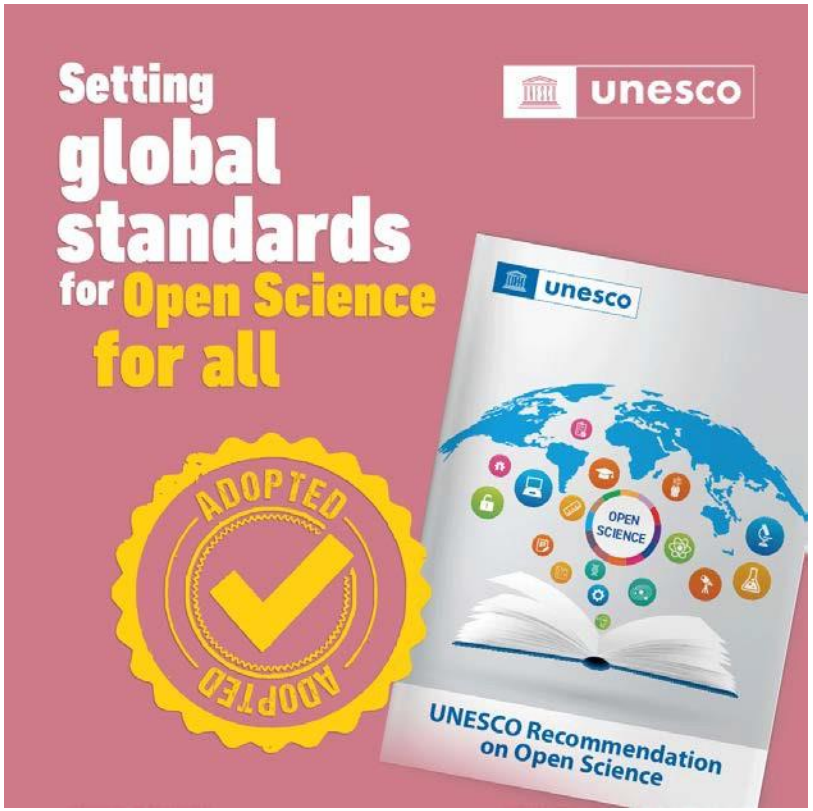
Open science training

Iryna Kuchma, EIFL Open Access Programme

"**Building a cohort of open scholarship trainers to boost adoption of DataCite open infrastructure services among the Consortium of Uganda University Libraries**" Busitema University Library, May 27, 2024

eifl KNOWLEDGE WITHOUT BOUNDARIES

UNESCO Recommendation on Open Science



- It is the first **international normative instrument** on Open Science;
- it contains the first **internationally agreed definition** of Open Science;
- it spells out the consensus **core values and guiding principles** of Open Science;
- it addresses **multiple actors and stakeholders** of Open Science;
- It recommends **actions on different levels** to operationalize the principles of Open Science;
- it proposes **innovative approaches for Open Science at different stages** of the scientific cycle;
- it calls for development of a **comprehensive Open Science monitoring framework**.

Open science is a practice to make 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

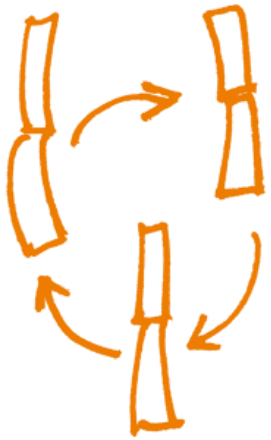
UNESCO Recommendation on Open Science, 2021


Open scientific knowledge
Open dialogue with other knowledge systems
Open science infrastructures
Open engagement of societal actors
OPEN SCIENCE
Scientific publications
Open research data
Open educational resources
Open source software and source code
Open hardware
Indigenous peoples
Marginalised scholars
Local communities
Virtual
Physical
Crowdfunding
Crowdsourcing
Scientific volunteering
Citizen and participatory science

Open science practices

Open Access to publications, data, software and other research outputs

Research data management according to CARE (Collective Benefit, Authority to Control, Responsibility and Ethics) and FAIR (Findable, Accessible, Interoperable and Reusable) principles



Open Educational Resources

Research ethics and integrity

Free and Open Source Software

Open hardware

Reproducibility practices (preregistration, registered reports, open algorithms, notebooks, models, protocols and workflows, etc.)

Reform of research assessment systems and practices to reward and incentivise quality, impact and openness

Citizen/community science and science communication

Infrastructures & systems for open science

High speed digital communication links and internet

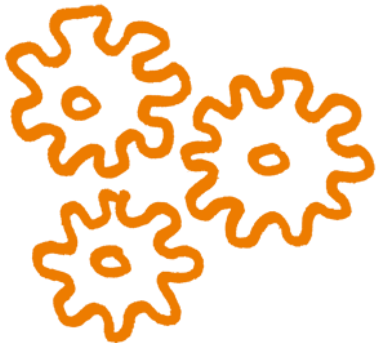
Computing and data infrastructure, based, as far as possible, on open source software stacks

Publishing platforms and repositories based, as far as possible, on open source software stacks

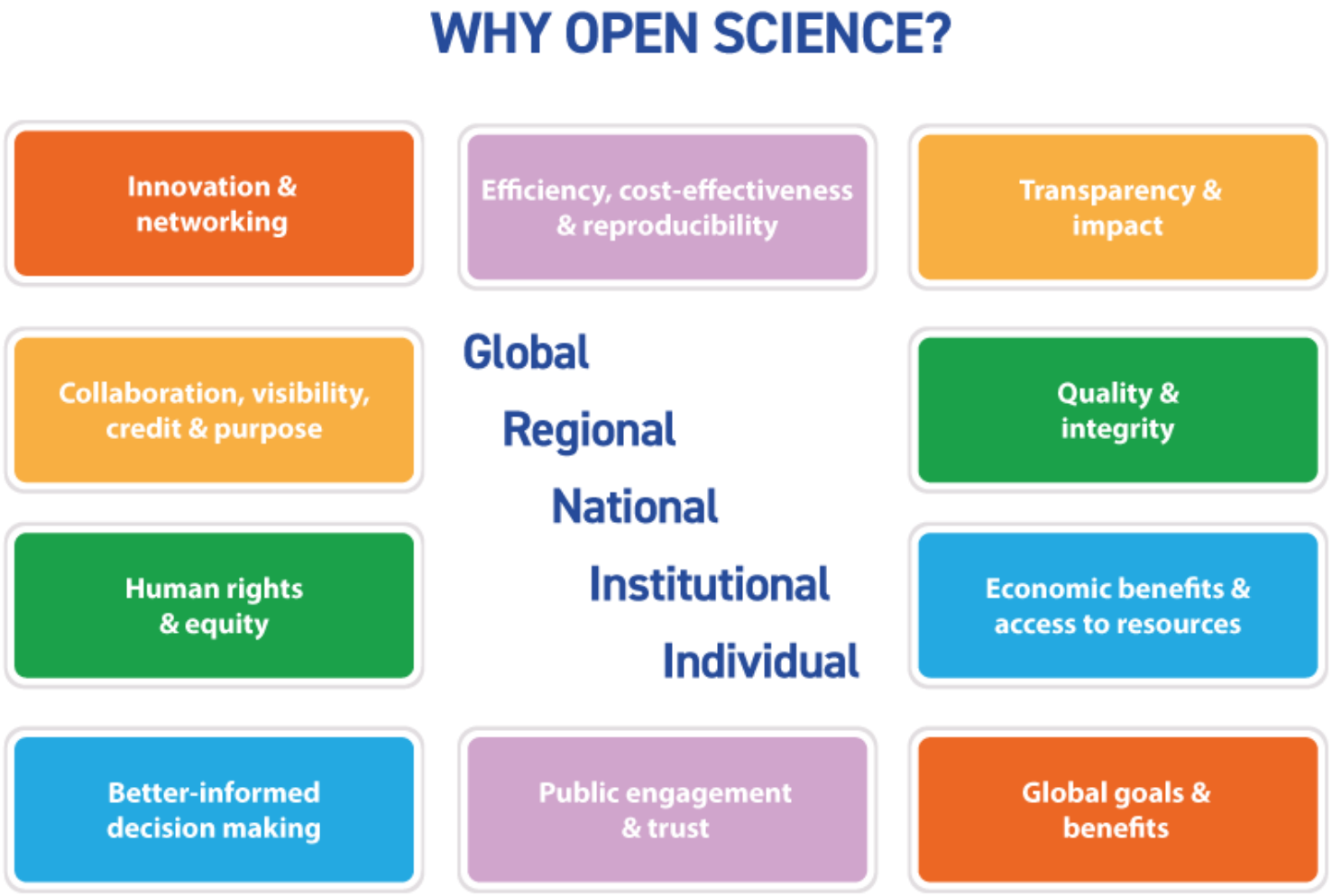
Persistent identifiers (PIDs) and authentication and authorisation systems (AAI)

Digital skills required to manage research data, access and manage ICT infrastructures, and to practice open, reproducible and responsible research

Supportive legal and regulatory environment



Benefits of open science

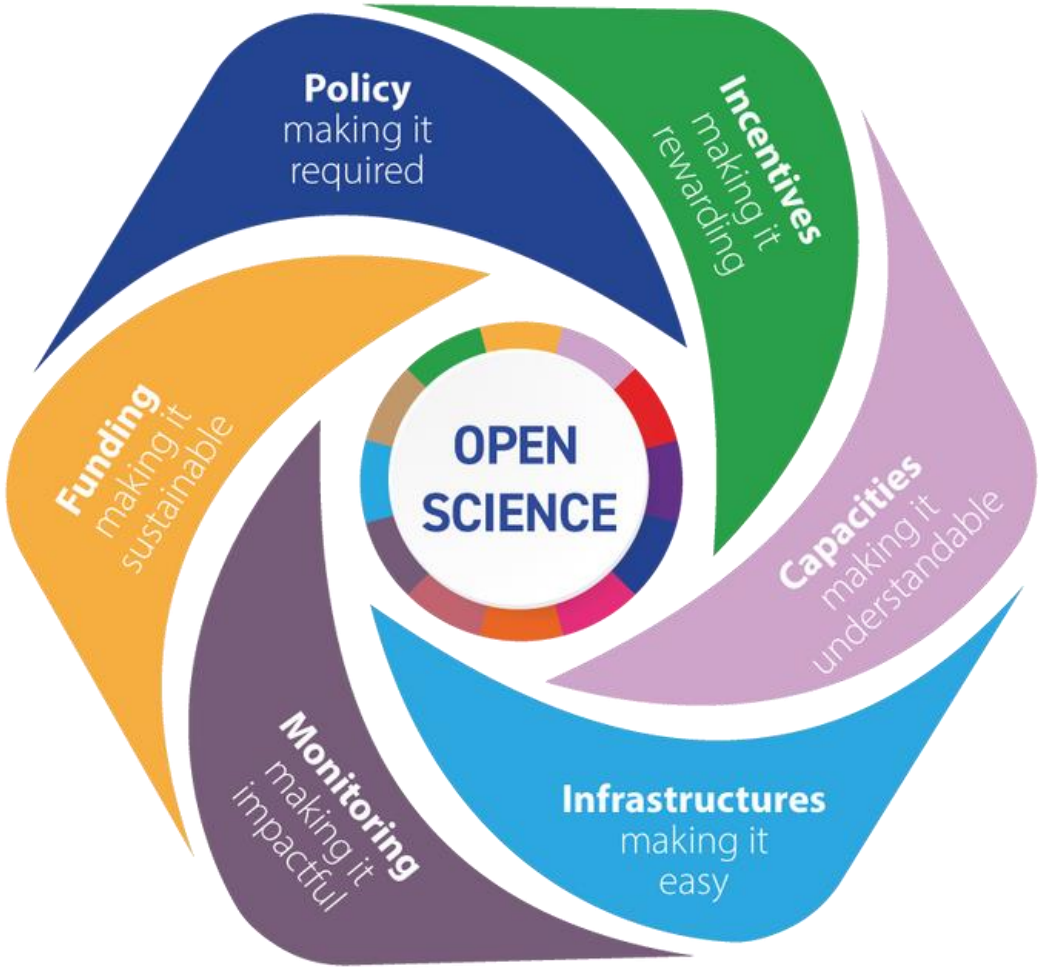


Shifting the culture of science

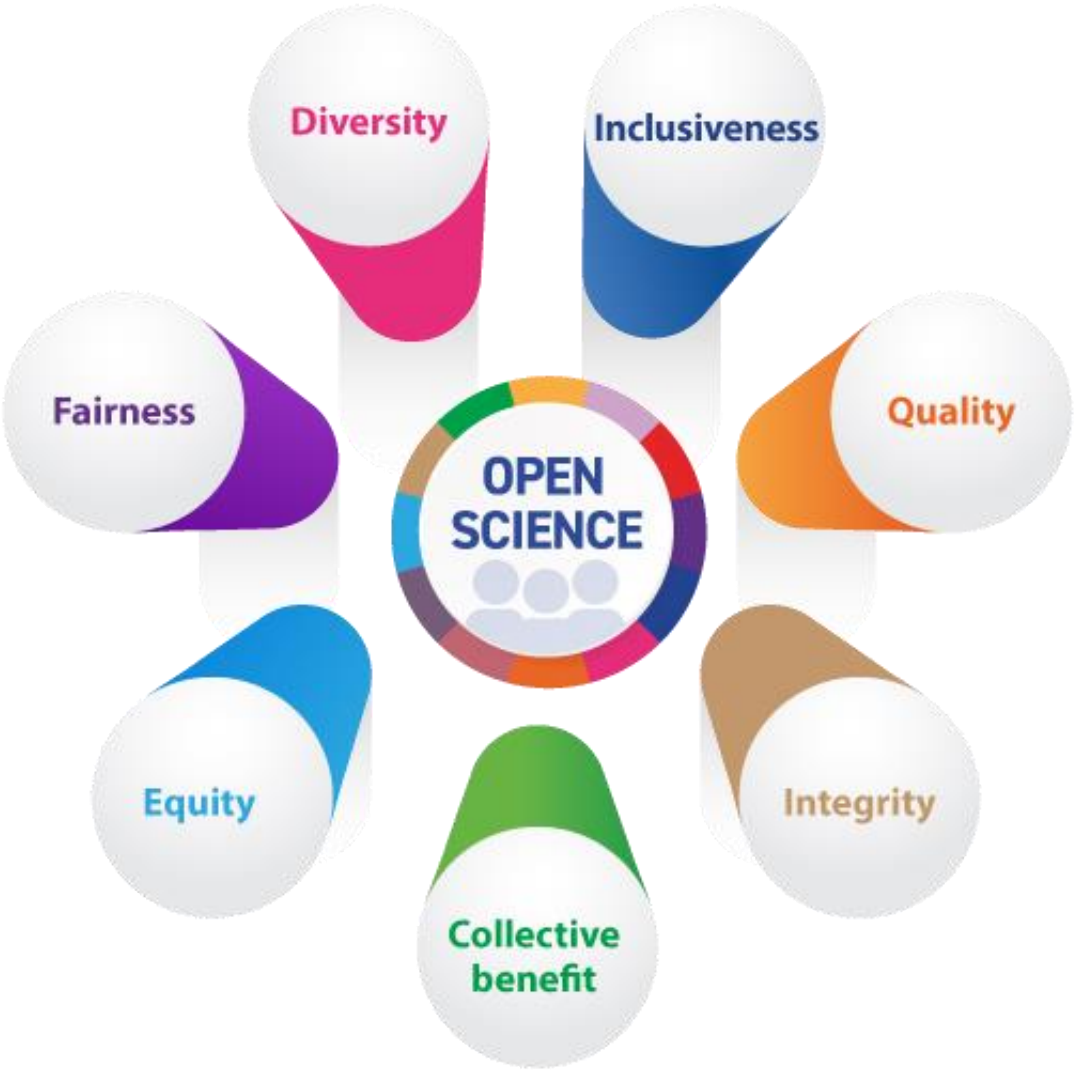
Need practical actions and cultural shifts

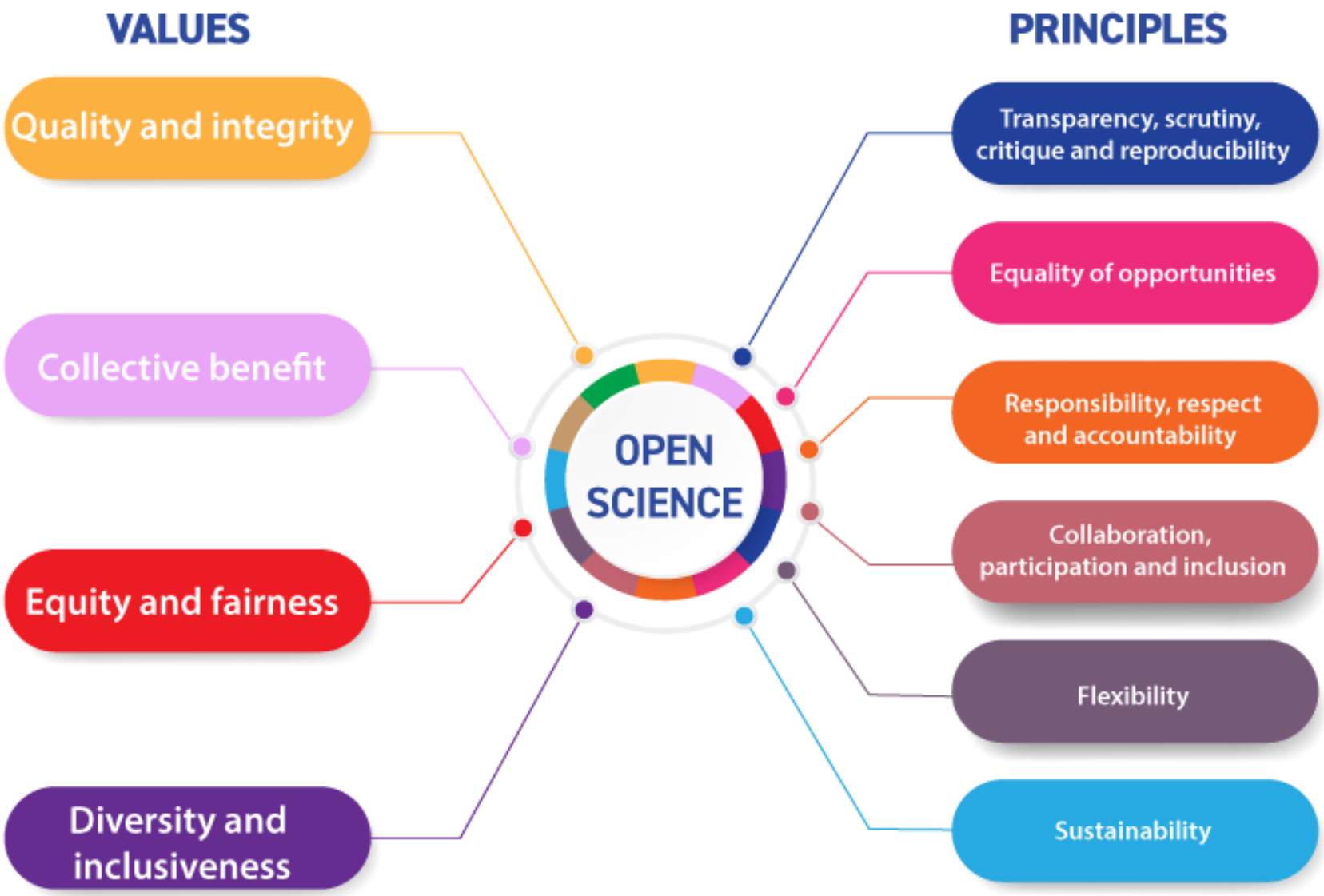
Equitable collaboration

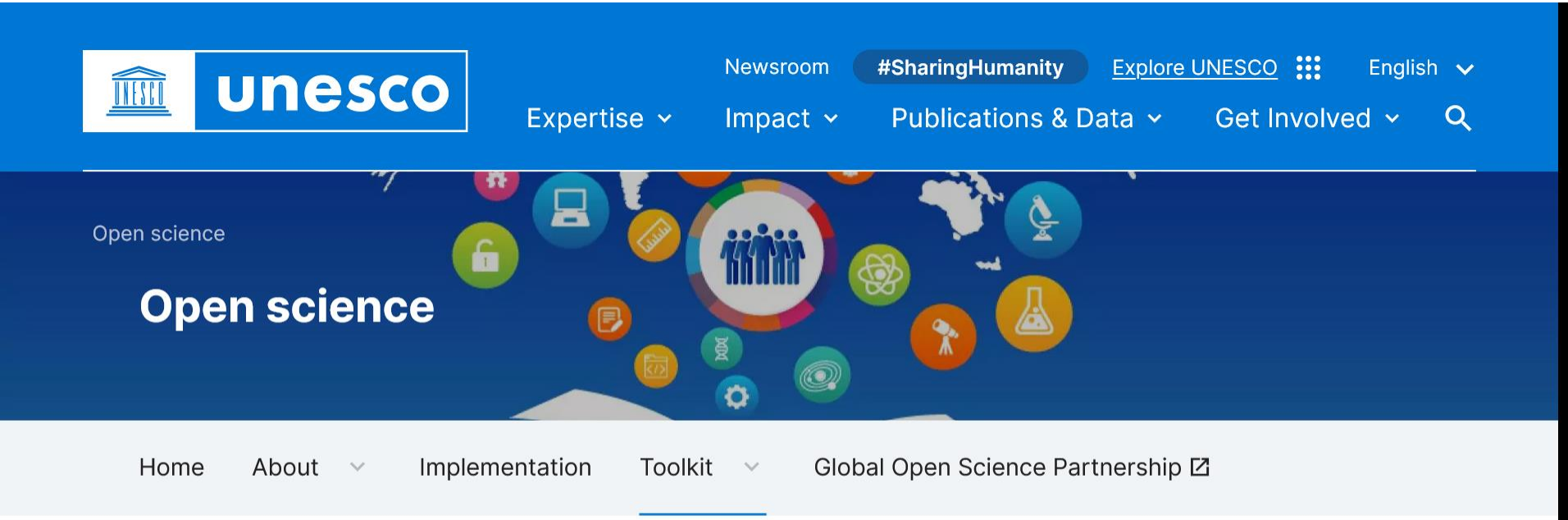
Actions are underway around the world: Cases from all regions demonstrate opportunities



Open science values provide a shared and flexible framework




VALUES
Quality and integrity
Collective benefit
Equity and fairness
Diversity and inclusiveness
OPEN SCIENCE
PRINCIPLES
Transparency, scrutiny, critique and reproducibility
Equality of opportunities
Responsibility, respect and accountability
Collaboration, participation and inclusion
Flexibility
Sustainability



Open Science Toolkit

https://www.unesco.org/en/open-science/toolkit

Capacity building for open science

- Provide **systematic and continuous capacity-building for open science**.
- Develop **individual Human Resources criteria for recognizing and rewarding open science in job descriptions, performance appraisals, and promotion criteria**. These should take into account staff members' multiple responsibilities — from research outputs to teaching to public engagement as well as considering collaborative and team accomplishments in addition to individual accomplishments when appropriate.

Open science infrastructures

- Review the capabilities of the institutional existing organizational infrastructures — check on **accessibility, interoperability, whether all settings are open science friendly**
- Review **procurement parameters** for infrastructure investments to support openness. Prioritize, as far as possible, **open source software stacks** for digital infrastructures for open science.
- Encourage the **use of PIDs**, such as: ORCID for people, Digital Object Identifiers (DOIs) for outputs, ROR ids for organizations.

Expected outputs

- Researchers, research administrators and managers, ICT staff, librarians, policy makers, citizens and community researchers understand open science principles and benefits, have knowledge and skills to practice open science and have access to on-the-job capacity development opportunities, including training on Research Data Management based on the FAIR and CARE principles.
- Institutional and national focal points for open science are set up, drive the open science agenda and provide support.

Agenda 2063: Launch of 2nd Decade of Acceleration

Share:

February 17, 2024 to February 18, 2024

Deputy Chairperson

- Home
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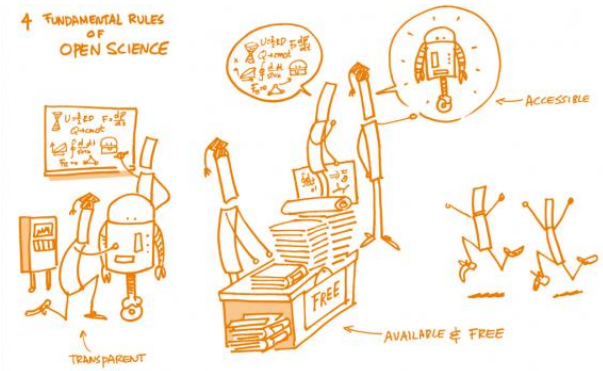
français

"Promote and facilitate intra-African and international research collaboration and mobility and **adopt the culture of open sciences**"

https://au.int/en/newsevents/20240217/agenda-2063-launch-2nd-decade-acceleration

Science, Technology and Innovation Strategy for Africa 2024, African Union Commission

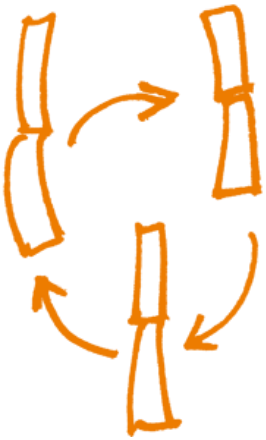
"A multi-disciplinary and multi-sectoral approach to **Collaborative Open Innovation** and Entrepreneurship and **entrepreneurial innovation based on Open Data**, essential to achieving the Knowledge Economy and sustainable socio-economic development across Africa"



Digital Transformation Strategy for Africa (2020-2030)

"**open standards and interoperability** for cross-border trust framework, personal data protection and privacy"

"use and creation of **open educational resources**"

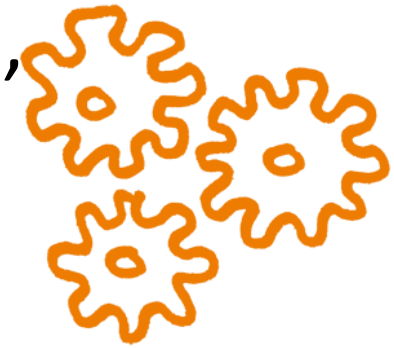


"**open data policies**"

"**policies and strategies that support Open Access to Scientific Knowledge**"

AU Data Policy Framework

Promotes **interoperability, data sharing**, and responsiveness to data demand through the setting of **open data standards** in data creation conforming to the general principles of anonymity, privacy, security, and any sector-specific data considerations to facilitate non-personal data, and certain categories of personal data are accessible to African researchers, innovators and entrepreneurs.



AU Data Policy Framework (2)

Calls to improve unevenly developed infrastructure across the continent to support efficient broadband network coverage, reliable energy supply, and foundational digital (data) infrastructure and systems, cloud and data infrastructure, and **open data sharing systems**; and to govern the integrated national data system according to the principles of **access, availability, openness** (where anonymity can be preserved), **interoperability, safety, security, quality, and integrity**.

EIFL Strategic Plan 2024-2026
Support research, teaching and learning
Enhance open science/open research skills

Organize ‘train the trainer’ activities

Create training materials

Provide advice, knowledge and training to partner institutions and countries that are launching research data management services, ensuring as open as possible, as closed as necessary research data

EIFL DIGITAL RESEARCH LITERACY TRAINING PROGRAMME OUTLINE FOR LIBRARIANS (UPDATED)

Training programme outline to enable university and research libraries to help researchers and students produce quality research outputs

ABOUT THE RESOURCE

TYPE:	GUIDE, CURRICULUM
PUBLISHER:	EIFL
DATE:	APRIL 2024
LICENCE:	CREATIVE COMMONS ATTRIBUTION 4.0 INTERNATIONAL (CC BY 4.0)
DOCUMENT LANGUAGE:	ENGLISH

This is the third updated version of the EIFL Digital Research Literacy Training Programme Outline for Librarians, which is now available online or for download in PDF [for PDF click the download button on the left].

Digital research literacy comprises the skills, knowledge and understanding required to produce quality research outputs in a digital environment. The EIFL Digital Research Literacy Training Programme Outline for Librarians enables librarians to train and support researchers and students to produce quality research outputs. It is organized according to the research cycle: Discover, Manage Research Data, Publish, Disseminate and Increase Visibility, and Measure Impact. Each section gives an overview of the topic, what the trainer should cover, and what the learner should gain by the end of the training.

https://eifl.net/resources/eifl-digital-research-literacy-training-programme-outline-librarians-updated-2

EIFL DIGITAL RESEARCH LITERACY TRAINING PROGRAMME OUTLINE FOR LIBRARIANS

Introduction

Digital research literacy comprises the knowledge and skills required to produce quality research outputs in a digital environment.

To support university and research libraries that are helping researchers and students to produce quality research outputs, EIFL compiled a training programme outline, which is organized according to the research cycle, and held 12 webinars to support use of the training outline.

We would like to acknowledge all the people, organizations and projects whose resources are included in the outline. Our special thanks go to the staff of the University of Dublin College Library, especially Julia Barrett, who helped us to create this resource.

How can librarians use this resource?

This resource is organized according to the research cycle: Discover, Manage Research Data, Publish, Disseminate and Increase Visibility, and Measure Impact.

https://eifl.net/programme/digital-research-literacy/eifl-digital-research-literacy-training-programme-outline

their own training.

We encourage you to become familiar with this training programme and to adapt and use relevant topics to train librarians, students and researchers. In addition to using the content provided in this training programme, we suggest you follow the recommendations below on how to plan, organize and evaluate your training.

- Guide "Training Methodologies", Gender and Technology Institute.
- Guide "Training evaluation", Mind Tools.
- "The Open Science Training Handbook", sections "On Learning and Training", "Organizational Aspects" and "Examples and Practical Guidance", p.90-169. DOI: https://doi.org/10.5281/zenodo.2587951
- EIFL Open Science train-the-trainer course materials.

If you would like to suggest new content and resources for consideration, please contact us at: info@eifl.net

You can also download a printable version of the EIFL Digital Research Literacy Training Programme Outline for Librarians.

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https://eifl.net/programme/digital-research-literacy/eifl-digital-research-literacy-training-programme-outline

DISSEMINATE AND INCREASE VISIBILITY

Institutional repository

Preprints

Persistent identifiers for research outputs, researchers and institutions: DOIs, ORCID and ROR

Social media for research

MEASURE IMPACT

Introduction to research metrics

Make your work count

Table of contents

DISCOVER

- Find your topic and review literature
- Search Google and Google Scholar
- Free discovery tools and platforms
- Manage your references
- Keep up to date on your topic

MANAGE RESEARCH DATA

- Managing and sharing research data
- Writing a data management plan (DMP)

PUBLISH

- Academic integrity

https://eifl.net/programme/digital-research-literacy/eifl-digital-research-literacy-training-programme-outline

MANAGING AND SHARING RESEARCH DATA

This training covers the key issues involved in managing research data and the overall benefits of following best practice in this area.

By the end of this training, learners should:

- Understand which data they can make open and which need to be protected.
- Understand the FAIR and CARE data principles.
- Be able to select which data to keep and find an appropriate repository for them.
- Understand funder requirements regarding data.
- Understand what personal data are and how they can protect them, what to consider when developing consent forms, how to store data securely and how to anonymize data.
- Understand how to re-use data and how to select the appropriate licence for their data.
- Understand research data management for basic quality assurance, replicability and reusability.
- Learn tips for how to get maximum impact from their research data.

https://eifl.net/programme/digital-research-literacy/managing-and-sharing-research-data

Training Outline:

- Why data management is important. What are the efficiencies and the drivers (micro / macro)?
- Data organization, documentation and metadata.
- Data storage and back-up.
- Legal and ethical requirements.
- Data sharing and re-use.
- Long-term preservation.
- FAIR and CARE data principles.
- Data management responsibilities.

Resources for facilitators and learners

Online Courses:

- As this is a complex area, to deepen your knowledge, we suggest you complete five short courses developed by FOSTER:
  - "Managing and Sharing Research Data", FOSTER.
  - "Data protection and Ethics", FOSTER.

Webinars:

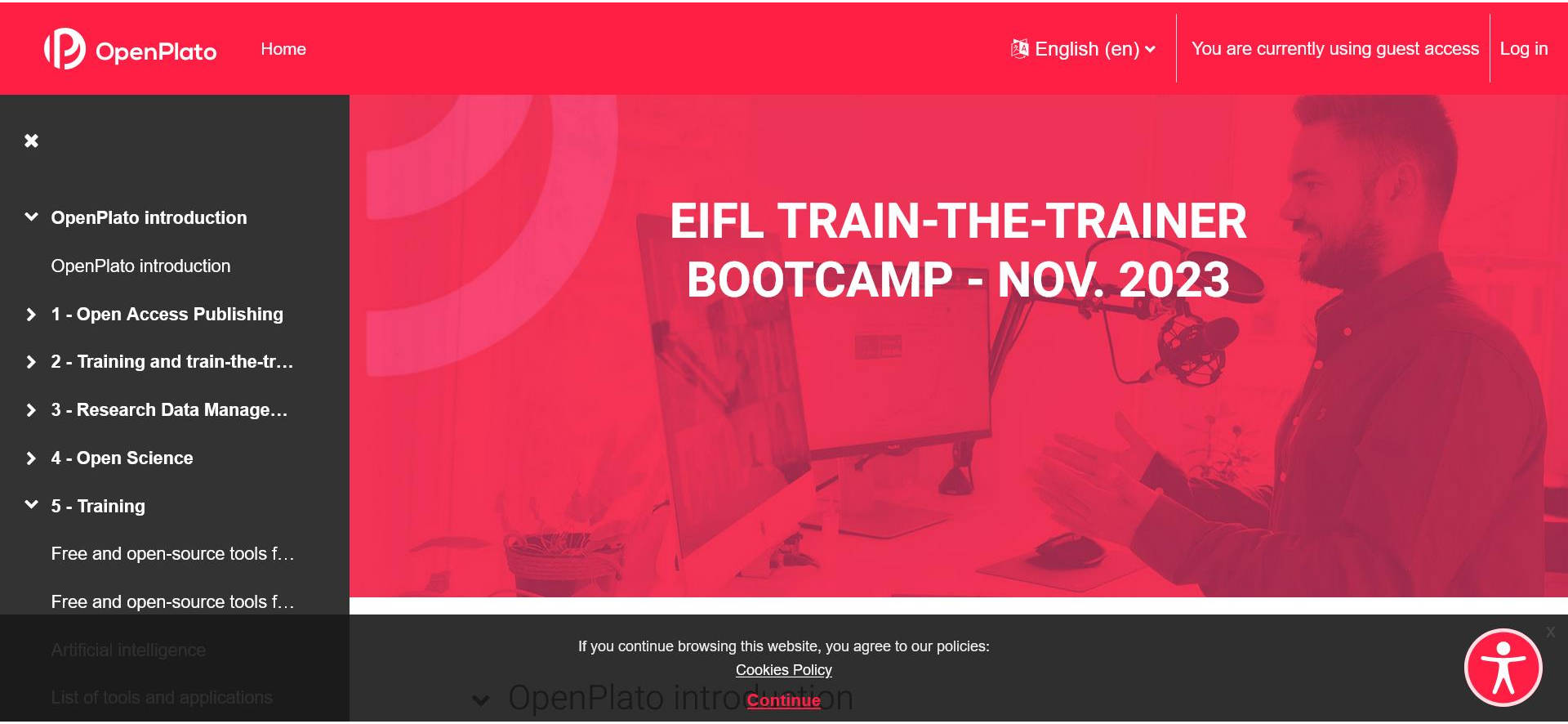
- Webinar recording and slides:"Research data management and open data: Training approaches", Obrad Vučkovac; Irena Nježić. In this EIFL train-the-trainer bootcamp session Obrad Vučkovac talks about research data management and FAIR (Findable, Accessible, Interoperable and Reusable) data principles. Irena Nježić provides an overview of research data management plans and talks about research data publishing. Presentations and other support materials are available on OpenPlato

Library Guides:

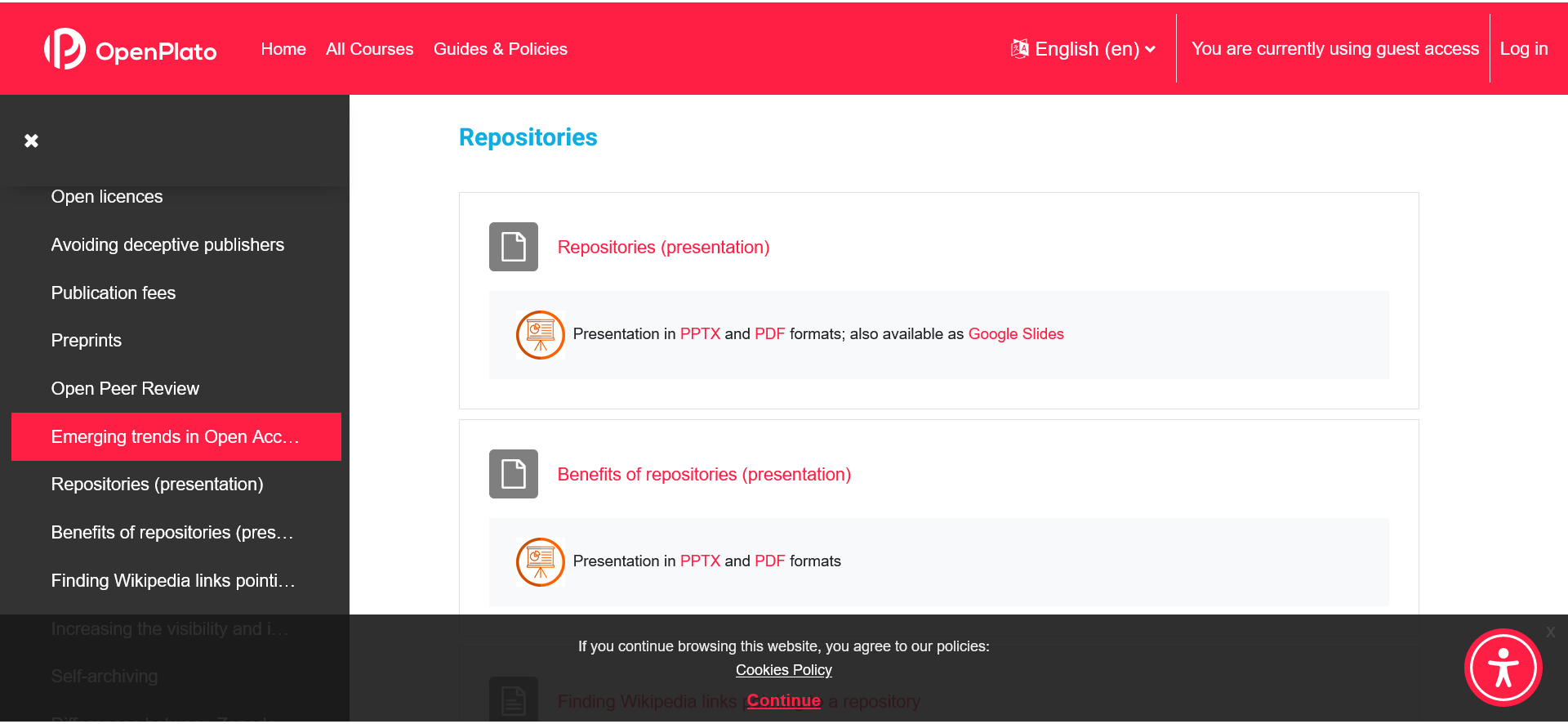
- “Research Data management”, University College Dublin.

Examples of presentations, practical exercises, guides and tip sheets:

- Obrad Vučkovac. “Research Data Management" [download].
- Obrad Vučkovac. “FAIR principles" [download].
- Irena Nježić. “Data publishing" [download].
- Amanda Doran. “Managing your research data: all disciplines”, University College Dublin.
- Information sheet “Where to submit data”, University College Dublin.
- Guide for Researchers “How do I know if my research data is protected”, OpenAIRE.
- Guide for Researchers “How do I license my research data”, OpenAIRE.
- Guide for Researchers “Can I reuse someone else’s research data”, OpenAIRE.
- Guide for Researchers “How to comply with Horizon Europe mandate for Research Data Management”, OpenAIRE.
- Guide for Researchers “RDM in Horizon Europe proposals”, OpenAIRE.
- Guide for Researchers “How to identify and assess Research Data Management costs in H2020 projects”, OpenAIRE



https://openplato.eu/course/view.php?id=62



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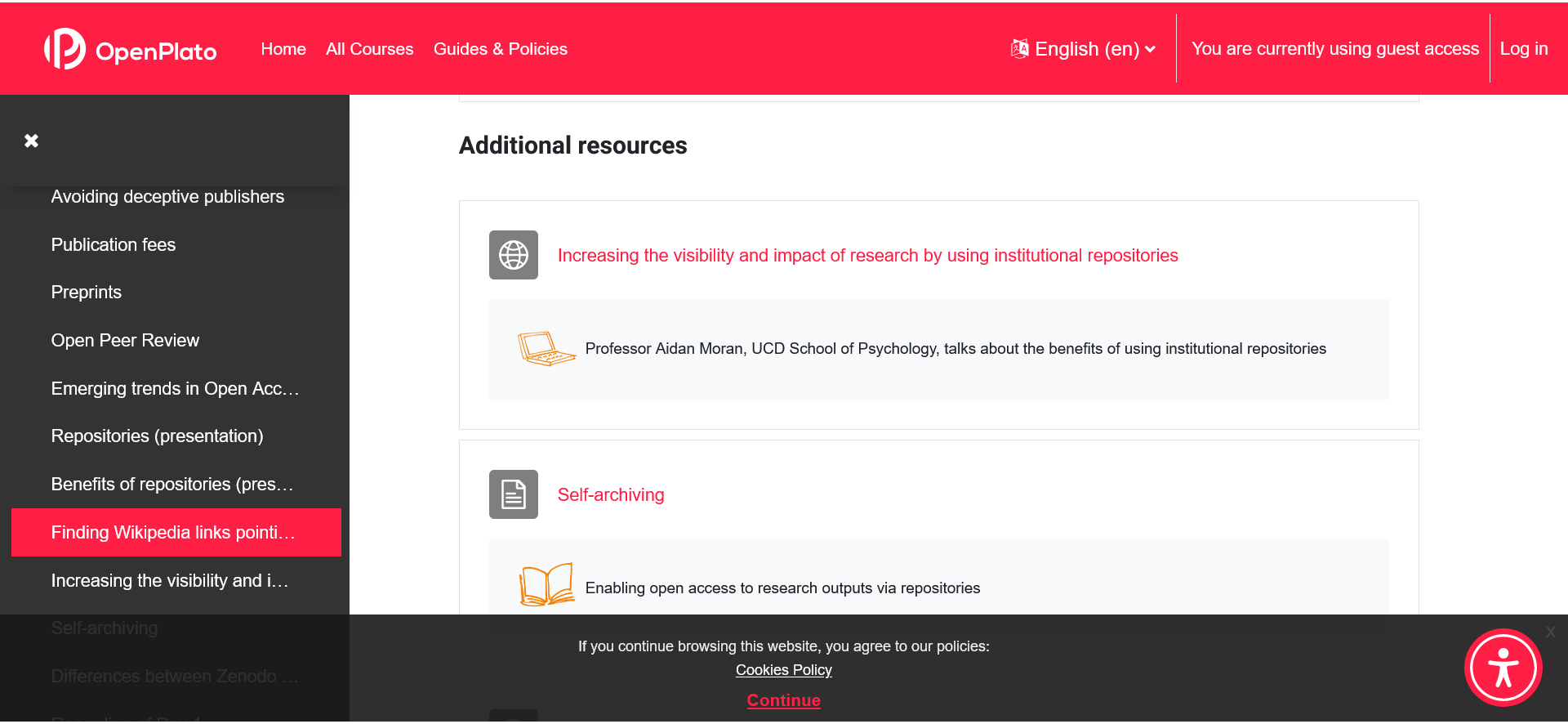


https://openplato.eu/course/view.php?id=62

EIFL Open Science trainers community

Contact iryna.kuchma@eifl.net if you want to join a mailing list

Shared notes from meetings: https://pad.riseup.net/p/ostraining

Open science for the health sciences

Link

Open Science and AI

Link

Zotero public collections

- Disputable journals:

https://www.zotero.org/groups/5259897/disputable_journals/items/AB6CUFNP/library

- Academic integrity:

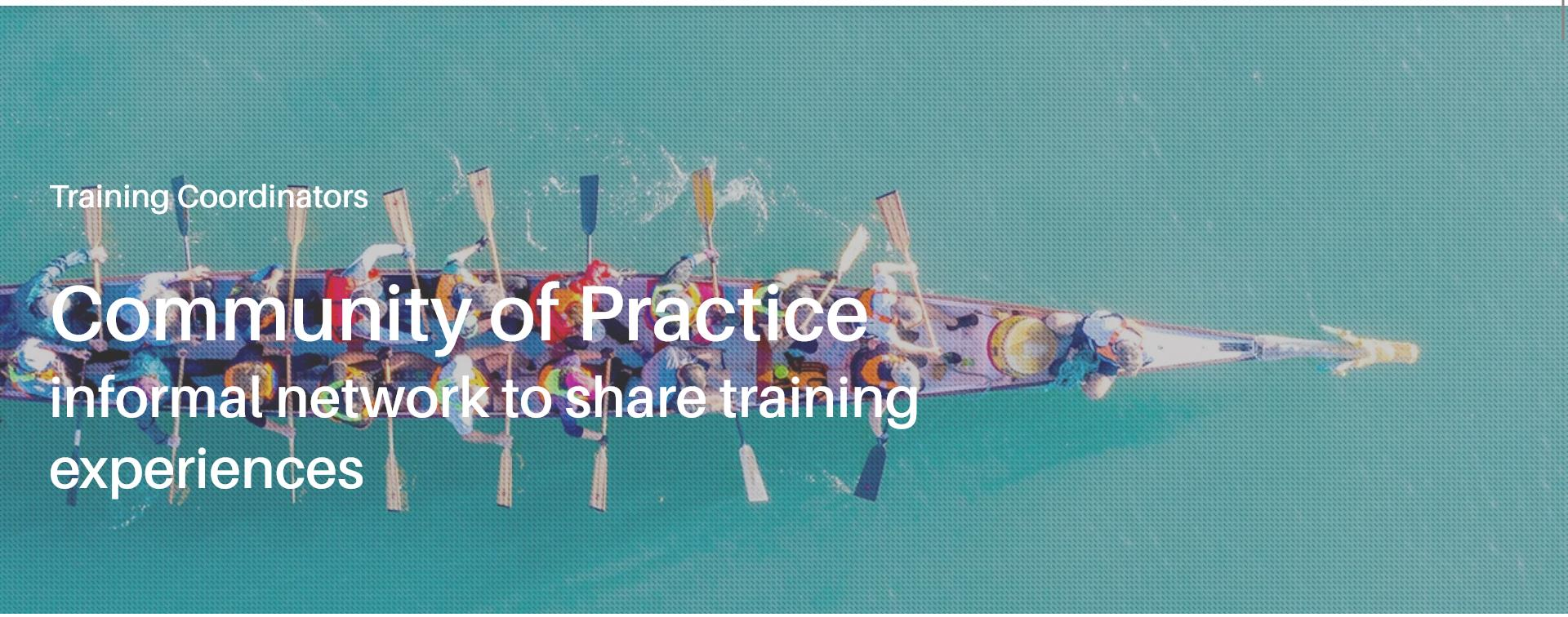
https://www.zotero.org/groups/2888253/academicresearch_integrity/library

- Generative AI:

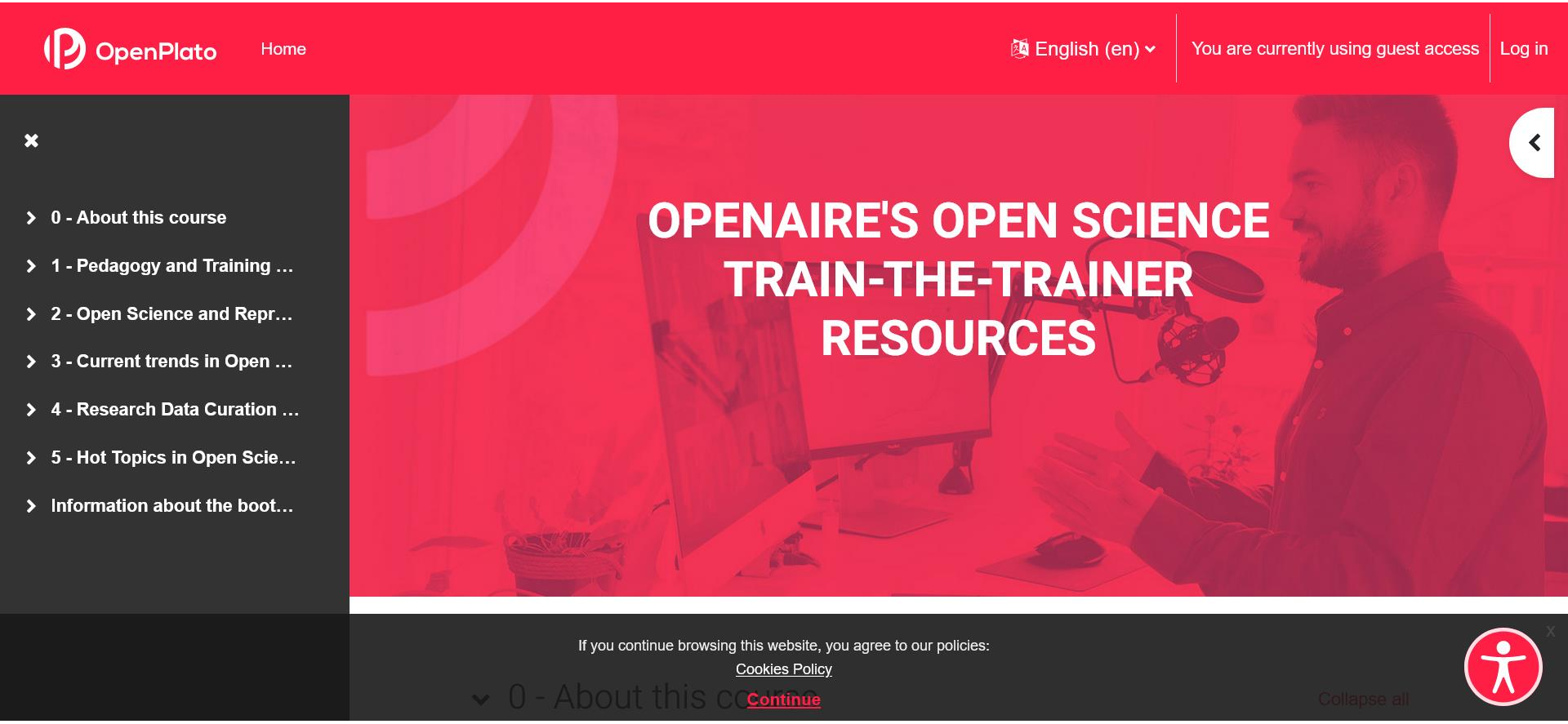
https://www.zotero.org/groups/5131206/generative_ai_and_related_phenomena/library

- Open science for the health sciences:

https://www.zotero.org/groups/5490937/open_science_for_the_health_sciences/library



https://www.openaire.eu/cop-training



https://openplato.eu/course/view.php?id=59&lang=en

INOSC News Vision & Mission Board OSCs Members Events Start your own OSC

INOSC

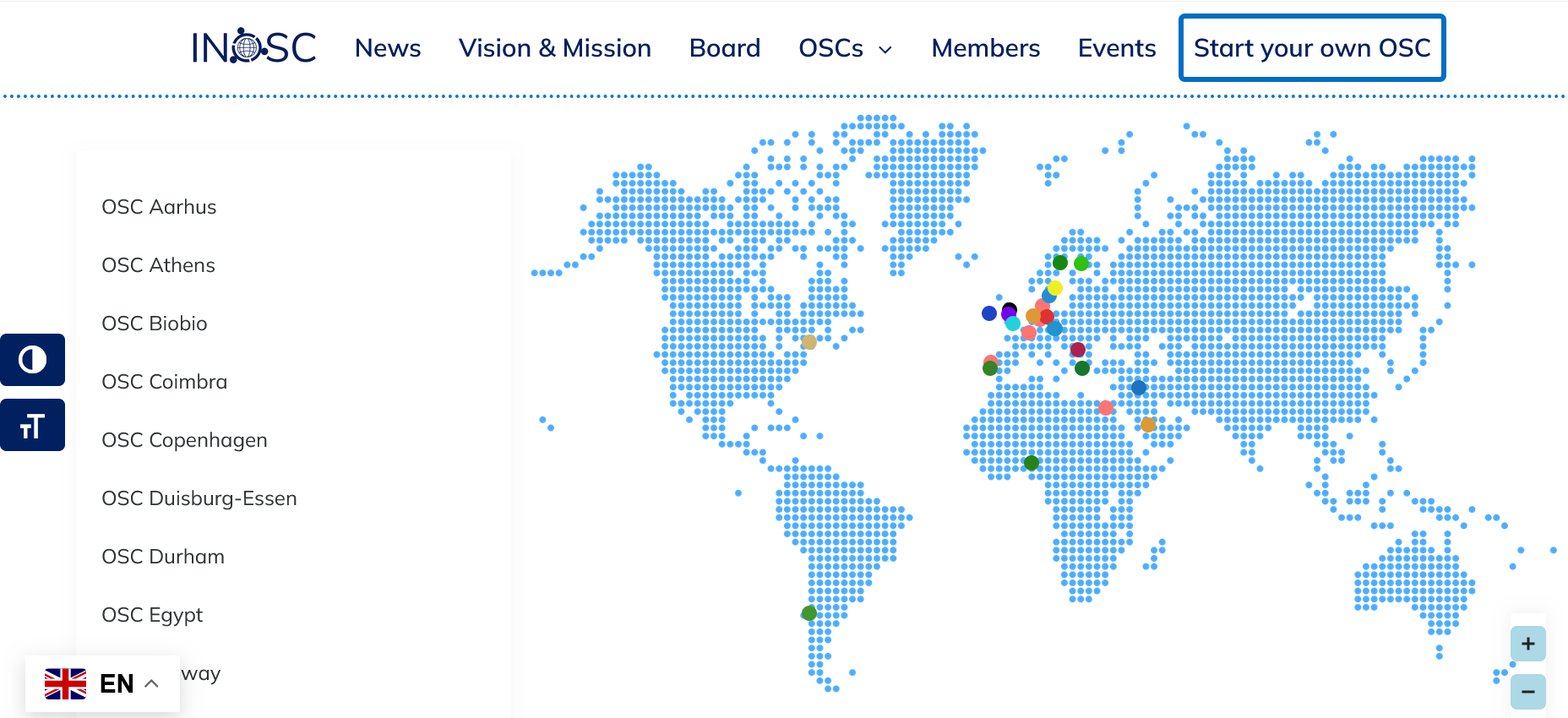
International Network of Open Science & Scholarship Communities

18 countries

35 communities

2300+ members

https://osc-international.com



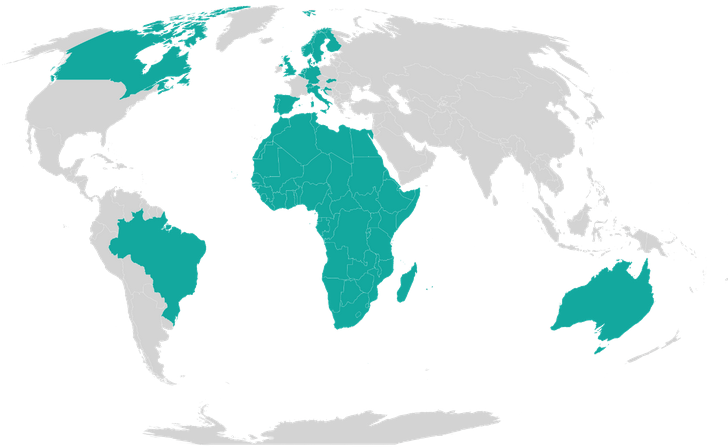
https://osc-international.com

See full Global Networks Statement

Global Reproducibility Networks

A Reproducibility Network (RN) is a national, peer-led consortium of researchers that aims to promote and ensure rigorous research practices by establishing appropriate training activities, designing and evaluating research improvement efforts, disseminating best practice and working with stakeholders to coordinate efforts across the sector. RNs aim for broad disciplinary representation and an intensive interdisciplinary dialogue (e.g., with funding agencies, publishers, learned societies and other sectoral organisations, as well as researchers from all disciplines and across all career stages).

To reach as many researchers as possible, and to operate as efficiently as possible, we are keen to support other countries interested in creating similar networks. If you are interested in setting up a national RN, or finding out who in your country is working towards this, please contact us.



https://www.ukrn.org/global-networks

a. Communicate to their institutional administrators why libraries and their institutions cannot afford to ignore implementing institutional repositories to make their research outputs open;
b. Explain how to go about using open infrastructure and services like Dspace and DataCite tools to make their research outputs open and discoverable;
c. Understand how to teach and train librarians, ICT professionals, and research administrators to implement DataCite research discovery and exploration tools and services like DOIs, metadata, APIs in their institutional repositories;
d. Become confident and have the knowledge to deal with difficult questions about making research outputs open and discoverable;
e. Be able to plan institutional repository and DataCite training activities and be aware of the best practices in training design for online, face-to-face and hybrid events;
f. Understand how to work with diverse audiences especially institutional administrators to attract funding towards DataCite activities;
g. Know how to evaluate the impact of the training and implementing institutional repositories and DataCite open infrastructure and services.

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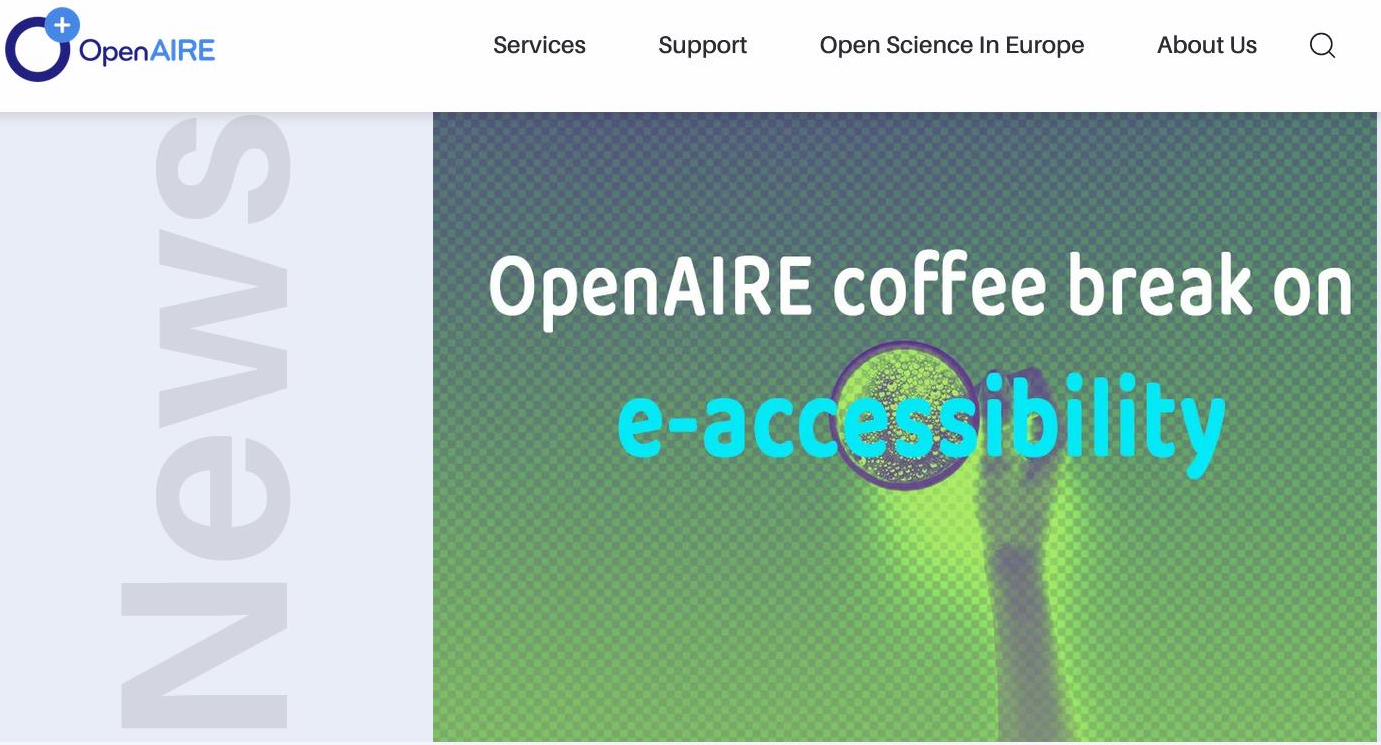
https://library.busitema.ac.ug/about/building-a-cohort-of-open-scholarship-trainers

Repositories & accessible content



https://www.openaire.eu/openaire-coffee-break-on-e-accessibility-it-s-all-about-the-tools

Thank you!

Contact: iryna.kuchma@eifl.net

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OA 20 YEARS