

Lessons from Open Science across European universities:

Policies, practices, and future directions

WILLIAM CAWTHORN

LERU Open Science Ambassador & UKRN Local Network Lead) – University of Edinburgh

EDINBURGH OPEN RESEARCH
CONFERENCE

29 May 2024

Slides available on OSF: DOI: [10.17605/OSF.IO/K38NE](https://doi.org/10.17605/OSF.IO/K38NE)

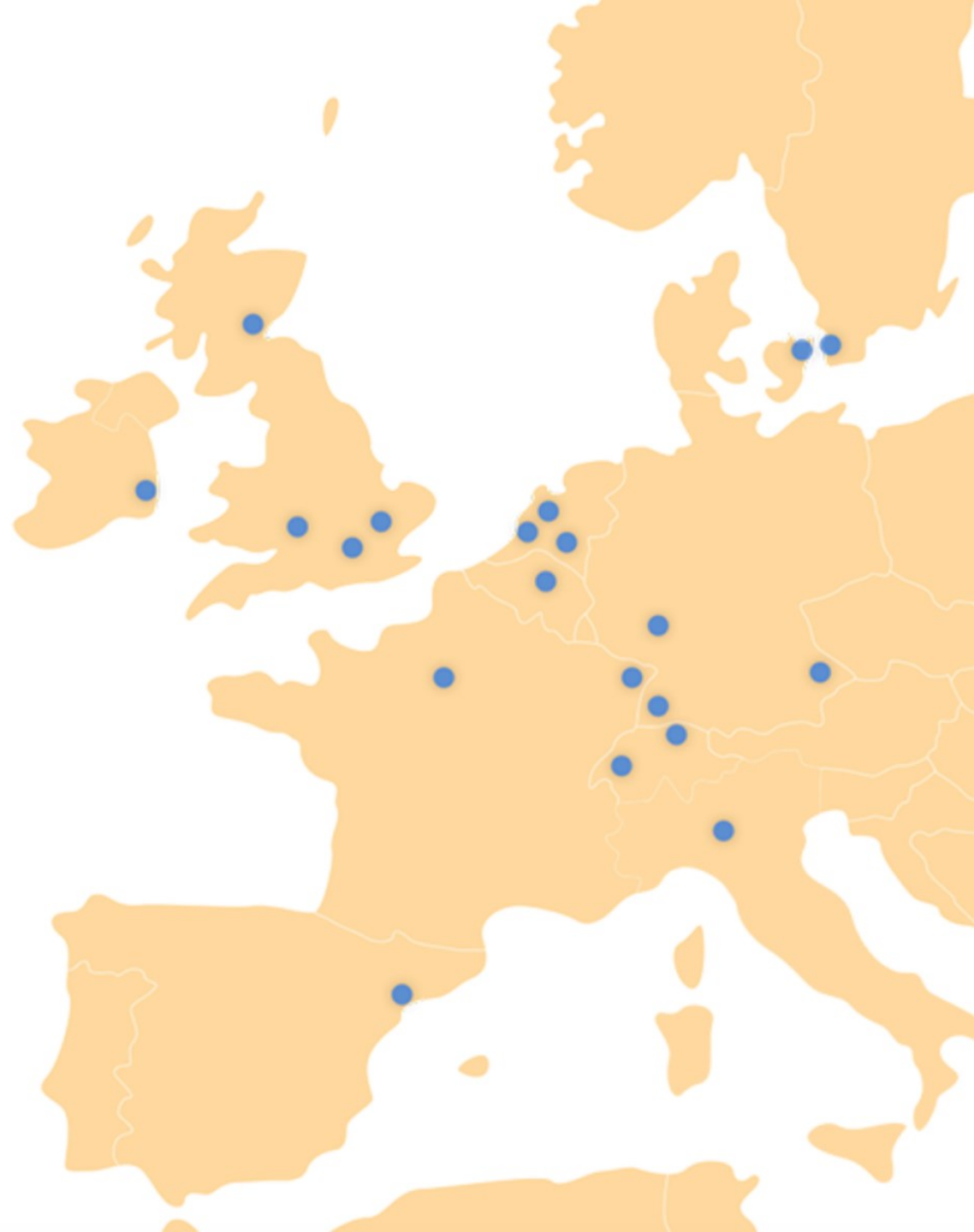




The League of European Research Universities

24 Members:

- University of Amsterdam
- Universitat de Barcelona
- University of Cambridge
- University of Copenhagen
- Trinity College Dublin
- **University of Edinburgh**
- University of Freiburg
- Université de Genève
- Universität Heidelberg
- University of Helsinki
- Universiteit Leiden
- KU Leuven
- Imperial College London
- University College London
- Lund University
- University of Milan
- Ludwig-Maximilians-Universität München
- University of Oxford
- Université Paris-Saclay
- Sorbonne University
- University of Strasbourg
- Utrecht University
- ETH Zurich
- University of Zurich





The League of European Research Universities

Open Science and
its role in universities:
A roadmap for cultural change

ADVICE PAPER
NO.24 - MAY 2018



Note from the
League of European
Research Universities

14 December 2020

Implementing Open Science

Challenges and Opportunities for research-intensive
universities in LERU



The “Eight Pillars” of Open Science



https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/open-science_en

Note from the
League of European
Research Universities

14 December 2020

Implementing Open Science

Challenges and Opportunities for research-intensive
universities in LERU

1. Future of Scholarly Communication
2. FAIR Data
3. Education and Skills
4. Research Integrity
5. Next Generation Metrics
6. Recognition and Rewards
7. Citizen Science
8. European Open Science Cloud (EOSC)

Open Research Roadmaps



Roadmap for Open Science – University of Edinburgh Self-Assessment January 2024

The following table contains a self-assessment on the University of Edinburgh’s readiness for Open Research, based on the criteria set out in the LERU Open Science Roadmap. This self- assessment has been carried out by staff in the Library Research Support (LRS) Team. This is a working document, and we would welcome the views on the accuracy of the se

Contents

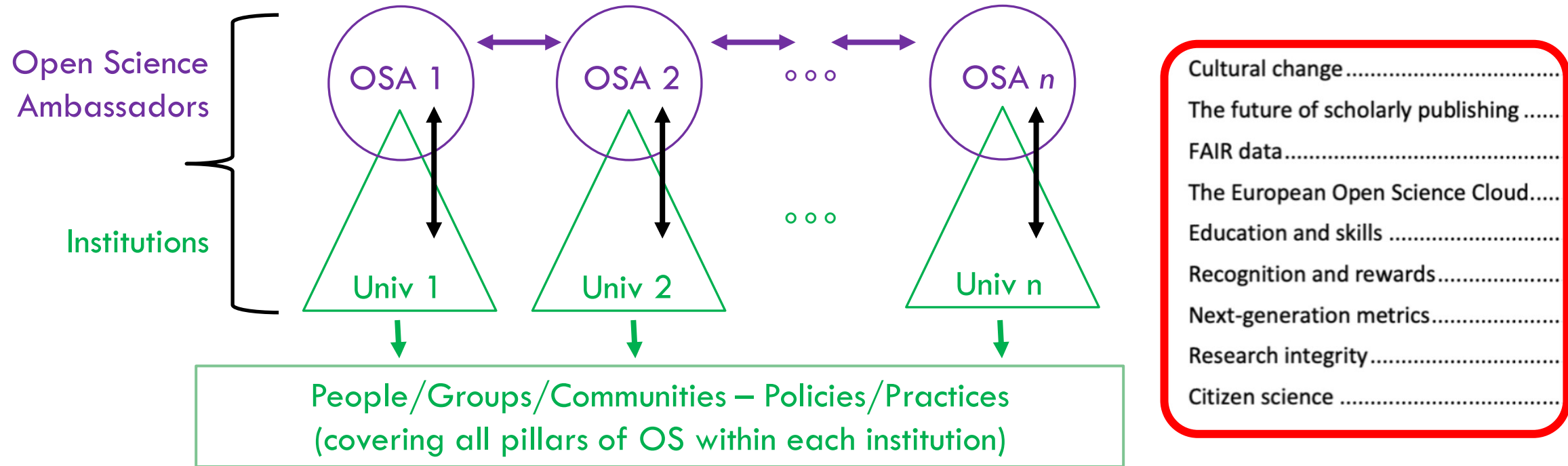
Cultural change
The future of scholarly publishing
FAIR data.....
The European Open Science Cloud.....
Education and skills
Recognition and rewards.....
Next-generation metrics.....
Research integrity.....
Citizen science

	Topic	Question		Proposed next steps	RAG Status
Cultural change					
1	Leadership	Has your university appointed a senior manager to lead Open Science approaches across all eight pillars of the Open Science debate identified by the European Commission?			
<div>Dr. William Cawthorn (Lecturer, Centre for Cardiovascular Science, CMVM) has the role of LERU Open Science Ambassador (OSA) while Dominic Tate (Head of Library Research Support) leads on Open Research for the Library.</div> <div>A number of other senior researchers have taken very active roles</div>					
Edinburgh Research Office is involved in					



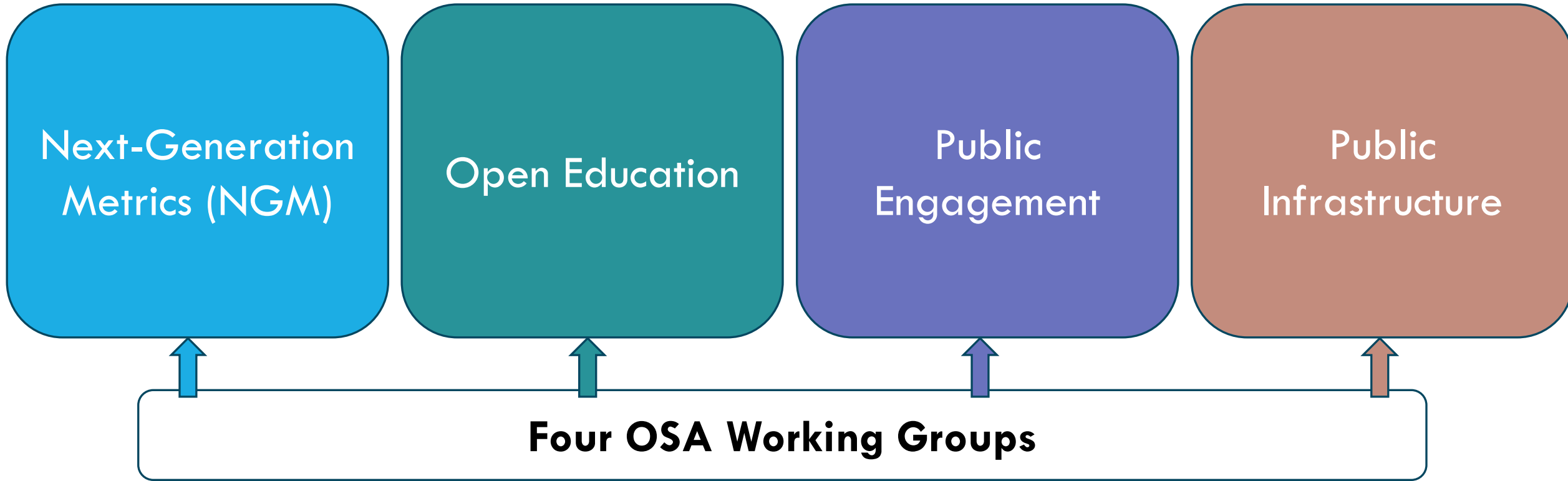
https://www.ed.ac.uk/sites/default/files/atoms/files/edinburgh_open_research_roadmap_2024_march_published.pdf

LERU “Open Science Ambassadors” (OSAs)



- Help to understand, communicate and coordinate Open Science efforts within their institution.
- Meetings and discussion between OSAs help to identify policies, needs, challenges, goals, and solutions: *common vs unique? Best practice?*
- The structure, way of working, and pace are determined by each institution (not by LERU).

LERU “Open Science Ambassadors” (OSAs)



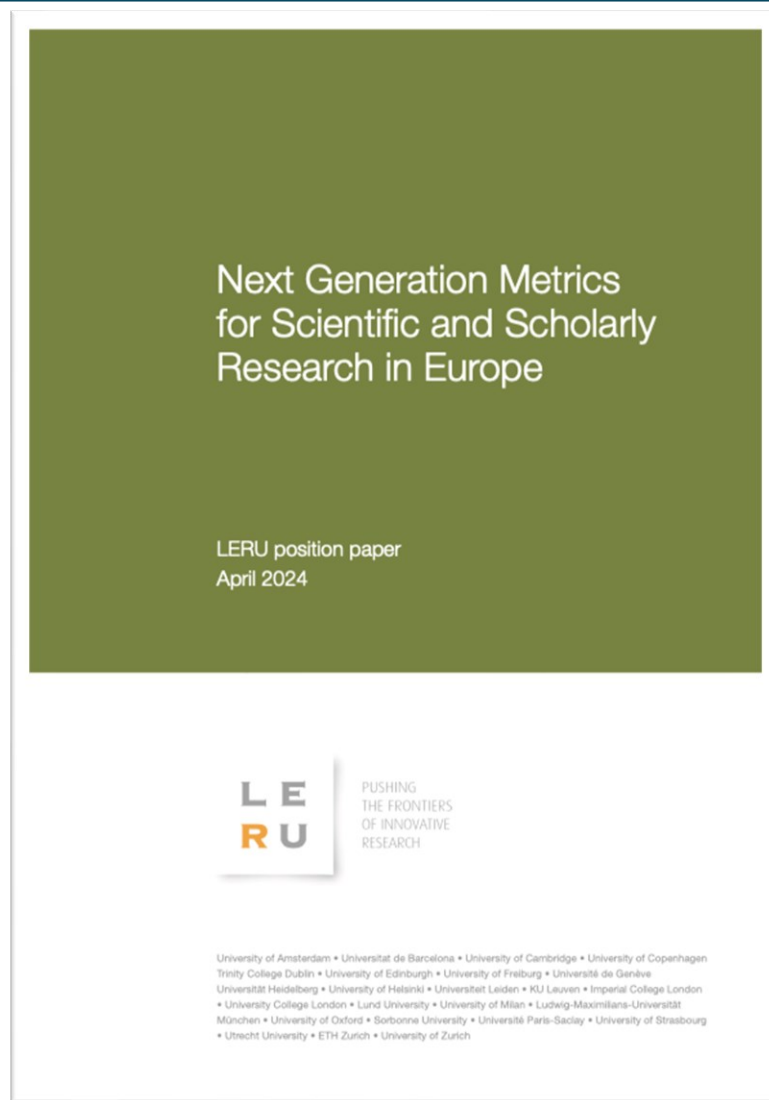
- Help to understand, communicate and coordinate Open Science efforts within their institution.
- Meetings and discussion between OSAs help to identify policies, needs, challenges, goals, and solutions: *common vs unique? Best practice?*
- The structure, way of working, and pace are determined by each institution (not by LERU).

LERU “Open Science Ambassadors” (OSAs)

Next-Generation Metrics (NGM)



https://www.leru.org/files/Publications/Next-Generation-Metrics-for-Scientific-and-Scholarly-Research-in-Europe_Paper.pdf



Why are NGMs needed?

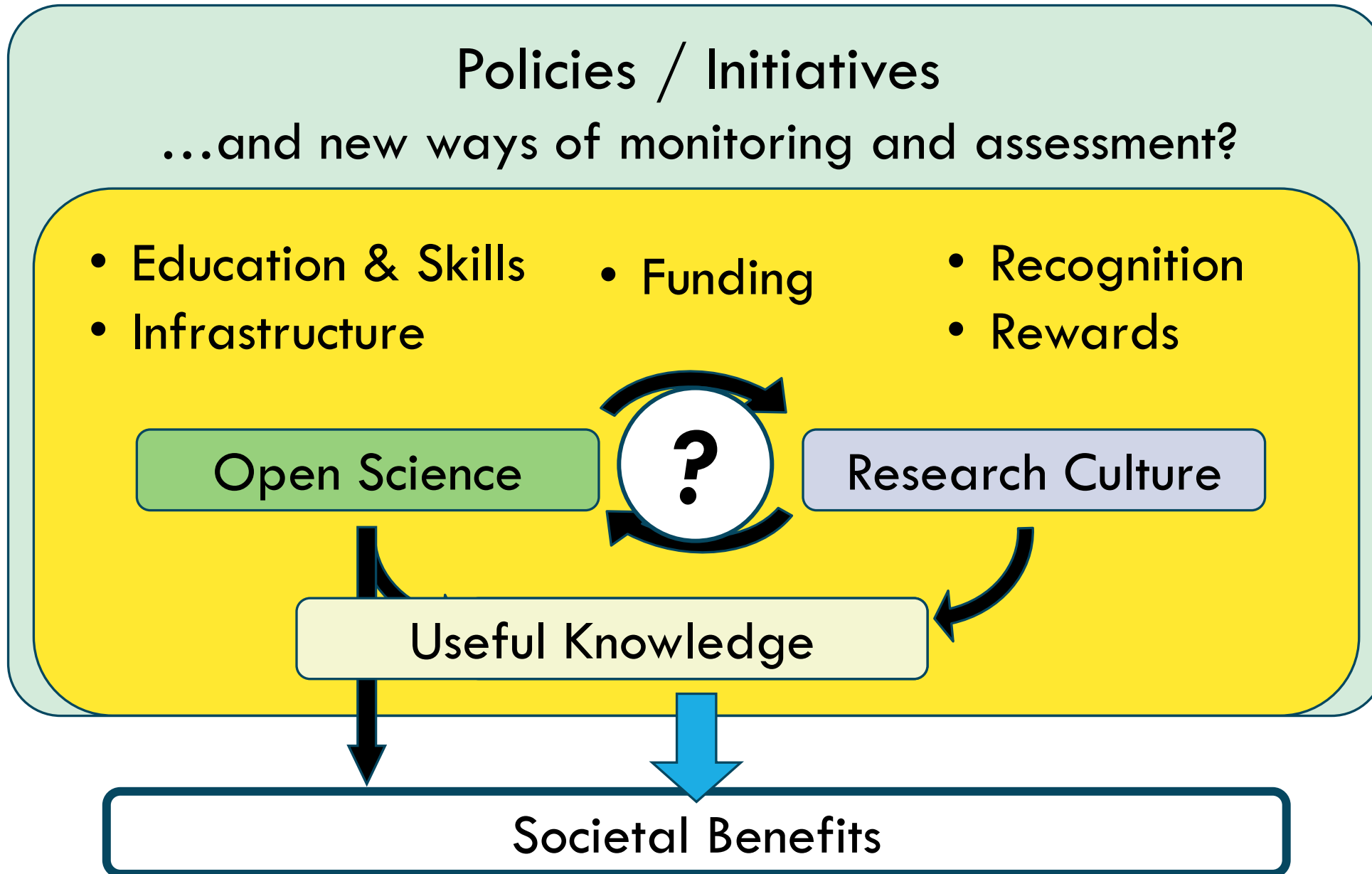
- Need to “measure things differently” (limitations of existing metrics and their misuse)
- Need to “measure different things” (including new expectations for universities: open science, culture, research integrity...)

REF 2029

Research Excellence Framework

NGMs for Open Science?

Next Generation Metrics for Open Science?



Open Science among LERU countries and institutions



The League of European
Research Universities

NGMs for Open Science?

1. National OS Policies
2. Monitoring of National Policies
3. Monitoring of Open Science (*in general*)



Next Generation Metrics
for Scientific and Scholarly
Research in Europe

LERU position paper
April 2024



PUSHING
THE FRONTIERS
OF INNOVATIVE
RESEARCH

University of Amsterdam • Universitat de Barcelona • University of Cambridge • University of Copenhagen
Trinity College Dublin • University of Edinburgh • University of Freiburg • Université de Genève
Universität Heidelberg • University of Helsinki • Universiteit Leiden • KU Leuven • Imperial College London
• University College London • Lund University • University of Milan • Ludwig-Maximilians-Universität
München • University of Oxford • Sorbonne University • Université Paris-Saclay • University of Strasbourg
• Utrecht University • ETH Zurich • University of Zurich

Open Science among LERU countries and institutions

Country	National policy	Monitoring of national policy	Monitoring of Open Science	LERU Institutions
Belgium	International Co-operation Commission (ICC); Federal Co-operation Commission (FCC); Flemish Open Science Board (FOSB); Flemish Research Information Space (FRIS); Open Access in Belgium ; there are Open Access policies from the Fund for Scientific Research (F.R.S.-FNRS) and the Flemish Research Foundation (FWO); the Belgian Science Policy Office (BELSPO) has mandates for Open Access to Publications and Research Data	Annual reporting of (FOSB) Open Science policy at institutional level to Flemish government	Via the Flemish Open Science Board (FOSB): monitoring (with custom-build KPI's) evolution in the OS research behavior about 4 Open Science KPI's (ORCID, DMP, Open Access, open data)	<i>KU Leuven,</i> <i>Policies:</i> Open Access policy , Research data management policy
Denmark	National policies on OA and FAIR RDM , and a code of conduct for Research Integrity .	No monitoring of policies	Danish Open Access Indicator (which monitors degree only of OA, not of FAIR data)	<i>University of Copenhagen</i>
Finland	National Declaration for Open Science and Research (2020-2025)	Monitoring of OS policies linked to bi-annual national OS monitoring	National OS monitoring	<i>University of Helsinki</i> OS program

Country	National policy	Monitoring of national policy	Monitoring of Open Science	LERU Institutions
France	<ul style="list-style-type: none"> o Second National plan for Open Science (2021-2024), organized in thematic colleges (see pdf here), including a National Fund for Open Science o National platform for open publications and open data (Recherche Data Gouv). o Committee for Open Science 	<ul style="list-style-type: none"> o Open Science Barometer o Sharing at national level (Recherche Data Gouv); shared vision of strategies in HEIs upcoming. 	<ul style="list-style-type: none"> o French Open Science Monitor (https://frenchopensciencemonitor.esr.gouv.fr/) provides a monitor for OA publications at each French institution. o Some monitoring of open data through Recherche Data Gouv. o OS is not yet at the heart of research evaluation. 	<p>Sorbonne University, Policies: Various OS policies available here.</p> <p>Université Paris-Saclay, Policy: OS policy</p> <p>University of Strasbourg, Policy: OS policy</p>
Germany	<p>Open Science policies mostly exist at the research-organisation level, not at the national level. The DFG (Germany's major research funding institution) has a position on Open Science. The Federal Ministry of Education and Research has strategies for Open Access and Open Educational Resources (both in German only). The National Research Data Infrastructure Germany (NFDI) has been focussing on open/FAIR data.</p>	No monitoring of policies	Charité Berlin has a dashboard for OS monitoring , and a specific dashboard for open access monitoring .	<p>University of Freiburg, Policy: OA policy.</p> <p>Universität Heidelberg, Policy: OA policy.</p> <p>Ludwig-Maximilians-Universität München OS resources: Toolbox</p>

Country	National policy	Monitoring of national policy	Monitoring of Open Science	LERU Institutions
Ireland	National action plan and National Framework on the Transition to an Open Research Environment , developed by National Open Research Forum (NORF).	Currently being developed here	No	Trinity College Dublin, Policy:TA) OA policy
Italy	In 2022 the Italian Ministry of University and Research (MUR) published the National Plan for Open Science (available in Italian and English)	No monitoring at the moment. A working group was appointed to establish guidelines for monitoring	Only at local level: https://unimibox.unimi.it/index.php/s/9WsbKCCEzm7trri (monitoring according to the 8 pillars of OS)	University of Milan, Policy: RDM policy OA policy

Country	National policy	Monitoring of national policy	Monitoring of Open Science	LERU Institutions
Spain	A four-year National Open Science Strategy (ENCA) (2023-2027) was approved in May 2023, including a budget of €23.8M per year. The ENCA strategic axes are: Digital infrastructures for open science, Management of research data following the FAIR principles, Open access to scientific publications and Incentives, recognition and training	Currently only monitoring of OA levels in universities (by national libraries), proposal to build a national portal	No, but to be developed	<i>Universitat de Barcelona,</i> <i>Policy:</i> OA policy
Sweden	Swedish Government, the Swedish Research Council (mandate for Open Access to Research Data), the National Library (mandate for Open Access to Scientific Publications), and The Association of Swedish Higher Education Institutions	<p>The National Library of Sweden (NLS) monitors the work for open access to scholarly publications and publishes a yearly report (in Swedish) with an assessment of the current situation.</p> <p>NLS also monitors the total cost of publishing at Swedish universities on a yearly basis and publishes a separate report on this (in Swedish).</p>	<p>The Association of Swedish Higher Education Institutions monitor how Swedish universities handle research data, and continuously evaluate and, if necessary, update the road map and action plan for OS.</p> <p>The Swedish Research Council publishes a yearly report (in Swedish, summary in English) which presents a combined mapping, analysis and assessment of the national work with open access to research data*.</p>	<i>Lund University</i> <i>Policy:</i> Research strategy for Lund University 2023-2026, OA policy

Country	National policy	Monitoring of national policy	Monitoring of Open Science	LERU Institutions
Switzerland	<ul style="list-style-type: none"> o Swiss Open Science Policy is centred around Open Access (Action Plan; Implementation Plan) and Open Research Data (Action Plan). o The Swiss Universities Open Science Programme for 2021-2024 includes funding to support policy implementation. 	<p>The Action Plan includes monitoring. This has not yet begun but will be overseen by the Swiss Universities' Open Science Delegation</p>	Not known	<p><i>Université de Genève Policy:</i> OA policy</p> <p><i>University of Zürich Policy:</i> OS policy</p>
The Netherlands	<ul style="list-style-type: none"> o Together, all public stakeholders in research have set an ambition for open science in 2030. o National policy to provide 100% open access in 2020; Dutch national funders implemented Plan S; since 2019 national initiative to reform Recognition and Rewards led by the federation of universities (UNL); national government dedicates for the coming ten years €20M yearly to support the transition to open science; national effort to coordinate the transition to Open Science (Open Science NL) 	<ul style="list-style-type: none"> o National monitoring only for OA for peer-reviewed journal articles o National repositories that monitor data sets by license, openness, etc. An example is DANS (Dutch Archiving and Networking Services). 	Yes, partly via National Strategic Evaluation Protocol for 6-yearly research evaluation of all academic research ; to be expected as one of the goals of Open Science NL.	<p><i>University of Amsterdam, Policy:</i> OA policy</p> <p><i>Leiden University Policy:</i> OS program OA policy</p> <p><i>Utrecht University Policy:</i> OS program OA policy</p>

Country	National policy	Monitoring of national policy	Monitoring of Open Science	LERU Institutions
UK	<ul style="list-style-type: none"> o Major UK funders have OS policies that require all of their funded research to be published open access, including giving copyright to institutions, rather than journals, via a CC-BY license. This is true for UK Research and Innovation, The Wellcome Trust, the British Heart Foundation, and Cancer Research UK. o The UK Reproducibility Network also has a programme to promote open research. 	<ul style="list-style-type: none"> No official monitoring yet, but several relevant initiatives: <ul style="list-style-type: none"> o UKRI is working on a 'Monitoring and Evaluation Framework', but so far none of the Research Councils monitor compliance. o UK Reproducibility Network includes evaluation in its open research programme, including an Open Research Survey. o Several initiatives in the area, e.g. via JISC and in particular domains, e.g. via ELIXIR-UK. o Monitoring of APC grants and principles of DORA (by UKRI and Wellcome) o The Fairsharing.org project (based at the University of Oxford) is collating policy examples. o Scottish Government's RESAS research programme adopted a new Data Management mandate for its 2022-2027 funding programme 	<ul style="list-style-type: none"> o Yes, via UK REF: requires publications to be made open access, and includes an assessment of compliance (for 2021: https://results2021.ref.ac.uk) o https://www.ref.ac.uk/media/1228/open_access_summary_v1_0.pdf 	<p><i>Imperial College London,</i> Policy: RDM policy OA policy</p> <p><i>University of Cambridge,</i> Policy: OS position statement</p> <p><i>University College London,</i> Policy: Statement on transparency in research RDM policy Bibliometrics policy OA policy</p> <p><i>University of Edinburgh,</i> Policy: OS roadmap RDM policy Publications and copyright policy</p> <p><i>University of Oxford</i> Policy: RDM policy OA policy</p>

Open Science among LERU countries and institutions

LE
RU

The League of European
Research Universities

NGMs for Open Science?

1. National OS Policies
2. Monitoring of National Policies
3. Monitoring of Open Science (*in general*)



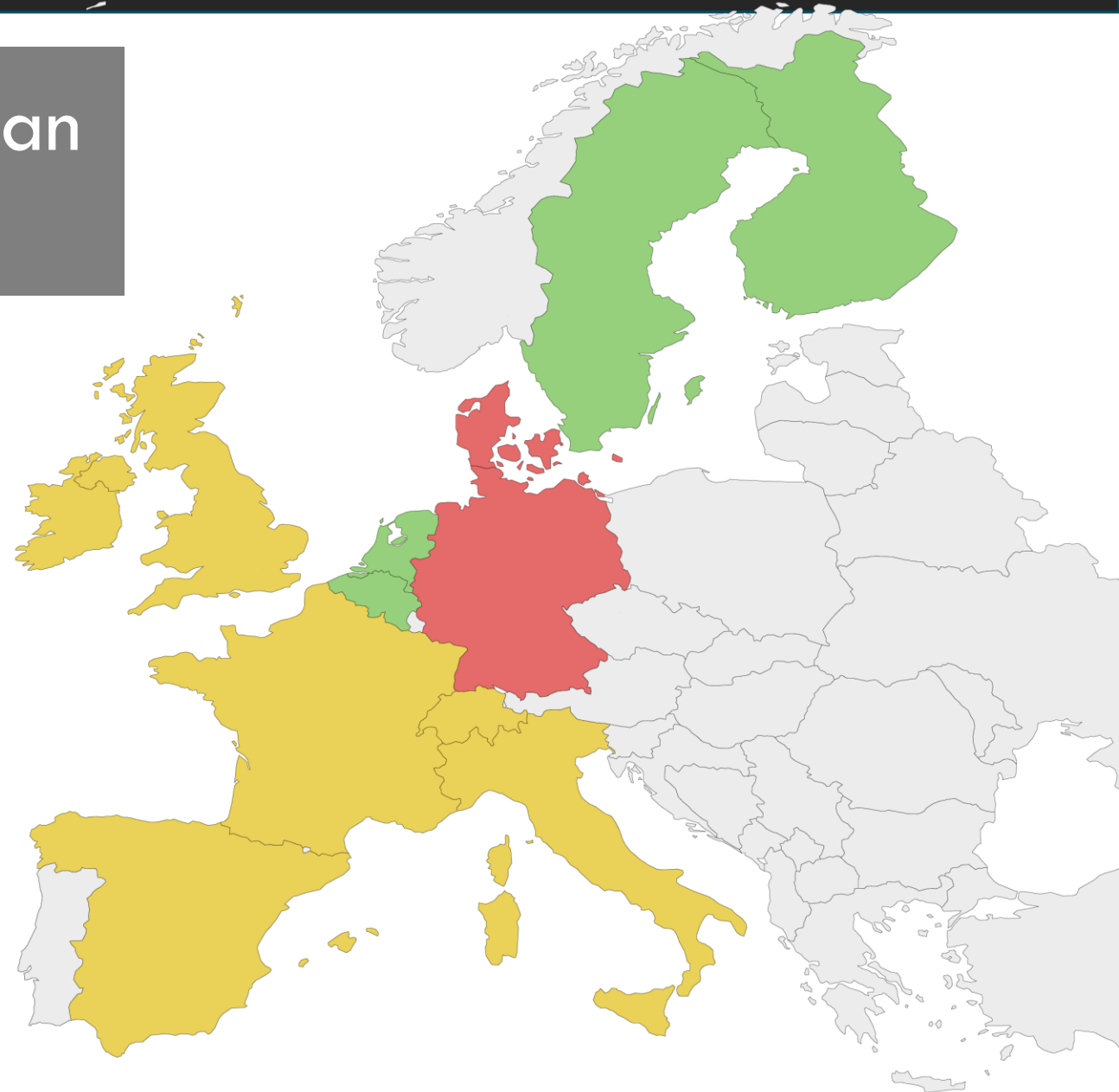
Open Science among LERU countries and institutions

LE
RU

The League of European
Research Universities

NGMs for Open Science?

1. National OS Policies
2. Monitoring of National Policies
3. Monitoring of Open Science (*in general*)



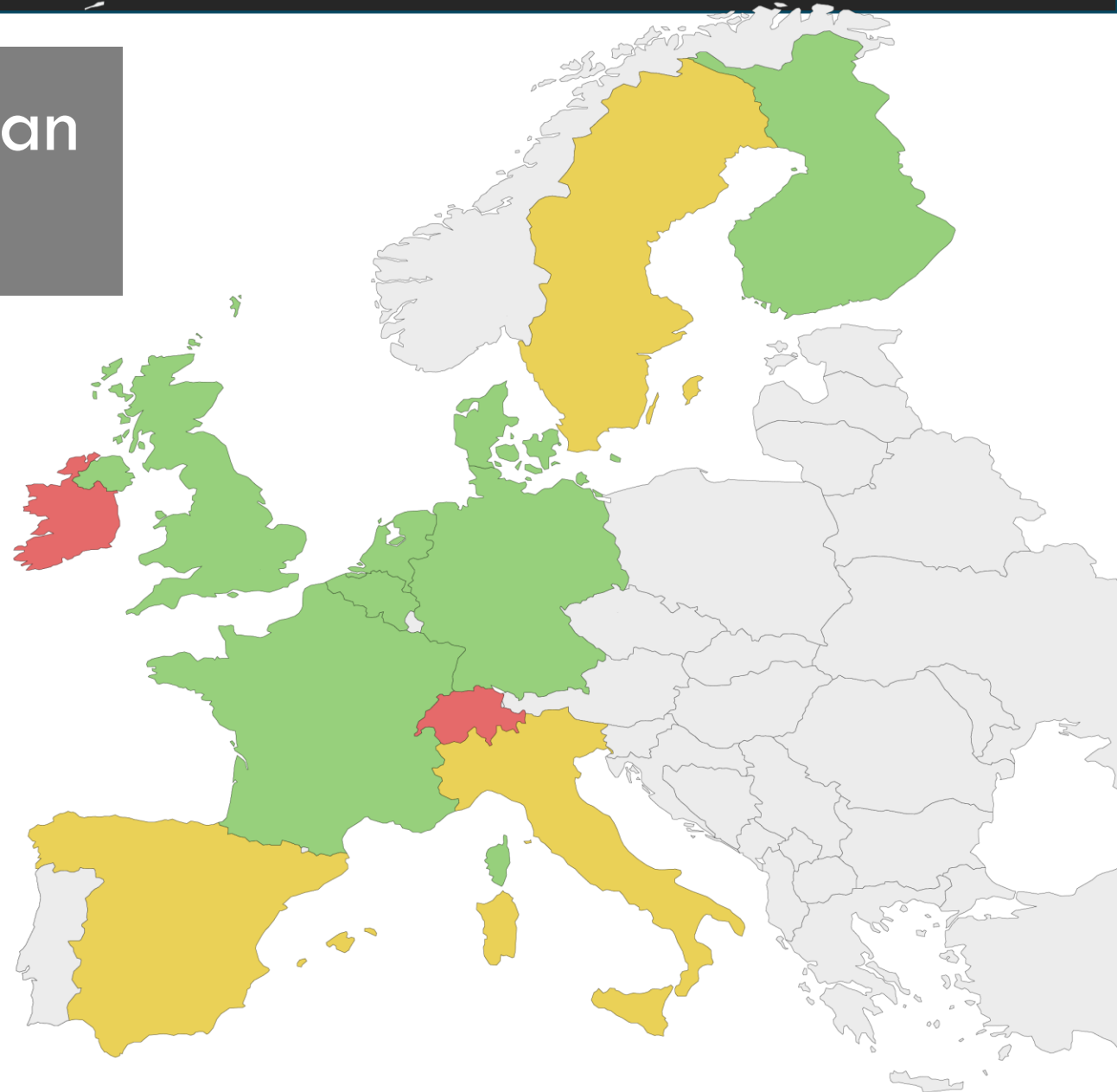
Open Science among LERU countries and institutions

LE
RU

The League of European
Research Universities

NGMs for Open Science?

1. National OS Policies
2. Monitoring of National Policies
3. Monitoring of Open Science (*in general*)



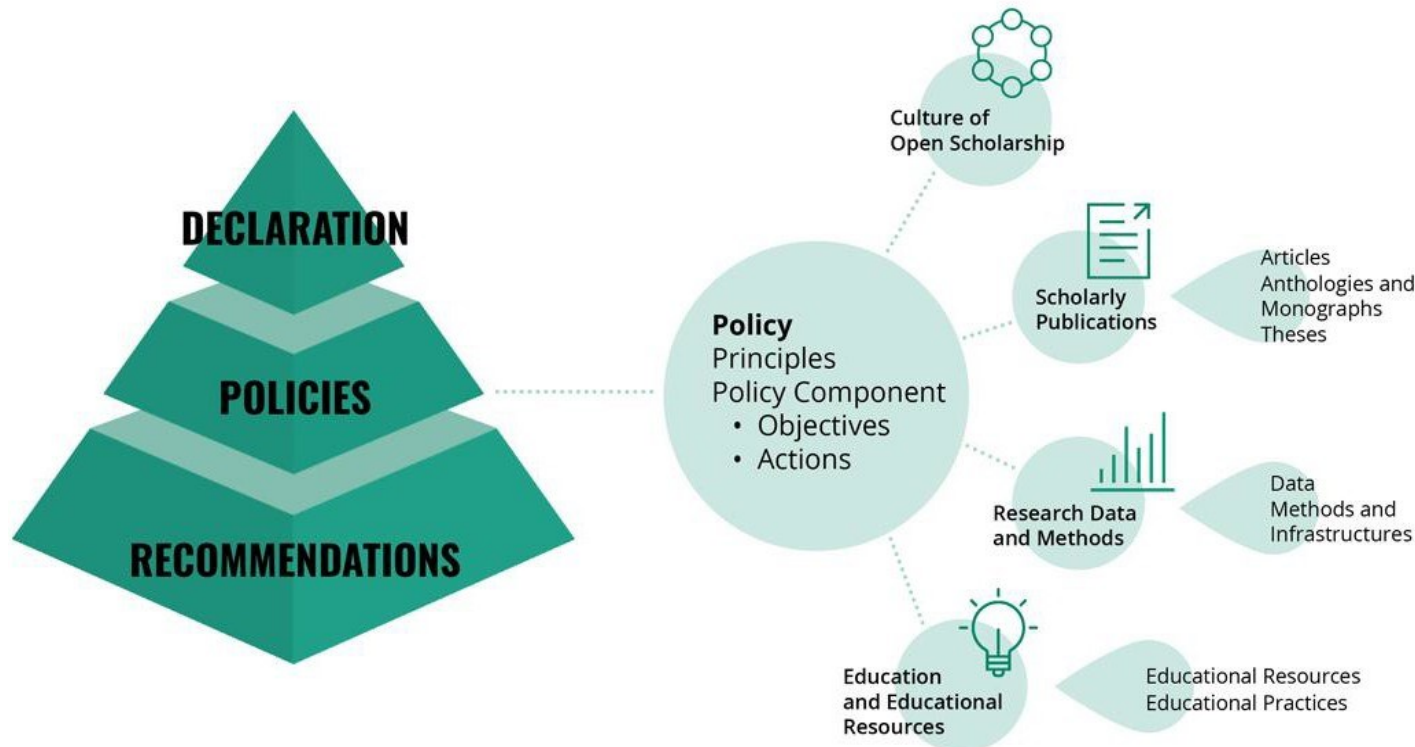
Examples of good practice: Finland

Finnish open science policy

https://avointiede.fi/sites/default/files/2020-02/declaration2020_0.pdf



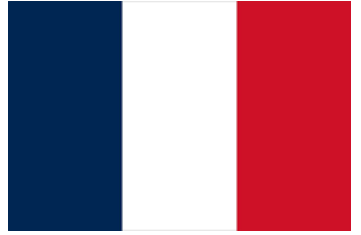
The Open Science and Research Declaration and its supporting policies provide the framework for the national OS monitoring.



- [*The Declaration for Open Science and Research*](#) presents a common vision for the Finnish research community.
- [*Policies of open science and research*](#) outline the strategic principles, objectives and action plans necessary to achieve the objectives of *the Declaration for Open Science and Research*.
- Recommendations complement the policies.

Examples of good practice: France

Second National Plan for Open Science 2021-2024



<https://www.ouvrirlascience.fr/second-national-plan-for-open-science-2021-2024/>

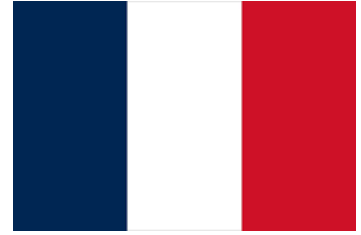
French Open Science Monitor

<https://frenchopensciencemonitor.esr.gouv.fr>

- Monitors open access publications
- Estimates the % of publications with open data.
- France also has its own national open data warehouse.

Examples of good practice: France

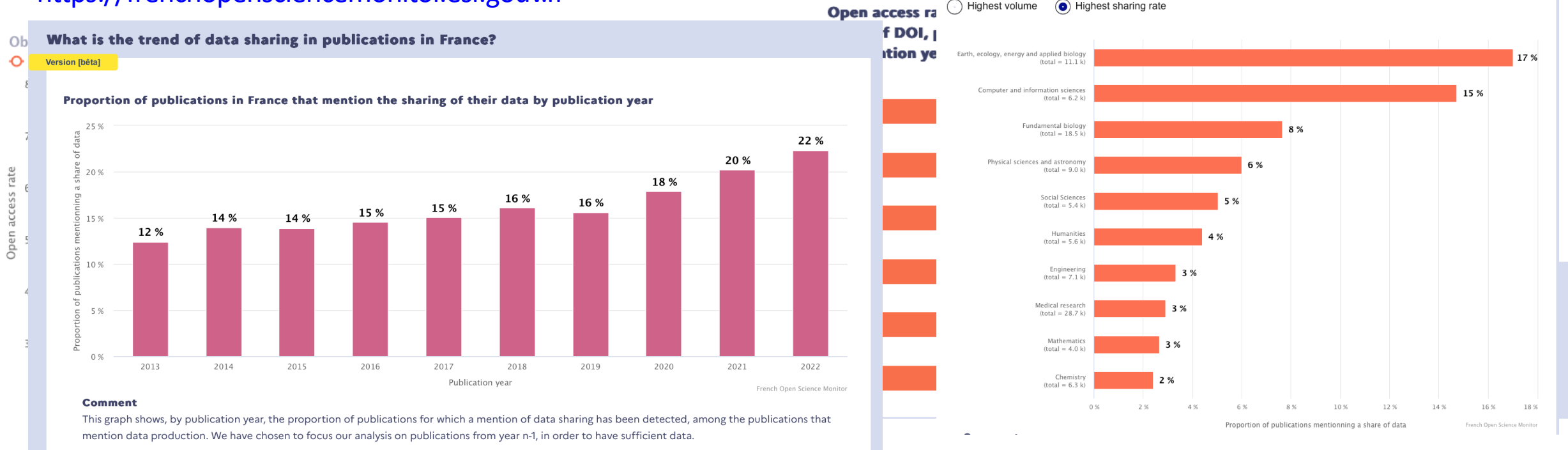
Second National Plan for Open Science 2021-2024



<https://www.ouvrirelascience.fr/second-national-plan-for-open-science-2021-2024/>

French Open Science Monitor

<https://frenchopensciencemonitor.esr.gouv.fr>



Examples of good practice: Spain

National Open Science Strategy for 2023-2027



<https://www.ciencia.gob.es/en/Noticias/2023/mayo/El-Gobierno-aprueba-la-primer-Estrategia-Nacional-de-Ciencia-Abierta.html>

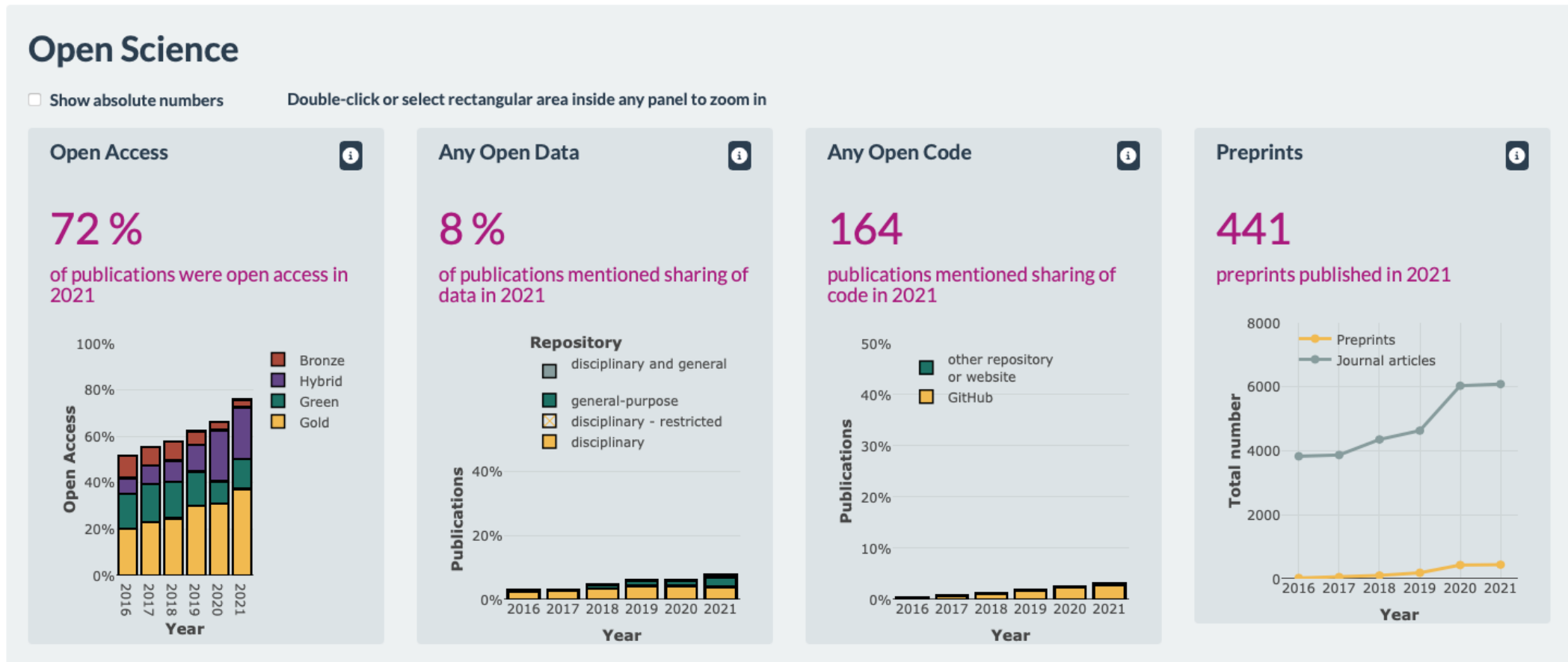
€23.8M per year to support four 'strategic axes:

1. Digital infrastructures for Open Science
2. Management of research data following the FAIR principles
3. Open access to scientific publications
4. Incentives, recognition and training

Monitoring of Open Science beyond national boundaries

Charité Berlin Dashboard on Responsible Research

<https://quest-dashboard.charite.de/#tabStart>



Monitoring of Open Science beyond national boundaries

Curtin Open Knowledge Initiative

<https://open.coki.ac>

OPEN ACCESS DASHBOARD

COUNTRY					INSTITUTION	
INSTITUTION	OPEN ↓	BREAKDOWN PUBLISHER OPEN BOTH OTHER PLATFORM OPEN CLOSED	TOTAL PUBLICATIONS	OPEN PUBLICATIONS		
HENRY ROYCE INSTITUTE	80%		1,656	1,331	LEARN MORE >	
ROYAL VETERINARY COLLEGE	80%		9,908	7,906	LEARN MORE >	
LONDON SCHOOL OF HYGIENE & TROPICAL...	80%		49,687	39,572	LEARN MORE >	
SCOTTISH UNIVERSITIES PHYSICS ALLIANCE	77%		1,717	1,315	LEARN MORE >	
INSTITUTE OF BIOLOGICAL, ENVIRONMENTAL AND...	75%		2,341	1,765	LEARN MORE >	
HULL YORK MEDICAL SCHOOL	69%		5,859	4,063	LEARN MORE >	
ROYAL COLLEGE OF GENERAL PRACTITIONERS	69%		1,079	745	LEARN MORE >	
BRIGHTON AND SUSSEX MEDICAL SCHOOL	68%		6,342	4,336	LEARN MORE >	
MEDWAY SCHOOL OF PHARMACY	67%		1,798	1,212	LEARN MORE >	
ADAM SMITH INSTITUTE	67%		1,893	1,270	LEARN MORE >	
UNIVERSITY OF EDINBURGH	64%		144,559	93,002	LEARN MORE >	
UNIVERSITY OF OXFORD	63%		264,652	167,869	LEARN MORE >	
UNIVERSITY OF LIVERPOOL	63%		13,694	8,683	LEARN MORE >	

FILTERS

REGION

☐ AFRICA >
☐ AMERICAS >
☐ ASIA >
☒ EUROPE ▾
☐ EASTERN EUROPE
☒ NORTHERN EUROPE
☐ SOUTHERN EUROPE
☒ WESTERN EUROPE
☐ OCEANIA >

COUNTRY

UNITED KINGDOM

PUBLICATIONS & OA

INSTITUTION TYPE

☐ ARCHIVE
☐ COMPANY
☒ EDUCATION
☐ FACILITY
☐ GOVERNMENT
☐ HEALTHCARE

Conclusions about Open Science Policies and Monitoring in Europe

1. Open science activities and support vary widely among LERU universities and the countries in which they are based.
2. Several countries have clear Open Science policies that include dedicated funding, including Finland, France, Spain, and Switzerland.
3. The most well-established open science policies and monitoring primarily concern Open Access to publications (including dashboards to showcase monitoring data).
4. While some universities and countries have implemented policies related to FAIR Data, these are less prevalent than those for Open Access. Formal monitoring for FAIR data is not yet widespread.

Conclusions about Open Science Policies and Monitoring in Europe

5. When it comes to the other six pillars of open science (*Education and Skills, Rewards and Incentives, Next-generation metrics, Research Integrity, Citizen Science, and The European Open Science Cloud*), formal policies and monitoring have not yet been established.
6. OS is not limited to Europe or the USA! For example, [Latin America and the Caribbean](#) have a strong tradition in open science, fair data and citizen science, while [Africa](#) is increasingly active in OS.

Lessons and future directions

1. Information on OS policies is often hard to find!

→ Whether on an institutional, national, or international level, well-structured and updated web resources are key to communicate & promote information and services related to open science (*including national funding, data repositories, education and skills, and how OS is implemented in reward and recognition*).

→ One valuable resource is The Council for National Open Science Coordination (CoNOSC), which provides summaries of national open science policies: <https://conosc.org/os-policies/>

2. All countries should have open science dashboards similar to those from Charité Berlin or the French Open Science Monitor, i.e., reporting not only OA publications, but also preprints, open data, preregistration, etc...

Lessons and future directions

3. **Next-generation metrics can help to promote responsible research evaluation & incentivise open science practices**
→ This can improve research culture, integrity, and societal impact.
4. **Universities** (with funders & governments) **should collaborate to develop and test new policies and metrics for responsible research evaluation.**
5. **There is probably no “one size fits all” solution!** Universities may have different goals and should embrace policies that will help them to achieve these.

Momentum in open science



**Coalition for
Advancing Research
Assessment**

REF 2029

Research Excellence Framework

People, Culture and Environment update January 2024

The [REF Steering Group](#) is pleased to announce an update on the development of approaches to the assessment of People, Culture and Environment (PCE) in the next REF exercise.

A project has now been commissioned with Technopolis and CRAC-Vitae in collaboration with a number of sector organisations, which will develop indicators to be used for the assessment of PCE. The project team will engage extensively with the research community to co-develop a shortlist of indicators to be used to evidence and support institutions' PCE submissions as part of a structured questionnaire for REF submissions.

Lessons from Open Science across European universities:

Policies, practices, and future directions

WILLIAM CAWTHORN

LERU Open Science Ambassador & UKRN Local Network Lead) – University of Edinburgh

EDINBURGH OPEN RESEARCH
CONFERENCE

29 May 2024

Slides available on OSF: DOI: [10.17605/OSF.IO/K38NE](https://doi.org/10.17605/OSF.IO/K38NE)

