectant les principes d'ouverture et respectant le droit d'auteur et la propriété intellectuelle.

Le document de politique du libre accès de l'UVCI contient des mesures de collecte de documents en texte intégral de littérature grise, de thèses et mémoires validés, précisément les versions finales corrigées, des articles scientifiques validés par les pairs (prépublications et post-publications) et publiés dans les revues indexées. En outre, les principes et les procédures de dépôt dans l'archive ouverte institutionnelle ou la BVESRS sont rendus obligatoires pour tous. Enfin la mise à disposition des publications sous des licences de libre diffusion telle que Creative Commons (CC BY ou CC0) est recommandée dans la politique du libre accès.

3. Processus de développement, de mise en œuvre et de gestion du changement

L'UVCI a développé depuis sa création, de nombreuses initiatives et projets dans le cadre du partage des connaissances, de l'accès et de l'utilisation des bases documentaires (articles, thèses et mémoires, etc.) et de la promotion du libre accès et de la science ouverte. Parmi ces initiatives, les plus importantes sont :

1. La coordination et le déploiement dans toutes les institutions d'enseignement et de recherche de la Bibliothèque Virtuelle de l'Enseignement Supérieur et de la Recherche Scientifique (BVESRS) de Côte d'Ivoire, dépôt numérique institutionnel, lancé en 2016 ;

2. L'organisation depuis 2018 de l'Open Access Week de Côte d'Ivoire, institutionnalisée par le MESRS afin de sensibiliser les acteurs à la promotion de libre accès ;

3. Le renforcement de la collaboration avec le Réseau Ivoirien de Télécommunication pour l'Enseignement et la Recherche (RITER), LIBSENSE, le WACREN pour la promotion de la science ouverte ;

4. La création depuis 2017 du Consortium des Bibliothèques de l'Enseignement Supérieur de Côte d'Ivoire (COBES-CI) pour renforcer les activités des documentalistes et archivistes ;

5. Le renforcement de la collaboration avec la Commission Nationale Ivoirienne pour l'UNESCO (CNI-UNESCO), le Fonds National pour la Science, la Technologie et l'Innovation (FONSTI), le Centre National de Calcul (CNC) pour la promotion et la mise en œuvre de la science ouverte ;

6. La signature d'une convention tripartite entre le CAMES, l'UVCI et l'Université Virtuelle du Sénégal (UVS) pour l'accompagnement à la transformation digitale et la coopération sous régionale dans la promotion de la science ouverte ;

7. La signature d'un protocole d'accord pour la mise en place d'un Centre de Savoir de Côte d'Ivoire pour la Mémoire du Monde en 2020, avec le Sous-Comité pour l'Education et la Recherche (SCEaR) du programme Mémoire du Monde, le Comité National Ivoirien du Programme Mémoire du Monde de l'UNESCO ;

8. L'engagement dans le forum LIBSENSE du WACREN et ses partenaires en 2020 dans le cadre de la mise en place de la feuille de route nationale pour la science ouverte ;

9. La production de RELs, MOOCS (plateforme MOOC UVCI) pour la diffusion massive des ressources pédagogiques ;

10. La sensibilisation et le renforcement des capacités des acteurs du monde de la recherche ;

11. La participation aux événements nationaux et internationaux (conférences, symposiums) de promotion de la science ouverte.

4. Motivation et engagement dans la science ouverte

Depuis 2016, l'UVCI est engagée dans des processus de consultation, d'échanges, de discussion, de sensibilisation, de plaidoyer auprès des décideurs et des partenaires nationaux et internationaux pour l'éducation et la recherche et de renforcement de capacités des enseignant-chercheurs, du personnel, des membres du COBES-CI. L'élaboration de la politique du libre accès est l'aboutissement d'un processus participatif et inclusif.

5. Calendrier de développement et de mise en œuvre

La Politique du libre accès est déjà mise en œuvre à l'UVCI.

ÉTUDE DE CAS 11: L'UNIVERSITÉ D'ABOMEY-CALAVI AU BÉNIN

PRÉPARÉ PAR: Joseph Sagbohan, Chef du Département de la Bibliothèque et de l'Audiovisuel, Chargé de cours en maîtrise de l'information

Politique de mise en place d'un dépôt numérique institutionnel, du partage et de l'utilisation des données à l'Université d'Abomey-Calavi au Bénin

1. Brève présentation de l'Université d'Abomey-Calavi

L'Université d'Abomey-Calavi (UAC), première université publique du Bénin, est située dans la commune d'Abomey-Calavi, près de Cotonou, au sud du Bénin. L'UAC a été fondée en 1970 sous le nom de "Université du Dahomey". En 1975, l'institution a été rebaptisée "Université nationale du Bénin", avant de prendre son nom actuel en 2001 en faveur des autres universités publiques créées.

L'Université d'Abomey-Calavi a pour principales missions de former des cadres, de contribuer à la recherche scientifique et au développement de l'économie nationale. A ce titre, elle est ouverte sans condition de nationalité, de race, de sexe, de religion ou d'origine sociale à toute personne justifiant des qualifications requises pour y accéder, notamment le baccalauréat du second degré ou un titre reconnu équivalent. Elle confère des grades et délivre des diplômes conformément à la réglementation en vigueur telle qu'elle résulte de la législation nationale et des accords internationaux.

L'Université d'Abomey-Calavi compte cinq grandes facultés classiques dans les domaines du droit, de l'économie, des lettres, des sciences sociales et des sciences exactes. Dix-huit institutions professionnelles et dix écoles doctorales dans les différents domaines scientifiques. Chaque établissement de l'Université d'Abomey-Calavi dispose d'au moins un laboratoire permettant aux enseignants et chercheurs de tous niveaux de mener des recherches.

2. Description et changements clés de la politique d'Open Access et d'Open Science à l'Université d'Abomey-Calavi

La politique de l'Open Access et de l'Open Science a réellement pris forme à l'Université d'Abomey-Calavi (UAC) en 2016. Par un acte administratif rectoral, l'obligation a été faite aux enseignants et chercheurs bénéficiant des primes de publication de l'État de déposer une copie de leurs travaux dans un entrepôt numérique créé à cet effet. Ainsi, par autoarchivage, les enseignants et chercheurs déposent une copie de leurs articles dans une plateforme numérique appelée " Bibliographie des enseignants et chercheurs " de l'UAC. Ce geste utile a ouvert la voie à une publication de type "Green open Access", qui n'est rien d'autre que l'auto-archivage de son travail par l'auteur dans l'archive ouverte de l'UAC. A ce jour, l'entrepôt numérique contient plus de 10500 références d'articles publiés.

Cependant, les imperfections constatées dans ce travail sont principalement liées à l'édition du système de l'entrepôt qui, après analyse, ne respecte pas le principe d'interopérabilité FAIR. Le système n'est pas conçu pour se conformer aux normes acceptées dans ce domaine, telles que les normes préfabriquées de DSPACE, d'INVENIO, d'ARCHIMEDES et

autres systèmes similaires qui utilisent DUBLIN CORE comme format universellement reconnu pour l'encodage des données d'archives numériques.

Très récemment aussi, en 2020, l'autorité rectorale a réaffirmé sa volonté de renforcer sa politique d'OA et d'OS par un autre acte administratif imposant aux diplômés en LMD (Licence, Master et Doctorat), l'obligation de déposer dans un dépôt numérique une copie de leur production scientifique avant la délivrance de leur diplôme de fin d'études. Mais, le problème est qu'aucun dépôt numérique n'est établi pour recevoir adéquatement ces mémoires et thèses en ligne. L'ancienne procédure de dépôt à la bibliothèque par la validation d'un formulaire de dépôt a poursuivi allègrement son cours.

Il était donc nécessaire pour l'Ecole Polytechnique d'Abomey-Calavi (EPAC) d'entreprendre, de sa propre initiative, un projet de création d'un dépôt numérique institutionnel conforme au principe d'interopérabilité FAIR. Ceci afin de collecter, gérer et partager adéquatement les travaux de fin de formation des apprenants de l'EPAC. A cette fin, Dspace a été implémenté, configuré et les thèses et mémoires déjà disponibles à la bibliothèque sur CD-ROM y sont progressivement encodés.

Cette initiative vise à impliquer toutes les bibliothèques de l'UAC à court, moyen ou long terme afin de disposer d'un dépôt numérique commun. Cependant, il sera nécessaire d'élaborer une politique générale de libre accès et de science ouverte qui sera soumise à la validation de l'autorité rectorale avec des directives et des recommandations claires pour sa mise en oeuvre.

Dans le cas de l'APEC, la volonté d'accompagner l'initiative en acceptant d'héberger à distance la base de données afin de garantir la sécurité du système et des données pour un accès permanent et de qualité est un acte décisif et cela constitue un levier important qui a rendu le projet possible.

3. Motivations pour le passage à l'Open Access et à l'Open Science

L'élément déclencheur de l'adoption de l'Open Access et de l'Open Science par l'Université d'Abomey-Calavi est tout d'abord la nécessité de se conformer aux multiples recommandations issues des conférences sur le sujet ; ensuite, de permettre à la communauté universitaire de bénéficier des publications de ses enseignants et chercheurs ; enfin, de permettre aux auteurs de gérer leurs publications et d'avoir une traçabilité de leur utilisation car très peu de chercheurs sont encore capables de conserver une copie ou même d'avoir un contrôle sur leurs articles une fois qu'ils sont publiés par un éditeur. Le partage de ces publications dans un entrepôt numérique local a permis de pallier, pour un temps, le manque d'accès à une documentation scientifique actuelle et de bonne qualité ; de réduire la charge financière liée à l'acquisition d'informations scientifiques et techniques, dont les coûts ne cessent d'augmenter. Par ailleurs, l'UAC, comme partout ailleurs, considère que les publications financées par des fonds publics et institutionnels ou par des organisations internationales doivent être rendues librement accessibles pour l'intégrité de la recherche scientifique, garante du développement durable.

4. Processus et dynamique de changement, installation et gestion des obstacles

Pour concrétiser l'acte administratif obligeant les enseignants et chercheurs de l'UAC à déposer une copie de leurs publications, un entrepôt numérique a été créé par le Service de la promotion des TIC à l'UAC. Ce travail n'était pas vraiment difficile à réaliser compte tenu de son caractère politique et urgent pour capitaliser les dépenses engagées sur fonds publics pour la publication d'articles scientifiques. L'outil de dépôt a été créé et hébergé à l'UAC et une vulgarisation a été faite en faveur des enseignants et chercheurs de l'UAC recrutés par l'administration publique. Le Recteur, Président du Conseil Scientifique profite de chaque occasion du paiement des perdiem pour rappeler l'adresse et le processus de soumission des articles sur la plateforme de dépôt.

Aussi, parallèlement à cette plateforme de la Bibliographie des Enseignants et Chercheurs (BEC) de l'UAC, un projet a été mis en place pour créer un dépôt numérique institutionnel sous Dspace afin de faciliter la vulgarisation et le dépôt des travaux de fin de formation des étudiants en Licence, Master et Doctorat. Ce projet a été entrepris et exécuté spécifiquement à l'Ecole Polytechnique d'Abomey (EPAC) afin de se conformer à la norme internationalement acceptée pour les bases de données de gestion des dépôts numériques institutionnels. Cette initiative vise également à respecter les principes du FAIR, notamment l'interopérabilité entre les systèmes, la correspondance et la récolte des données. Pour mener à bien ce projet, l'équipe dédiée a rencontré d'énormes difficultés dues aux coupures de courant, à la faible vitesse de connexion à Internet et au manque d'équipement informatique. Au vu de ces difficultés, il a été décidé d'externaliser l'hébergement du système auprès d'un fournisseur de services Internet en payant une redevance annuelle. Mais beaucoup de travail reste à faire pour réellement bénéficier de toutes les potentialités de gestion du libre accès et de la science ouverte qu'offre Dspace.

La plateforme créée vise finalement à 1- encoder toutes les données déjà disponibles -2- former à la soumission et à la validation en ligne -3- mettre en place un suivi des statistiques d'accès par les internautes -4- élaborer une politique d'extension du système à toutes les bibliothèques de l'UAC et y intégrer à terme la plateforme de la Bibliographie des enseignants et chercheurs (BEC) de l'UAC.

5. Calendrier de développement et de mise en oeuvre

Le système est créé et ouvert à l'accès des enseignants et chercheurs de l'UAC et de tous ceux qui en ont besoin. Cependant, les travaux de paramétrage, de contrôle et de mise en oeuvre de la politique de son développement continuent à être menés pendant la durée d'une année au regard des réformes de gouvernance en cours à l'UAC et surtout au regard de la politique générale de libre accès et de science ouverte en projet de développement.

CASE STUDY 12: KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI- GHANA

PREPARED BY: Richard Bruce Lamptey, Deputy Librarian, KNUST

The KNUST Open Access/Institutional Repository (OA/IR) Policy

Who and Where: University's profile & context

The Kwame Nkrumah University of Science and Technology (KNUST) is the second public University established in Ghana through an Act of Parliament (Act 80) in 1961. KNUST has six (6) Colleges[7]. These are the College of Art and Built Environment, College of Social Sciences and Humanities, College of Engineering, College of Agriculture and Natural Resources, College of Science, and College of Health Sciences.

What: Policy description - what changed and the key elements of change

The KNUST Open Access/Institutional Repository (OA/IR) policy mandates every academic staff to deposit their research output in the IR. The IR currently has 15,068 publications. Additionally, there is the verification publication sources policy for academic staff. This was a new promotion standard developed to discourage faculty members from publishing in questionable journals to speed up the promotion process. This verification process for all publications submitted for promotion has been implemented. Since its implementation in October 2019, 221 researchers have applied for promotion. According to research conducted by Frandsen, et al (2022), analyses show that one-fifth of submitted publications do not meet the criteria of publishing in the listed journals approved by the university.

Why: Motivation for change

- To be able to monitor better the quality and transparency of the research submitted for promotion by academic staff in the University.

- To enable the University to improve its world ranking since the OA/IR contributes directly to the parameters of many ranking bodies. It is believed that the IR's content affects the ranking indirectly through the parameter of Transparency or Openness, which measures citations of authors from institutions.

- To enable the university library to increase awareness of the OA movement and the emergence of, and the need for, Institutional Repositories in the University and in Ghana as a whole.

- To meet the need to archive KNUST research output online.

KNUST uses this opportunity to promote open science. The University now has an open access institutional repository which exists to preserve and make available research materials publicly. Academic staff are mandated to deposit their work in the repository using the appropriate copyright agreement. The material includes and is not limited to:

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[7] https://www.knust.edu.gh/academics/colleges

- Research publications and associated data which are outputs of KNUST's sponsored or
other public funding agency grants;

- University scholarly works such as un-refereed research literature, journal articles, conference contributions, chapters in proceedings, technical or
project reports, white papers, periodicals, newsletters and grey literature not submitted for publication and that can be made available via open access;

- Higher degrees by research dissertations.

How: Processes and dynamics for developing, implementing and managing change (including specific obstacles faced)

- The University management supported the development and implementation of the OA/ IR policy and the verification publication sources policy for academic staff.

- Researchers' concerns that their work would be plagiarized and stolen if uploaded in the IR were addressed through regular training and awareness raising.

- The library archives research publications during the verification process on behalf of the authors. The process involves mining and harvesting research output available on various search engines and academic databases.

- Currently, any academic staff in the university who applies for promotion needs to do verification of publication sources with the library to check the quality of the journals in which they published - this applies to journal articles.

When: Timeline for development and implementation

The KNUST repository was made active online in January 2009 and the Open Access Institutional Repository (OA/IR) Policy was adopted in the same year.

The total number of documents uploaded as at 25th March 2022 is 15,068. Additionally, plagiarism software (TURNITIN) was acquired and an antiplagiarism policy was also adopted by the graduate school in 2012.

These exercises led to the verification of the research publication of the academic staff in the university to verify the quality of the journals they published with.

References

1. Criteria for Appointments and Promotions of Senior Members – Academic, KNUST Recorder, No. 488, Vol. 55. October 2019

2. Frandsen, T. F., Lamptey, R. B., Borteye, E. M., & Teye, V. (2022). Achieving a professorship with proper academic merit: discouraging questionable publishing. Accepted in *Journal of Scholarly Publishing*. In press. Available at https://portal.findresearcher.sdu.dk/en/publications/achieving-a-professorship-with-proper-academic-merit-discouraging

ÉTUDE DE CAS 13: ÉCOLE SUPÉRIEURE DES SCIENCES ET TECHNIQUES DE L'INFORMATION ET DE LA COMMUNICATION (ESSTIC), UNIVERSITÉ DE YAOUNDÉ II, CAMEROUN

PRÉPARÉ PAR: Dr Esther Olembe, Chargée de cours, Chef de Département d'Information documentaire de l'ESSTIC; Dr Thomas Mboa, Assistant, Coordonnateur Adjoint du Centre de Documentation de l'ESSTIC

Programme de digitalisation du patrimoine scientifique de l'ESSTIC

1- À propos de l'ESSTIC

L'École Supérieure des Sciences et Techniques de l'Information et de la Communication (ESSTIC) est un établissement spécialisé de l'Université de Yaoundé II. Placée sous la double tutelle du Ministère de l'Enseignement supérieur (MINESUP) et du Ministère de la communication (MINCOM). L'ESSTIC, c'est plus de 50 ans d'histoire articulée en 03 moments:

- 15 mai 1970, création de l'École Supérieure Internationale de Journalisme de Yaoundé (ESIJY) à vocation sous régionale (regroupant six pays : Gabon, RCA, Rwanda, Togo, Tchad, Cameroun);

- 04 septembre 1982, création de l'École Supérieure des Sciences et Techniques de l'Information (ESSTI) qui succèdera à l'ESIJY ;

- 15 mars 1991, décret transformant l'ESSTI en École Supérieure des Sciences et Techniques de l'Information et de la Communication.

Aujourd'hui, l'ESSTIC est arrimée au système LMD et offre des formations dans les domaines suivants : communication des organisations, documentation, édition, journalisme et publicité.

2- La politique d'Open Science de l'ESSTIC

Dans sa volonté de s'arrimer aux recommandations de la Budapest Open Access Initiative (BOAI) d'une part, et des recommandations de l'UNESCO sur la science ouverte d'autre part; l'ESSTIC a opté pour une politique visant à instaurer un environnement favorable à la mise en place effective des pratiques de science ouverte. Cette politique repose essentiellement sur notre programme de digitalisation du patrimoine scientifique de l'ESSTIC, dont les principales articulations sont les suivantes :

- doter le Centre de documentation de l'ESSTIC d'une archive ouverte, qui permettrait d'accueillir les mémoires et thèses produits à l'ESSTIC depuis sa création;

- mettre en ligne, la revue *Fréquence Sud* de l'ESSTIC et l'indexer dans le DOAJ;

- doter l'ESSTIC d'une bibliothèque en ligne, afin de permettre à la communauté universitaire de bénéficier au maximum des ressources documentaires numériques, mieux encore, des Ressources Éducatives Libres (REL);

3- Nos motivations

Notre motivation principale est de répondre aux besoins de notre contexte académique; à savoir : la nécessité de dématérialiser la littérature grise existante, de rendre accessible et

visible l'ensemble des travaux scientifiques de l'ESSTIC, ainsi que les membres de sa communauté.

4- Programme de digitalisation du patrimoine scientifique de l'ESSTIC

Avant toute chose, il est important de mentionner que l'ensemble des travaux de digitalisation du patrimoine scientifique ont été réalisés en interne; c'est-à-dire, en mettant à contribution l'expertise des enseignants et étudiants de l'ESSTIC. Ce programme a débuté en juin 2021, avec le tri des documents (existants à l'ESSTIC) par type :

- Travaux d'étudiants (type, filière, date et niveau)

- Publications en série (revues scientifiques, magazines, journaux)

- Monographies (par sujet selon la Classification Décimale de Dewey)

4.1. Déploiement du dépôt institutionnel de l'ESSTIC

L'ensemble des thèses et mémoire présentés au cours des périodes ESIJY, ESSTI et ESSTIC sont aujourd'hui visibles et accessibles sur Internet. Pour parvenir à ce résultat, les étudiants de l'ESSTIC ont procédé à la numérisation des pages de garde des thèses et mémoires; puis ont enregistré les métadonnées sur Dspace (le logiciel de dépôt institutionnel le plus utilisé au monde). Toutefois, ce processus s'est fait non sans difficulté.

En effet, les équipements de l'ESSTIC étant limités, nous nous sommes résolus à numériser seulement les pages de garde des mémoires et thèses; contribuant ainsi à renseigner les métadonnées dans Dspace. Par ailleurs, l'ESSTIC n'ayant pas les moyens techniques et financiers pour déployer et maintenir Dspace, nous avons sollicité le Dépôt Institutionnel du CAMES (DICAMES, qui offre la possibilité aux institutions universitaires africaines qui n'en

ont pas les moyens, d'archiver leurs travaux de thèses et mémoires. Ceux de l'ESSTIC sont accessibles à travers ce lien : https://dicames.online/jspui/handle/20.500.12177/5561 .

4.2. Mise en ligne de la revue *Fréquence Sud*

Créée en 1982, sous l'impulsion du Pr Jacques Fame Ndongo, alors Directeur de l'ESSTI, la revue *Fréquence Sud* est la Revue Camerounaise des Sciences de l'Information et de la Communication. Depuis sa création en 1982, Fréquence Sud a toujours existé sous format papier, limitant ainsi sa visibilité et sa diffusion sur Internet. Fort de ce constat, l'ESSTIC a décidé de mettre en ligne tous les numéros de *Fréquence Sud*, en utilisant le logiciel OJS (Open Journal System). Pour ce faire, nous avons entièrement numérisé tous les numéros de *Fréquence Sud* existant. Le résultat de ce travail titanesque est accessible ici : https://journals.uct.ac.za/esstic/index.php/frequence_sud/issue/archive .

De même qu'avec Dspace, l'ESSTIC n'a pas les moyens techniques et financiers pour déployer et maintenir OJS. C'est pourquoi nous avons sollicité l'appui de la plateforme continentale de l'Université de Cape Town en Afrique du Sud. Ils nous ont donc fourni un espace sur leur plateforme OJS; afin que la revue *Fréquence Sud* soit présente en ligne et de façon durable.

4.3. Déploiement de la bibliothèque en ligne

La fermeture des bibliothèques et autres lieux publics lors du covid19 a montré l'importance pour les institutions universitaires d'avoir des bibliothèques en ligne. Cependant, plusieurs bibliothèques d'universités africaines ont failli à leur mission durant cette période; car, fonctionnant préférentiellement en mode présentiel/physique. Face à cette défaillance, l'ESSTIC a décidé de faire de sa bibliothèque, une bibliothèque en ligne, accessible en tout temps. Pour ce faire, nous avons fait le choix d'utiliser la plateforme KOHA, qui nous permet donc d'accéder à la bibliothèque de l'ESSTIC à travers ce lien : http://crd.mboalab.africa/
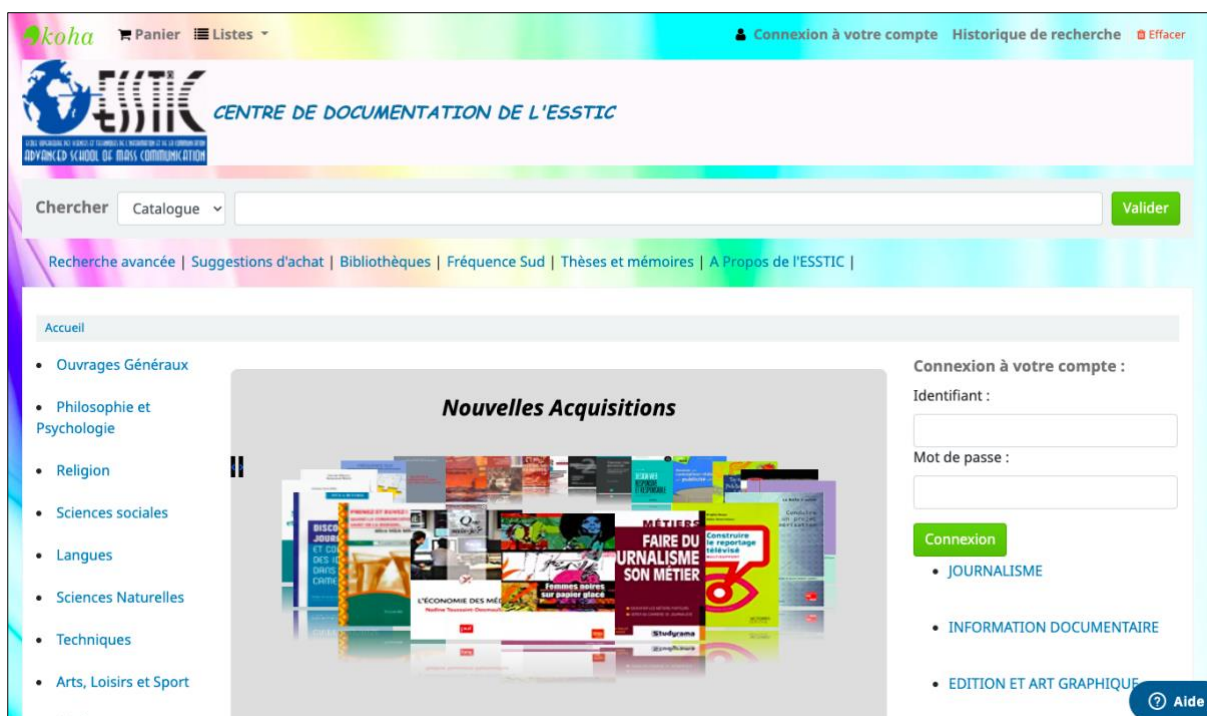
5- Perspectives

Bien que les résultats obtenus jusqu'à présent soient louables, beaucoup de chemin reste encore à faire pour atteindre un niveau satisfaisant d'implémentation de la science ouverte. Dans cette quête constante d'amélioration, nous prévoyons d'ici la fin d'année 2022, de rédiger la politique d'Open Science de l'ESSTIC en s'inspirant du modèle proposé par Libsense. Par ailleurs, sur le plan des bonnes pratiques, nous mettrons tout en œuvre pour que les étudiants et enseignants de l'ESSTIC soient formés à l'auto-archivage et que notre revue *Fréquence Sud* soit indexée dans le DOAJ. À moyen terme, nous souhaitons que l'expérience de l'ESSTIC soit répliquée dans toutes les universités camerounaises.

ÉTUDE DE CAS 14: UNIVERSITÉ DES LETTRES ET SCIENCES HUMAINES (ULSH) BAMAKO, MALI

PRÉPARÉ PAR: Dr Moriké DEMBÉLÉ, Maître – Assistant, Université des Lettres et Sciences Humaines (ULSH) Bamako, Département des Sciences de l'éducation et de la formation,
Abda ANNE, Librarian, Consortium Malien des Bibliothèques

L'Étude de Cas de la Revue « Recherches africaines », à L'ULSHB

Profil et contexte de l'université

La première université publique du Mali a été en 1996 sous le nom de Université du Mali plus tard Université de Bamako. L'Université de Bamako a existé jusqu'en 2011 avant d'être divisée en quatre universités. L'université des Lettres et Sciences Humaines de Bamako (ULSHB) a été créée par Ordonnance N°2011-019/P-RM du 28 septembre 2011 et ratifiée par la loi N°2011/083-AN-RM du 29 décembre 2011 suite à la scission de l'Université de Bamako en quatre universités thématiques. Le Décret N°2011-736/P-RM du 3 novembre 2011 fixe son organisation et les modalités de son fonctionnement. Elle est constituée de quatre (03) structures de formation et de recherche dont :

- La Faculté des Lettres, des Langues et des Sciences du Langage où on enseigne les filières Anglais unilingue et bilingue, Arabe unilingue et bilingue, russe unilingue et bilingue, Allemand unilingue et bilingue, Lettres et Sciences du Langage ;

- La Faculté des Sciences Humaines et des Sciences de l'Education : Philosophie, Sciences de l'Education, Socio-Anthropologie, Psychologie.

- L'institut Universitaire de Technologie : Arts, Métiers du Livre et Communication

- L'institut Confucius

La Revue « *Recherches africaines* », première revue en sciences humaines et sociales à l'Université de Bamako, est née en 2003 et était affiliée à la Faculté des Lettres langues, Arts et Sciences Humaines de Bamako (FLASH). Après la restructuration de l'Université en 2011, la Revue *Recherches africaines* est affiliée à l'Université des Lettres et Sciences Humaines de Bamako (ULSHB). En 2017, une nouvelle Revue est créée, Revue Malienne des Langues et Littératures (RMLL), celle-ci vient renforcer les capacités de publication de l'Université. En 2022, une troisième revue, Kurugan fuga a vu le jour et commencé paraitre totalement en accès libre en ligne. L'ULSHB abrite ajourd'hui 4 revues dont deux opérationnnelles à savoir « Recherches Africaines » et « Revue Malienne de Langues et Littératures » accessiblement en ligne à l'adresse www.revues.ml

Quoi ? Description de la politique - ce qui a changé et la clé Éléments de changement

La revue « *recherches africaines* » a 19 ans. Depuis à sa naissance, elle a été pensée, à la fois en version papier et version numérique. La version numérique a toujours été accès libre en ligne depuis. Cette vision s'est renforcée au fil des années. La mise en ligne s'est progressivement imposée après les cinq premiers numéros, en raison d'abord de la fin du premier financement assuré par la coopération française, mais également parce qu'aucune ligne budgétaire de l'ULSHB ne prenait la publication en version dure. C'est d'ailleurs pourquoi, la revue Kurunga Fuga est essentiellement en ligne en raison des coûts de publication très modestes.

Depuis 2017, la contribution des auteurs a permis de relancer la revue « *recherches africaines* » qui parait régulièrement en double format : format papier et format numérique en ligne. La Revue est reconnue par le Conseil Africain et Malgache pour l'Enseignement Supérieur (CAMES) qui est l'agence d'évaluation et de promotion des universitaires. La publication en ligne de la revue a participé fortement à asseoir sa réputation sous régionale. En effet, elle publie beaucoup d'enseignants –chercheurs et chercheurs de la sous-région.

Sur le plan national, au départ, la mise en ligne des premiers numéros de la revue, n'a pas été une grande réussite en termes d'exploitation ses ressources en ligne à cause du fait que les enseignants –chercheurs et chercheurs nationaux, n'étaient pas forcément initiés à l'exploitation des ressources en ligne. Ce qui a probablement retardé sa réputation nationale. Plus récemment, avec le rajeunissement du personnel enseignant-chercheur de l'Université et des centres de recherche, on observe un regain d'intérêt pour la revue en termes d'exploitation des ressources de la revue en ligne et des propositions de publication.

Pourquoi : Motivation pour le changement

Il y'a quelques années le Mali a changé sa politique de promotion des enseignants et chercheurs. La nouvelle politique de promotion est basée le nombre de publication. Contrairement à leurs aînés, les jeunes enseignants-chercheurs n'ont plus d'autres voies de promotions que la publication d'articles scientifiques. Aussi, les changements résultent des compétitions pour les grades universitaires nationales sous l'égide de la Commission Nationale d'établissement des Listes d'Aptitude (CNELA) et internationales assurées par le Conseil Africain et Malgache de l'enseignement Supérieur (CAMES). Le besoin de publier de publier plus en vue d'avancer dans la carrière universitaire a accru le besoin de canaux locaux de publication en plus des revues internationales dont l'accès n'est pas facile pour certaines thématiques traités par les chercheurs locaux. En plus de la carrière universitaire, il faut souligner également que les chercheurs manifestent de l'intérêt à publier leurs productions scientifiques en ligne parce que ces publications leur permettent d'être connus à l'échelle internationale. La visibilité de leurs travaux sur internet accroît leurs chances d'être repérés et sollicités par des bureaux d'Etudes internationaux pour conduire des recherches dans le domaine de leurs publications. Ils ont en outre la possibilité de nouer des relations d'échanges d'expériences et de pratiques avec d'autres chercheurs de d'autres pays.

Comment : Processus et dynamiques de développement, de mise en œuvre et la gestion du changement (y compris obstacles spécifiques rencontrés)

La mise en ligne des revues est soutenue essentiellement par des difficultés de financement de la publication en version dure mais aussi de l'ouverture que la publication en ligne procure aux contributeurs. Les gestionnaires des revues de l'ULSHB connaissent souvent des difficultés de gestion des sites de revues et tous les directeurs de publication ne connaissent

pas encore les procédures de mise en ligne des articles scientifiques. Les gestionnaires s'appuient généralement sur un personnel technique non recruté à l'Université par des contrats de prestation à énumérer. L'entretien du site d'hébergement est souvent aussi une source de difficulté, faute de budget alloué à cette activité.

Lorsque : Calendrier de développement et de mise en œuvre

Bien que quelques difficultés apparaissent ici et là dans le changement vers le tout numérique en ligne des revues ULSHB, les gestionnaires de revues sont presque tous portés vers la publication en ligne pour les facilités qu'elle offre et l'ouverture au monde qu'elle incarne. A partir de 2023, la Revue « *recherches africaines »* se propose de ne plus publier en version papier.

REGIONAL LEVEL POLICY DEVELOPMENT/COORDINATION CASE STUDIES

ÉTUDE DE CAS 1: LE CONSEIL AFRICAIN ET MALGACHE POUR L'ENSEIGNEMENT SUPÉRIEUR (CAMES)

PRÉPARÉ PAR: Zakari Lire, Head of the Information and Documentation Center (CID-CAMES)

Un organisme d'harmonisation des politiques et des systèmes d'enseignement supérieur et de recherche

Crée en janvier 1968, le Conseil africain et malgache pour l'enseignement supérieur (CAMES) est un organisme d'harmonisation des politiques et des systèmes d'enseignement supérieur et de recherche. C'est un cadre commun de promotion des enseignant-e-s et des chercheur-e-s travaillant au sein des institutions d'enseignement supérieur et centres de recherche de dix-neuf (19) pays membres, répartis entre l'Afrique de l'Ouest, l'Afrique centrale et l'Océan indien : Bénin, Burkina Faso, Burundi, Cameroun, Centrafrique, Congo, Côte d'Ivoire, Gabon, Guinée, Guinée-Bissau, Guinée Équatoriale, Madagascar, Mali, Niger, République Démocratique du Congo, Rwanda, Sénégal, Tchad, Togo (Cissé, 2018).

De par sa mission et ses objectifs, il constitue un :

- cadre régional de concertation des ministres responsables de l'enseignement supérieur et de la recherche des États membres ;

- un espace d'échange et de réseautage des universités et centres de recherche des États membres;

- un cadre légitime d'assurance qualité et d'accréditation pour les États membres ;

- vaste réseau d'experts qualifiés selon son référentiel dans plusieurs domaines et spécialités.

Depuis 2013, l'organisation sous régionale africaine a adopté un plan stratégique de développement 2015-2019. Ce plan a été renouvelé pour la période 2020-2022. Il comporte sept (7) axes innovants qui mettent en exergue, entre autres, l'appropriation du numérique éducatif, la valorisation de la recherche et de l'innovation par la promotion de la science ouverte. Cette ambition est matérialisée par plusieurs initiatives la création du Dépôt institutionnel du CAMES (DICAMES) comme archive numérique ouverte à vocation panafricaine.

Le DICAMES, un outil stratégique pour la promotion de la science ouverte et du partage des données

L'Open Access ou le libre accès rappelle les trois grandes déclarations publiques celle de Budapest en février 2002 de Bethesda en juin 2003 et celle de Berlin en octobre 2003. Conformément à l'esprit de Budapest, il se définit comme un mouvement visant à :

la mise à disposition sur l'Internet public, permettant à tout usager

- de lire, télécharger, copier, diffuser et imprimer ces articles, de lancer une recherche dans ces articles,

- de créer un lien vers leur texte intégral, de les compiler pour les indexer, de les convertir en données pour traitement logiciel,

- et de les utiliser à toute autre fin légale, sans barrières financières, juridiques ou techniques autres que celles de l'accès à l'Internet lui-même. (Suber, 2012, p. 27).

La notion plus englobante de **science ouverte** lui est intimement liée et contribue à lui donner toute sa signification, car elle vise à rendre accessibles les résultats de la recherche scientifique, les données et leur diffusion.

Le DICAMES[8] s'inscrit dans la stratégie de réponse du CAMES à une de ses missions statutaires consistant en la collecte et la diffusion de la connaissance scientifique. Cette mission est prise en charge depuis 2001 par le Centre d'information et de documentation (CID). Dans cette optique, plusieurs projets ont été réalisés :

- le projet de numérisation des thèses et des mémoires avec l'appui technique de l'Agence universitaire de la Francophonie (AUF) (1995-1997);

- le projet « Thèses en Afrique » dans le cadre du Fonds francophone des inforoutes de l'information (FFI), en partenariat avec l'Institut de recherche pour le développement (IRD) (2010);

- la bibliothèque numérique du CAMES dans le cadre de l'initiative Système d'information et technique (SIST) financée par la coopération française (2007-2009)

La création du DICAMES est finalement intervenue en 2018, suite de l'implémentation réussie d'un projet pilote mené en partenariat avec une équipe de recherche du département d'information et de communication de l'Université Laval. Ce dépôt institutionnel vise à donner un accès libre et ouvert à l'information scientifique pertinente produite en Afrique. À cet égard, il :

- assure une diffusion large des productions scientifiques ;

- favorise des échanges entre les chercheur-e-s ;

- accroît la visibilité des productions scientifiques des enseignant-e-s-chercheur-e-s et des étudiant-e-s des pays africains ;

- améliore la trouvabilité et l'accessibilité de ces productions scientifiques grâce à l'indexation par les moteurs de recherche tels que Google Scholar ;

- permet une conservation pérenne de ces productions.

L'adhésion à la plateforme DICAMES se fait sur la base d'une lettre d'entente entre le CAMES et les institutions d'enseignement supérieur et de recherche. Chaque institution partenaire et/ou membre s'engage à respecter les directives validées par les instances scientifique et politique du CAMES. Pour l'essentiel, le CAMES assure l'administration l'infrastructure technique (la plateforme numérique) et veille à la qualité des données

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[8] https://dicames.online/jspui/

enregistrées dans le dépôt. Le modèle ainsi promu constitue un espace de solidarité et de partage des responsabilités. Dix-sept (17) universités de l'espace régional utilisent activement aujourd'hui le DICAMES comme outil de diffusion de leur production scientifique.

Une vision en cohérence avec les tendances régionales et internationales

Le changement impulsé par le CAMES est motivé par la nécessité de combler le déficit de visibilité de la production scientifique africaine qui représente à peine 2% de la production mondiale. Ce changement de cap correspond à une exigence de justice cognitive perçue comme un idéal épistémologique, éthique et politique visant l'éclosion de savoirs socialement pertinents partout sur la planète et non pas seulement dans les pays du Nord, au sein d'une science pratiquant un universalisme inclusif, ouvert à tous les savoirs (Piron et al. 2016; UNESCO, 2015). Il s'appuie sur un usage intelligent du numérique pour répondre à un besoin informationnel de la communauté universitaire et de recherche. Les initiatives actuelles du CAMES en matière de diffusion d'information scientifique et technique convergent toutes vers l'édification d'un écosystème ouvert et intégré, en phase avec la recommandation de l'UNESCO sur la science ouverte adoptée à l'occasion de la 41e session se Conférence générale tenue à Paris du 9 au 24 novembre 2021.

Une dynamique qui s'inscrit dans une stratégie institutionnelle

Le CAMES poursuit sa vision par le déploiement d'une stratégie institutionnelle autour de trois axes complémentaires relatifs à la gouvernance numérique; la formation, la recherche et l'innovation ; la synergie et les partenariats stratégiques. Les directives du DICAMES constituent donc l'embryon d'une véritable politique régionale sur la science ouverte qui reste à construire de concert avec l'ensemble des partenaires régionaux concernés. Les pays et les institutions pourront à leur tour traduire cette politique en stratégies nationales et institutionnelles.

Bibliographie

CAMES. 2013. Plan stratégique de développement du CAMES 2015-2019;

CAMES. 2019. Plan stratégique de développement du CAMES 2020-2022

CHARTRON, Ghislaine et SCHÖPFEL, Joachim. 2017. Libre accès aux publications et sciences ouvertes en débat. Revue française des sciences de l'information et de la communication, (11). http://journals.openedition.org/rfsic/2868 .

PIRON, Florence, Regulus, Samuel, Dibounje Madiba, Marie Sophie. 2016. Justice cognitive, libre accès et savoir locaux. Pour une science ouverte au service du développement local durable, Québec, Editions science et bien commun, 465 p.

Suber, P. (2016). Qu'est-ce que l'accès ouvert ? OpenEdition Press. https://doi.org/10.4000/books.oep.1600

APPENDIX

Appendix 1: Checklist for universities on implementing the UNESCO Recommendation on Open Science

AREAS OF ACTIONS

Promoting a common understanding of open science, associated benefits and challenges, as well as diverse paths to open science

- **Promote and support the common understanding of open science** as defined in this Recommendation (see the Glossary), within the scientific community and among the different open science actors, and **strategically plan and support open science awareness raising at the institutional, national and regional levels** while respecting diversity of open science approaches and practices.

- **Ensure that publicly funded research is undertaken based on the principles of open science** in line with the provisions of this Recommendation, and that the scientific knowledge from the publicly funded research, including scientific publications, open research data, open software, source code and open hardware, is openly licensed or dedicated to the public domain.

- **Encourage bibliodiversity through the diversity of formats and means of publications and diversity of business models, by supporting not-for-profit, academic and scientific community-driven publishing models as a common good**.

- **Encourage multilingualism** in the practice of science, in scientific publications and in academic communications.

- **Ensure that the needs and rights of communities**, including the rights of indigenous peoples over their traditional knowledge **should not be infringed on in open science practices**.

- **Enhance open science communication** to support the dissemination of scientific knowledge to scholars in diverse research fields, decision makers and the public at large.

- **Engage the private sector in the discussion** about the ways in which the scope of open science principles and priorities can be enlarged and mutually shared.

- **Enable open multi-stakeholder discussions on open science benefits and its real and apparent challenges** as regards, for example, competition, extraction and exploitation of data by more advanced technologies, links to intellectual property rights, privacy, security and inequalities between publicly and privately funded research, in order to address these challenges constructively and implement open science practices in line with the values and principles outlined in this Recommendation.

Developing an enabling policy environment for open science

- **Develop or encourage policy environments**, including those at the institutional, national, regional and international levels **that support operationalization of open science and effective implementation of open science practices, including policies to incentivize open science practices among researchers**. Through a transparent

participatory, multi-stakeholder process that includes dialogue with the scientific community, especially early-career researchers, and other open science actors.

- **Develop effective institutional and national open science policies and legal frameworks** that are consistent with existing international and regional law and are in line with the definition, values and principles as well as actions outlined in this Recommendation.

- **Align open science policies, strategies and actions from individual institutions to local and international levels**, while respecting the diversity of open science approaches.

- **Mainstream gender equality aspects** into open sciences policies, strategies and practices.

- **Implement policies and strategies for open science**.

- **Enhance the inclusion of citizen and participatory science as integral parts of open science policies and practices** at the national, institutional and funder levels.

- **Design models that allow co-production of knowledge with multiple actors** and establish guidelines to ensure the recognition of nonscientific collaborations.

- **Encourage responsible research and researcher evaluation and assessment practices**, which incentivize quality science, recognizing the diversity of research outputs, activities and missions.

- **Foster equitable public-private partnerships for open science and engage the private sector in open science**, provided that there is appropriate certification and regulation to prevent vendor lock-in, predatory behaviour and unfair and/or inequitable extraction of profit from publicly funded scientific activities. Given the public interest in open science and the role of public funding, Member States should ensure that the market for services, relating to science and open science, functions in the global and public interest and without market dominance on the part of any commercial entity.

- **Design, implement and monitor funding and investment policies and strategies for science based on the core values and principles of open science**. The costs associated with operationalization of open science relate to the support of open science research, publishing, data and coding practices, the development and adoption of open science infrastructures and services, capacity building of all actors and innovative, highly collaborative and participatory approaches to the scientific enterprise.

Investing in open science infrastructures and services

- **Promote non-commercial open science infrastructures** and ensure adequate investment in the following:

    - **Science, technology and innovation;**

- **Reliable Internet connectivity and bandwidth** for use by scientists and science users

- **National research and education networks (NRENs)** and their functionality, encouraging regional and international collaboration to ensure maximum interoperability and alignment between NREN Services.

- **Non-commercial infrastructures**, including computing facilities and digital public infrastructure and services supporting the open science approach. These should facilitate ensuring the long-term preservation, stewardship and community control of research products, including scientific information, data, source code and hardware specifications, co-operation among researchers and the sharing and reuse of research products. Any research-supporting infrastructure or service should have a strong community-led base and ensure interoperability and inclusivity. Digital infrastructures for open science should be based, as far as possible, on open source software stacks. These open infrastructures could be supported by direct funding and through an earmarked percentage of each funded grant.

- **Federated information technology infrastructure for open science**, including high-performance computing, cloud computing and data storage where needed, and robust, open and community managed infrastructures, protocols and standards to support bibliodiversity and engagement with society. While avoiding fragmentation by enhancing the federation of existing open science infrastructures and services, at the national, regional and international levels, attention should be given to ensuring that this infrastructure is accessible for all, internationally interconnected and as interoperable as possible, and that it follows certain core specifications, notably the FAIR (Findable, Accessible, Interoperable, and Reusable) and CARE (Collective Benefit, Authority to Control, Responsibility and Ethics) principles for data stewardship.

- **North-South, North-South-South and South-South collaborations to optimize infrastructure use and joint strategies for shared, multinational, regional and national open science platforms**, including through the promotion of research collaborations, sharing of open science infrastructures, technical assistance, transfer and coproduction of technology related to open science and exchange of good practices under mutually agreed terms.

- **A new generation of open information technology tools** that automate the process of searching and analysing linked publications and data, making the process of generating and testing hypotheses faster and more efficient.

- **Innovative approaches at different stages of the scientific process and the international scientific collaboration**.

- **Funding for the necessary costs associated with transformation towards and maintaining open science practices, as well as the promotion of open licensing schemes**.

- **Platforms for exchanges and co-creation of knowledge between scientists and society**, including through predictable and sustainable funding for volunteer organizations conducting citizen science and participatory research at the local level.

- **Community-based monitoring and information systems** to complement national, regional and global data and information systems.

Investing in human resources, training, education, digital literacy and capacity building for open science

- **Provide systematic and continuous capacity building on open science concepts and practices**, including broad comprehension of the open science guiding principles and core values as well as technical skills and capacities in digital literacy, digital collaboration practices, data science and stewardship, curation, long-term preservation and archiving, information and data literacy, web safety, content ownership and sharing, as well as software engineering and computer science.

- **Agree on a framework of open science competencies** aligned with specific disciplines for researchers at different career stages, as well as for actors active in the private and public sectors or in civil society, who need specific competences to include the use of open science products in their professional careers; and **develop recognized skills and training programmes in support of the attainment of these competencies**. A core set of data science and data stewardship skills, skills related to intellectual property law, as well as skills needed to ensure open access and engagement with society, as appropriate, should be regarded as part of the foundational expertise of all researchers and incorporated into higher education research skills curricula.

- **Invest in and promote advanced education and the professionalization of roles in data science and data stewardship**. Enabling open science also requires data governors capable, in cooperation with the scientific community, of setting strategic directions for data management and openness at the national or local levels and advanced and professional data stewards who manage and curate data according to agreed principles, notably FAIR and CARE principles, within trusted institutions or services. In order to take advantage of the opportunities offered by open science, research projects, research institutions and civil society initiatives need to call on advanced data science skills including analysis, statistics, machine learning, artificial intelligence, visualization and the ability to write code and use algorithms with scientific and ethical responsibility.

- **Promote the use of open educational resources** (OER), as an instrument for open science capacity building. OER should therefore be used to increase access to open

science educational and research resources, improve learning outcomes, maximize the impact of public funding and empower educators and learners to become co-creators of knowledge.

- **Support science communication accompanying open science practices** with a view to the dissemination of scientific knowledge to scholars in other research fields, decision-makers and the public at large. Dissemination of scientific information through scientific journalism and media, popularization of science, open lectures and various social media communications builds public trust in science while increasing the engagement of societal actors beyond the scientific community. To avoid misinterpretation and dissemination of misinformation, the quality and appropriate citation of original sources of information are of paramount importance to science communication as regards open science.

Fostering a culture of open science and aligning incentives for open science

- **Engage actively in removing the barriers for open science, particularly those relating to research and career evaluation and awards systems**. Assessment of scientific contribution and career progression rewarding good open science practices is needed for operationalization of open science. Attention should also be given to preventing and mitigating the unintended negative consequences of open science practices, such as predatory behaviours, data migration, exploitation and privatization of research data, increased costs for scientists and high article processing charges associated with certain business models in scientific publishing that may be causes of inequality for the scientific communities around the world and, in some cases, the loss of intellectual property and knowledge.

- **Combine efforts** of many different stakeholders, including research funders, universities, research institutions, publishers and editors, and scientific societies across disciplines and countries, **to change the current research culture and to recognize researchers for sharing, collaborating and engaging with other researchers and society**, and to support, in particular, early-career researchers in particular to drive this cultural change.

- **Review research assessment and career evaluation systems in order to align them with the principles of open science**. Considering that a commitment to open science requires time, resources and efforts that cannot be automatically converted into traditional academic output, such as publications, but which can have a significant impact on science and society, evaluation systems should take into account the wide breadth of missions within the knowledge creation environment. These missions come with different forms of knowledge creation and communication, not limited to publishing in peer reviewed international journals.

- **Promote the development and implementation of evaluation and assessment systems** that:

- **build on the existing efforts to improve the ways in which the scientific outputs are evaluated**, such as the 2012 San Francisco Declaration on Research Assessment, with an increased focus on the quality of research outputs rather than quantity, and by fit-for-purpose use of diversified indicators and processes that forego the use of journal based metrics such as the journal impact factor;

- **give value to all relevant research activities and scientific outputs** including high-quality FAIR data and metadata, well-documented and reusable software, protocols and workflows, machine-readable summaries of findings, and teaching, outreach and engagement of societal actors;

- **take into account evidence of research impact and knowledge exchange**, such as widening participation in the research process, influence on policy and practice and engaging in open innovation with partners beyond academia;

- **take into account the fact that diversity of disciplines requires different approaches in open science**;

- **take into account the fact that assessment of researchers against open science criteria should be fit for different stages of careers**, with particular attention to researchers at the beginning of their careers.

- **Ensure that the practice of open science is well known, and is taken into account as a scientific and academic recruitment and promotion criterion**.

- **Adopt policies that require and reward open access to scientific knowledge, including scientific publications, open research data, open software, source code and open hardware**, in line with the provisions of this Recommendation (see the Glossary).

- **Ensure diversity in scholarly communications with adherence to the principles of open, transparent and equitable access and supporting non-commercial publishing models and collaborative publishing models with no article processing charges or book processing charges**.

- **Enforce effective governance measures and proper legislation in order to address inequality and prevent related predatory behaviours** as well as to protect the intellectual creation of open science methods, products and data.

- **Promote materials that are in the public domain and existing open licensing schemes, copyright and other intellectual property exceptions** for research and educational uses that allow distribution and re-use of a copyright work, or work subject to other intellectual property protection, including partial or derivative use, on the condition that the creator is appropriately credited, in accordance with international law.

- **Promote high-quality and responsible research and explore the potential of open science practices to reduce scientific misconduct**, including the fabrication and falsification of results, violation of scientific ethical norms, and plagiarism.

Promoting innovative approaches for open science at different stages of the scientific process

- **Promote open science from the outset of the research process** and extending the principles of openness in all stages of the scientific process to improve quality and reproducibility, including the encouragement of community-driven collaboration and other innovative models, for example preprints, clearly distinguished from final peer-reviewed publications, and respecting the diversity of scientific practices, in order to accelerate dissemination and encourage rapid growth in scientific knowledge.

- **Promote, as appropriate, open peer review evaluation practices** including possible disclosure of the identity of the reviewers, publicly available reviews and the possibility for a broader community to provide comments and participate in the assessment process.

- **Encourage and value publication and sharing of negative scientific results** and those that do not conform to the results expected by the researchers who carried them out, and data associated with them, as these results also contribute to the advancement of scientific knowledge.

- **Develop new participatory methods and validation techniques to incorporate and value inputs from social actors beyond the traditional scientific community**, including through citizen science, crowdsource based scientific projects, citizen involvement in community-owned archival institutions, and other forms of participatory science.

- **Develop participatory strategies for identifying the needs of marginalized communities and highlighting socially relevant issues** to be incorporated into the science, technology and innovation (STI) research agendas.

- **Develop strategies that facilitate the deposit of data in archives** in order to promote their curation and preservation and make them usable and reusable for the appropriate time period.

- **Promote the development of shared infrastructures** for the collection, preservation and user-friendly access to open-source software and source code.

- **Support scientists and other societal actors in accumulating and using open data** resources in a transdisciplinary mode to maximize scientific, social, economic and cultural benefits, and stimulate the creation of hybrid disciplinary collaborative spaces where scientists from different disciplines interact with software developers, coders, creatives, innovators, engineers and artists, among others.

- **Encourage sharing, promote interoperability, and enhance open access of large-scale research infrastructures**, such as international infrastructures in physics,

astronomy and space science, as well as collaborative infrastructures in other fields, such as health and environmental and social sciences, among others.

- **Promote open innovation practices that connect the practices of open science to more rapid translation and development of its discoveries**. Like open science, open innovation and other open science partnerships assume broad and effective engagement and participation in the innovation process as well as the discovery and development of a business model for effective commercialization of new knowledge.

Promoting international and multi-stakeholder cooperation in the context of open science and with a view to reducing digital, technological and knowledge gaps

- **Promote and reinforce international cooperation among all open science actors**, whether on a bilateral or multilateral basis.

- **Encourage international scientific collaborations**, as one of the integral practices of open science and the most important driving factor for an intensive exchange of scientific knowledge and experience, as well as the paramount for the openness of science.

- **Promote and stimulate cross-border multi-stakeholder collaboration on open science**, including by leveraging existing transnational, regional and global collaboration mechanisms and organizations. This should include joining efforts towards universal access to the outputs of science, regardless of discipline, geography, gender, ethnicity, language or socioeconomic circumstances or any other grounds, development and use of shared open science infrastructures, as well as technical assistance and transfer of technology, capacity building, repositories, communities of practice and solidarity between all countries regardless of their state of open science development.

- **Establish regional and international funding mechanisms for promoting and strengthening open science and identify those mechanisms**, including partnerships, which can support international, regional and national efforts.

- **Support the creation and maintenance of effective collaborative networks to exchange best open science practices and lessons learned** from the design, development and implementation of open science policies, initiatives and practices.

- **Promote cooperation among countries in capacity building for open science**, including infrastructure development, software sustainability and data management and stewardship and to prevent the exploitation and misuse of open data across borders.

- **Promote international collaboration on metrics for open science**.

MONITORING

- **Monitor policies and mechanisms related to open science** using a combination of quantitative and qualitative approaches, as appropriate.

- **Deploy appropriate monitoring and evaluation mechanisms to measure the effectiveness and efficiency of open science policies and incentives** against defined objectives, including the identification of unintended consequences and potential negative effects, especially on early-career researchers.

- **Collect and disseminate progress, good practice, innovation and research reports on open science and its implications**, with the support of UNESCO and with a multi-stakeholder approach.

- **Consider the development of a monitoring framework with qualitative and quantitative indicators**, within national strategic plans and shared at the international level, with objectives and actions in the short, medium and long term. **The monitoring of open science should be explicitly kept under public oversight**, including the scientific community, **and whenever possible supported by open non-proprietary and transparent infrastructures**. This monitoring aspect could include but should not be delegated to the private sector.

- **Develop strategies to monitor the effectiveness and long-term efficiency of open science**, which include a multi-stakeholder participatory approach. Such strategies could focus on strengthening the nexus between science, policy and society, increased transparency and accountability for inclusive and equitable quality research, which effectively responds to global challenges.

GLOSSARY

Open Science

For the purpose of this Recommendation, open science is defined as an inclusive construct that combines various movements and practices aiming to make multilingual scientific knowledge openly available, accessible and reusable for everyone, to increase scientific collaborations and sharing of information for the benefits of science and society, and to open the processes of scientific knowledge creation, evaluation and communication to societal actors beyond the traditional scientific community. It comprises all scientific disciplines and aspects of scholarly practices, including basic and applied sciences, natural and social sciences and the humanities, and it builds on the following key pillars: open scientific knowledge, open science infrastructures, science communication, open engagement of societal actors and open dialogue with other knowledge systems.

Open scientific knowledge: scientific publications, open research data, open educational resources, open-source software, open hardware

Open scientific knowledge refers to open access to scientific publications, research data, metadata, open educational resources, software, and source code and hardware that are

available in the public domain or under copyright and licensed under an open licence that allows access, re-use, repurpose, adaptation and distribution under specific conditions, provided to all actors immediately or as quickly as possible regardless of location, nationality, race, age, gender, income, socio-economic circumstances, career stage, discipline, language, religion, disability, ethnicity or migratory status or any other grounds, and free of charge. It also refers to the possibility of opening research methodologies and evaluation processes. Users therefore gain free access to the following:

a. **Scientific publications** that include, among others, peer-reviewed journal articles and books, research reports and conference papers. Scientific publications may be disseminated by publishers on open access online publishing platforms and/or deposited and made immediately accessible in open online repositories upon publication, that are supported and maintained by an academic institution, scholarly society, government agency or other well established not-for-profit organization devoted to common good that enables open access, unrestricted distribution, interoperability and long-term digital preservation and archiving. Scientific outputs related to publications (e.g. original scientific research results, research data, software, source code, source materials, workflows and protocols, digital representations of pictorial and graphical materials and scholarly multimedia material) that are openly licensed or dedicated to the public domain should be deposited in a suitable open repository, following appropriate technical standards that allow them to be properly linked to publications. A paywalled method of publication, where immediate access to scientific publications is only granted in exchange for payment, is not aligned with the present Recommendation. Any transfer or licensing of copyrights to third parties should not restrict the public's right to immediate open access to a scientific publication.

b. **Open research data** that include, among others, digital and analogue data, both raw and processed, and the accompanying metadata, as well as numerical scores, textual records, images and sounds, protocols, analysis code and workflows that can be openly used, reused, retained and redistributed by anyone, subject to acknowledgement. Open research data are available in a timely and user-friendly, human- and machine-readable and actionable format, in accordance with principles of good data governance and stewardship, notably the FAIR (Findable, Accessible, Interoperable, and Reusable) principles, supported by regular curation and maintenance.

c. **Open educational resources** that include teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions, as defined in the 2019 UNESCO Recommendation on Open Educational Resources (OER), in particular those related to the understanding and use of other openly accessible scientific knowledge.

d. **Open source software** and source code that generally include software whose source code is made publicly available, in a timely and user-friendly manner, in human- and machine-readable and modifiable format, under an open license that grants others the right to use, access, modify, expand, study, create derivative works and share the software and its source code, design or blueprint. The source code must be included in the software release and made available on openly accessible repositories and the chosen license must allow modifications, derivative works and sharing under equal or compatible open terms and

conditions. In the context of open science, when open source code is a component of a research process, enabling reuse and replication generally requires that it be accompanied with open data and open specifications of the environment required to compile and run it.

e. **Open hardware** that generally includes the design specifications of a physical object which are licensed in such a way that said object can be studied, modified, created and distributed by anyone, providing as many people as possible with the ability to construct, remix and share their knowledge of hardware design and function. In the case of both open source software and open hardware, a community-driven process for contribution, attribution and governance is required to enable reuse, improve sustainability and reduce unnecessary duplication of effort. Software code, description of tools, samples of equipment and equipment itself may be freely circulated and adapted provided that this complies with the national legislation in terms of ensuring safe use.

Open science infrastructures

Open science infrastructures refer to shared research infrastructures (virtual or physical, including major scientific equipment or sets of instruments, knowledge-based resources such as collections, journals and open access publication platforms, repositories, archives and scientific data, current research information systems, open bibliometrics and scientometrics systems for assessing and analysing scientific domains, open computational and data manipulation service infrastructures that enable collaborative and multidisciplinary data analysis and digital infrastructures) that are needed to support open science and serve the needs of different communities. Open labs, open science platforms and repositories for publications, research data and source codes, software forges and virtual research environments, and digital research services, in particular those that allow to identify unambiguously scientific objects by persistent unique identifiers, are among the critical components of open science infrastructures, which provide essential open and standardized services to manage and provide access, portability, analysis and federation of data, scientific literature, thematic science priorities or community engagement. Different repositories are adapted to the specificity of the objects they contain (publications, data or code), to local circumstances, user needs and the requirements of research communities, yet should adopt interoperable standards and best practices to ensure the content in repositories is appropriately vetted, discoverable and reusable by humans and machines. Open innovation testbeds including incubators, accessible research facilities, open license stewards, as well as science shops, science museums, science parks and exploratories, are additional examples of open science infrastructures providing common access to physical facilities, capabilities and services. Open science infrastructures are often the result of community-building efforts, which are crucial for their long-term sustainability and therefore should be not-for-profit and guarantee permanent and unrestricted access to all public to the largest extent possible.

Open engagement of societal actors

Open engagement of societal actors refers to extended collaboration between scientists and societal actors beyond the scientific community, by opening up practices and tools that are part of the research cycle and by making the scientific process more inclusive and accessible

to the broader inquiring society based on new forms of collaboration and work such as crowdfunding, crowdsourcing and scientific volunteering. In the perspective of developing a collective intelligence for problem solving, including through the use of transdisciplinary research methods, open science provides the basis for citizen and community involvement in the generation of knowledge and for an enhanced dialogue between scientists, policymakers and practitioners, entrepreneurs and community members, giving all stakeholders a voice in developing research that is compatible with their concerns, needs and aspirations. Furthermore, citizen science and citizens' participation have developed as models of scientific research conducted by non-professional scientists, following scientifically valid methodologies and frequently carried out in association with formal, scientific programmes or with professional scientists with web-based platforms and social media, as well as open-source hardware and software (especially low-cost sensors and mobile apps) as important agents of interaction. For the effective reuse of the outputs of citizen and participatory science by other actors, including scientists, these products should be subject to the curation, standardization and preservation methods necessary to ensure the maximum benefit to all.

Open dialogue with other knowledge systems

Open dialogue with other knowledge systems refers to the dialogue between different knowledge holders, that recognizes the richness of diverse knowledge systems and epistemologies and diversity of knowledge producers in line with the 2001 UNESCO Universal Declaration on Cultural Diversity. It aims to promote the inclusion of knowledge from traditionally marginalized scholars and enhance inter-relationships and complementarities between diverse epistemologies, adherence to international human rights norms and standards, respect for knowledge sovereignty and governance, and the recognition of rights of knowledge holders to receive a fair and equitable share of benefits that may arise from the utilization of their knowledge. In particular, building the links with indigenous knowledge systems needs to be done in line with the 2007 United Nations Declaration on the Rights of Indigenous Peoples and principles for Indigenous Data Governance, such as, for example, the CARE (Collective Benefit, Authority to Control, Responsibility and Ethics) data principles. Such efforts acknowledge the rights of indigenous peoples and local communities to govern and make decisions on the custodianship, ownership and administration of data on traditional knowledge and on their lands and resources.