



Credit: Swiss National Science Foundation

# **International trends for open access and open science**

**Kathleen Shearer, Executive Director, COAR (Confederation of Open Access Repositories)**

## Who is COAR?

- Over 100 members and partners from 35 countries in 5 continents
- Universities, libraries, government agencies, open access organizations, not-for-profit organizations, and platform developers
- Diverse perspectives that share a common vision

## Major Activities

**International voice**  
Raising the visibility of repository networks as key infrastructure for open science

**Alignment and interoperability**  
Building a global knowledge commons through harmonization of standards and practices

**Cultivating relationships**  
Supporting an international community of practice for repositories and open access

**Building capacity**  
Advancing skills and competencies for repository and research data management

**Adopting value-added services**  
Promoting the use of web-friendly technologies and new functionalities for repositories

## Contacts Us

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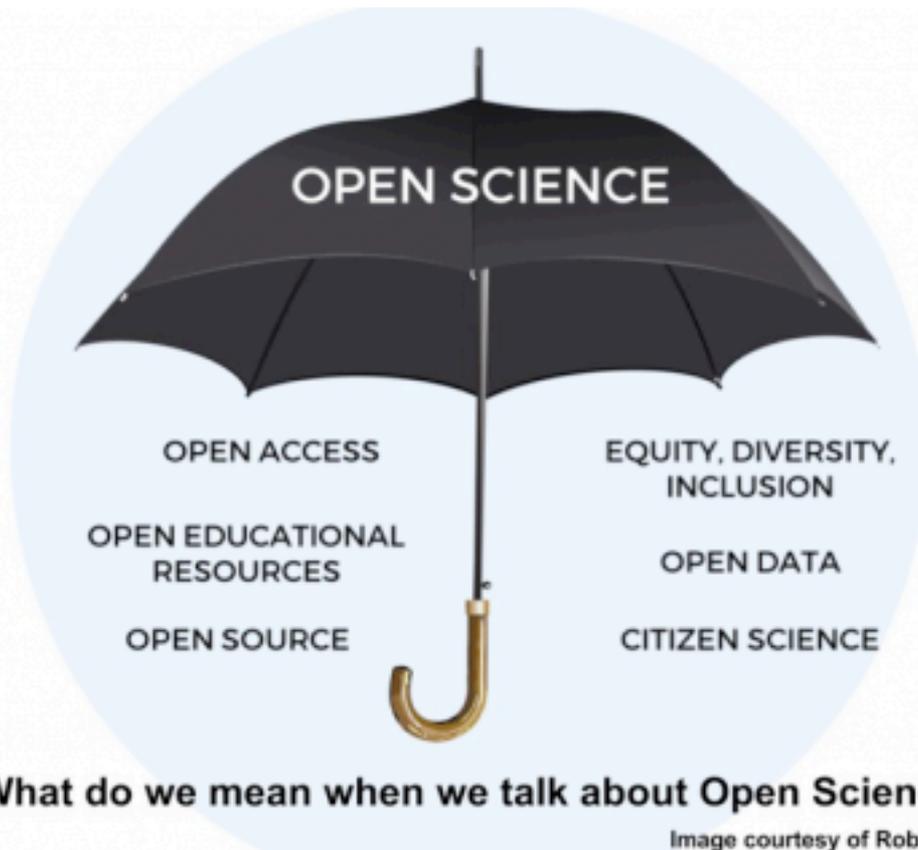
## How to participate?

- Organizations can join COAR for €500 Euros per year (about \$600 US)
- Join as a single, consortial, or special member or partner
- Download the membership application (<https://www.coar-repositories.org/about/join/become-a-member>)

# What is open access/open science?

- Open access is free and immediate access to research publications
- Open science is free and immediate access to data and other types of research outputs
- Two mechanisms:
  - (1) publish in an open access journal
  - (2) publish in a closed access (subscription) journal

# Why Open Access / Open Science?



- ☑ more discoveries
- ☑ more innovation
- ☑ better science
- ☑ better education
- ☑ economic development
- ☑ social improvements

**What do we mean when we talk about Open Science?**

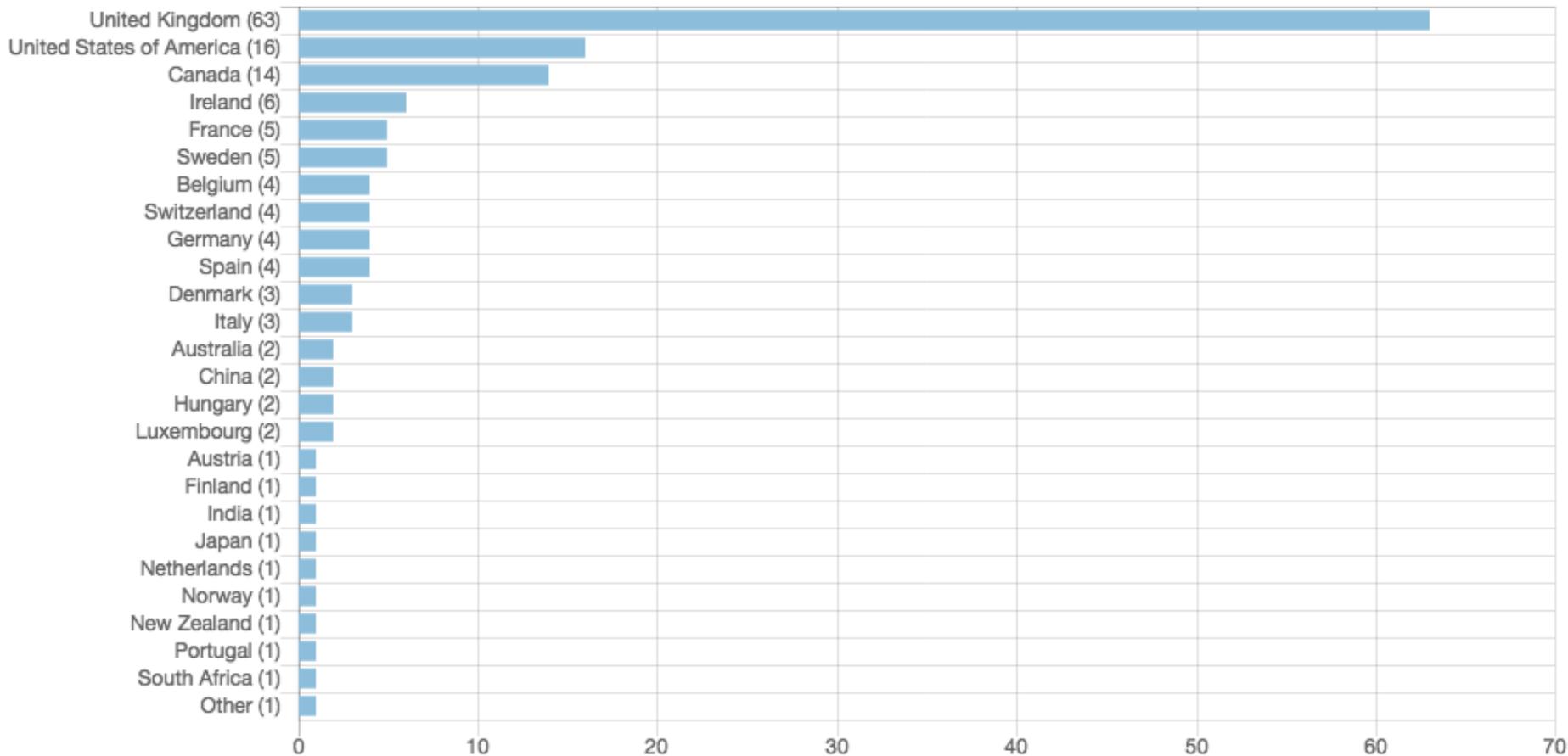
Image courtesy of Robin Champieux

# International Trends

**Policy**

# Open Access Policies

## Funders by Country



# Latin America: Argentina, Mexico and Peru all have laws requiring open access to government funded research

## Acceso abierto en México: Reformas y adiciones a la ley

Saul Equihua 22 mayo, 2014 6 comentarios



El pasado martes 20 de mayo de 2014, México a dado un gran paso al adicionar y reformar la Ley de Ciencia y Tecnología, la Ley General de Educación y la Ley Orgánica del Consejo Nacional de Ciencia y Tecnología, para promover el Acceso Abierto.

Mismas que derivan de una iniciativa de Ley para México sobre Acceso Abierto resultantes de investigación financiada con fondos públicos(1) y que fue promovida por la Senadora Ana Lilia Herrera e instituciones como la Universidad Autónoma del Estado de México.

Institucional Senadores Comisiones Noticias



**PODER EJECUTIVO**  
**PRESIDENCIA DEL CONSEJO DE MINISTROS**

**Aprueban el Reglamento de la Ley N° 30035, Ley que regula el Repositorio Nacional Digital de Ciencia, Tecnología e Innovación de Acceso Abierto**

**DECRETO SUPREMO N° 006-2015-PCM**

EL PRESIDENTE DE LA REPÚBLICA

CONSIDERANDO:

Que, mediante Ley N° 30035, se establece el normativo del Repositorio Nacional Digital de Ciencia y Tecnología e Innovación de Acceso Abierto;

Que, el Repositorio Nacional Digital de Ciencia y Tecnología e Innovación de Acceso Abierto, busca la difusión y desarrollo del conocimiento

**Artículo 3.- Vigencia**  
El presente Decreto a partir del día siguiente Oficial El Peruano.

**Artículo 4.- Refrend**  
El presente Decreto Presidenta del Consejo

Dado en la Casa de los Diputados el día 22 de mayo de 2014.

OLLANTA HUMALTA  
Presidenta del Consejo

ANA JARA VELÁSQUEZ  
Presidenta del Consejo



Actividad Legislativa

Participación Ciudadana

Transparencia

Home / Actividad Legislativa / Búsqueda de Proyectos / Datos del Expediente

A+ A- [Print] [Share] [Refresh]

### NÚMERO DE EXPEDIENTE 26/12

N°	Origen	Tipo	Extracto
26/12	Cámara De Diputados	Proyecto De Ley	PROYECTO DE LEY EN REVISIÓN ESTABLECIENDO LA OBLIGATORIEDAD DE DESARROLLAR REPOSITARIOS DIGITALES DE ACCESO ABIERTO, PROPIOS O COMPARTIDOS, POR PARTE DE LOS ORGANISMOS E INSTITUCIONES PUBLICAS QUE COMPONEN EL SISTEMA NACIONAL DE CIENCIA, TECNOLOGIA E INNOVACION.

Texto Original | Texto Definitivo | **Trámite Legislativo** | Etapa Diputados



# Plan S Signatories

- Austrian Science Fund
- Academy of Finland
- French National Research Agency
- Science Foundation Ireland
- National Institute for Nuclear Physics (Italy)
- National Research Fund (Luxembourg)
- Netherlands Organisation for Scientific Research
- Research Council of Norway
- National Science Centre Poland
- Slovenian Research Agency
- Swedish Research Council for Health, Working Life and Welfare
- Swedish Research Council for Sustainable Development
- UK Research and Innovation UKRI
- European Commission

Local vs. global

# Science is global!



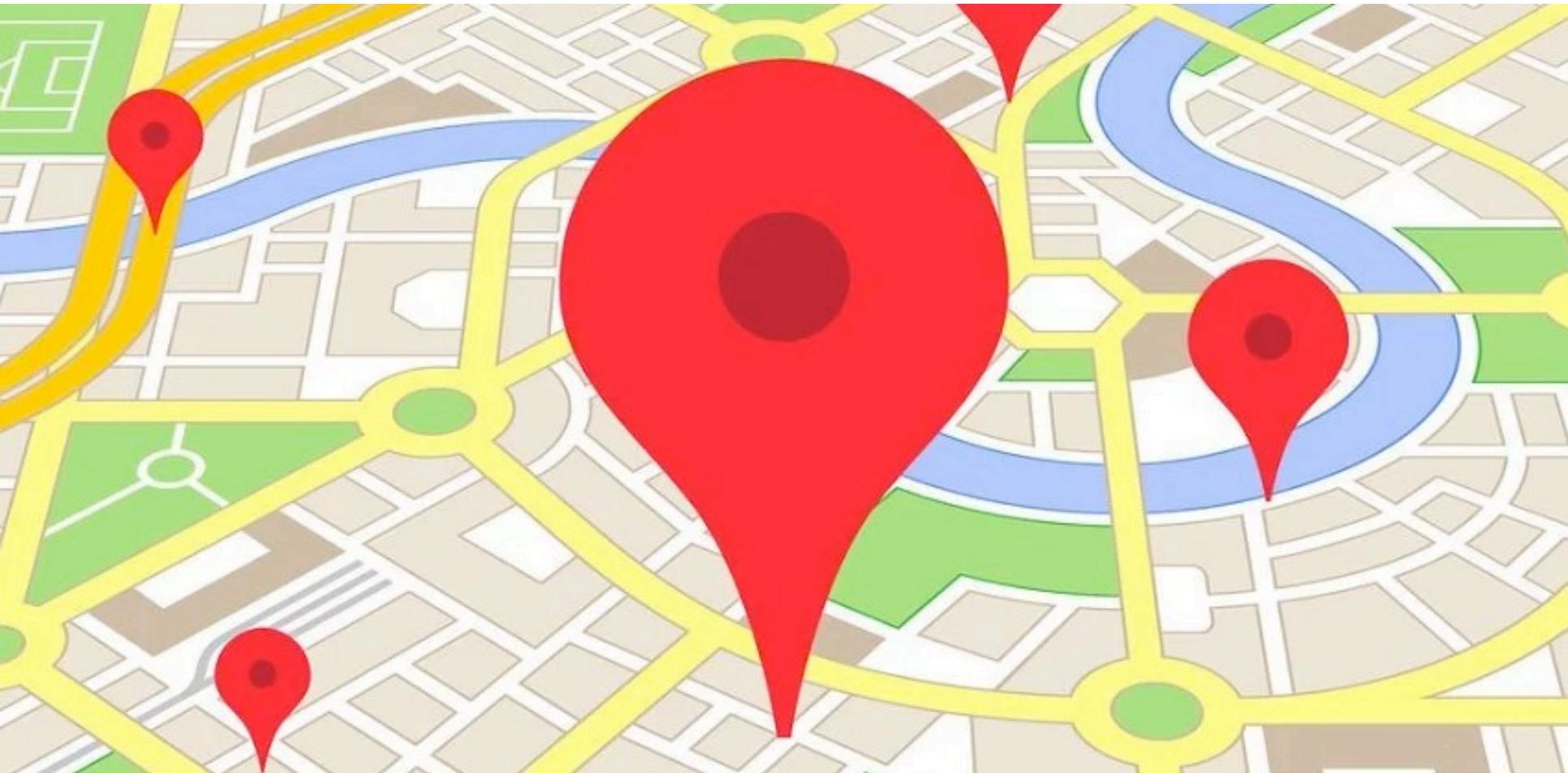
## At the Heart of Global Research and Education Networking



Climate change: “Between 2008 and 2014, more than 25 million people per year were uprooted because of rapid-onset disasters such as floods and storms.” (International Displacement Monitoring Center)



But, science is also local!







Commercial vs.  
Academy-owned

# The access problem

TABLE 1: AVERAGE 2017 PRICE FOR SCIENTIFIC DISCIPLINES

DISCIPLINE	AVERAGE PRICE PER TITLE	DISCIPLINE	AVERAGE PRICE PER TITLE
Chemistry	\$4,773	Botany	\$2,053
Physics	4,369	Zoology	1,988
Engineering	3,408	Math & Computer Science	1,971
Biology	2,917	Geography	1,742
Food Science	2,567	Health Sciences	1,736
Geology	2,381	Agriculture	1,666
Technology	2,234	General Science	1,556
Astronomy	2,071		

SOURCE: LJ PERIODICALS PRICE SURVEY 2017

## Global results of the analysis

	Out of 50,000 journals
Used journals	16,816
Cited journals	9,075
Journals mentioned by our community in the survey	8,060
<b>subtotal</b>	<b>26,843 unique titles used/cited/mentioned</b>
«essential titles» (80%)	4,852
Additional titles (from validation by departments)	1,041
<b>subtotal</b>	<b>5,893 unique essential titles</b>
<b>2,940 titles with quantitative approach</b>	<b>2,953 titles from community consultation</b>

# Elsevier's profits swell to more than £900 million

But 'risks' of open access and a shift away from subscription model could halt growth, publisher's financial results reveal

February 20, 2018



By [David Matthews](#)

Twitter: [@DavidMJourn](#)

> 1.2 billion US





The long read

Is the staggeringly profitable business of scientific publishing bad for science?

**YES!**

# The flip? Germany and Sweden

## Sweden stands up for open access – cancels agreement with Elsevier

Pressmeddelande · Maj 16, 2018 08:45 CEST



Large science publisher Elsevier does not meet the requirements of Swedish universities and research institutes.

## Talks collapse as Germany rejects 'unacceptable' Elsevier offer

Publisher says it remains 'committed' to striking a deal, but question mark hangs over institutions' continuing access



# Open access via Article Processing Charges?



Figure 9: Average APC

Jisc 2016: Average APC cost was about £1745 (~\$2400 US)

The widespread dissemination of research outputs contributes to all 17 sustainable development goals



But our system for sharing and disseminating research must also be sustainable



### **The Fair Open Access Principles**

1. The journal has a transparent ownership structure, and is controlled by and responsive to the scholarly community.
2. Authors of articles in the journal retain copyright.
3. All articles are published open access and an explicit open access licence is used.
4. Submission and publication is not conditional in any way on the payment of a fee from the author or its employing institution, or on membership of an institution or society.
5. Any fees paid on behalf of the journal to publishers are low, transparent, and in proportion to the work carried out.

# Published on May 9, 2016



United Nations  
Educational, Scientific and  
Cultural Organization



## **Joint COAR-UNESCO Statement on Open Access**

Open access is a global trend, with policies and practices rapidly being adopted around the world. As the world enters a new era of sustainable development, openness and inclusiveness in scientific research will become increasingly critical. While most governments agree on the underlying principles of open access, there is significant diversity in the way countries have approached its implementation. These differences reflect a range of perspectives, values, and priorities of the different regions. Clearly, there is no “one-size-fits-all” solution to implementing open access.

Beyond the journal

PHILOSOPHICAL  
TRANSACTIONS.

Giving some

ACCOUNT

OF THE

*Present Undertakings, Studies and Labours*

OF THE

INGENIOUS,

In many

Considerable Parts of the World.

VO L. XXII. For the Years 1700 and 1701.

LONDON,

Printed for *S. Smith* and *B. Walford*, Printers to the  
*Royal Society*, at the *Prince's Arms* in *St Paul's*  
Church-yard. MDCCII.

ISSN 1364-503X | Volume 376 | Issue 2120 | 28 May 2018

PHILOSOPHICAL TRANSACTIONS  
OF THE ROYAL SOCIETY A

MATHEMATICAL, PHYSICAL AND ENGINEERING SCIENCES

**The promises of gravitational-wave astronomy**

Discussion meeting issue organised and edited by *Iain Martin*, *Nils Andersson*, *Carole Mundell*  
and *James Hough*



THE  
ROYAL  
SOCIETY  
PUBLISHING

# Unbundling the scholarly journal

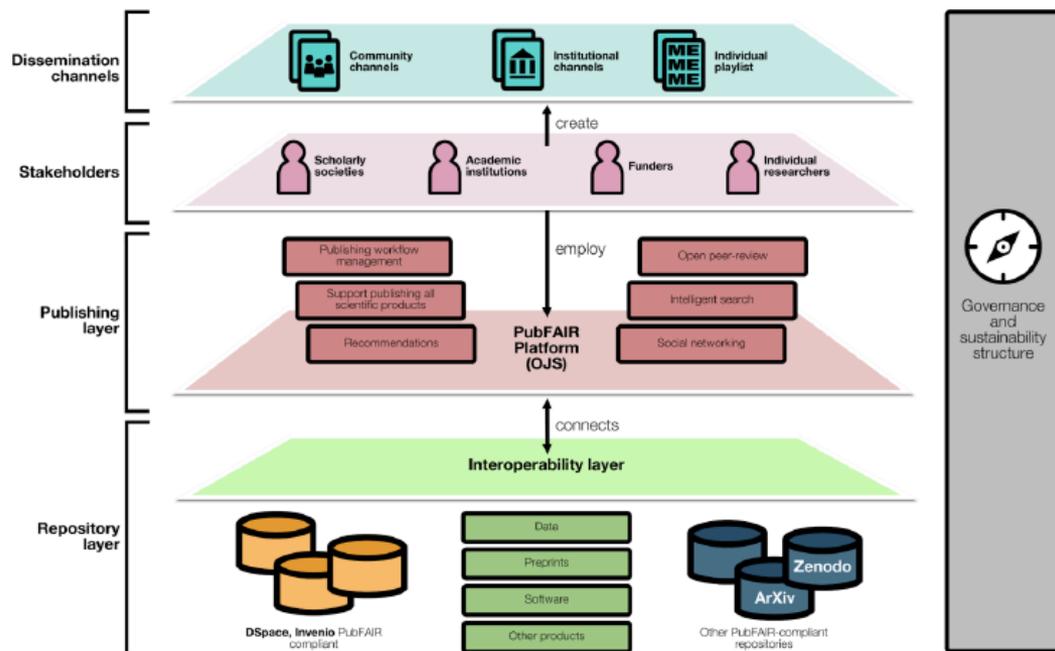
5 functions of scholarly publishing:

1. Registration
2. Certification
3. Awareness
4. Archiving
5. Rewarding

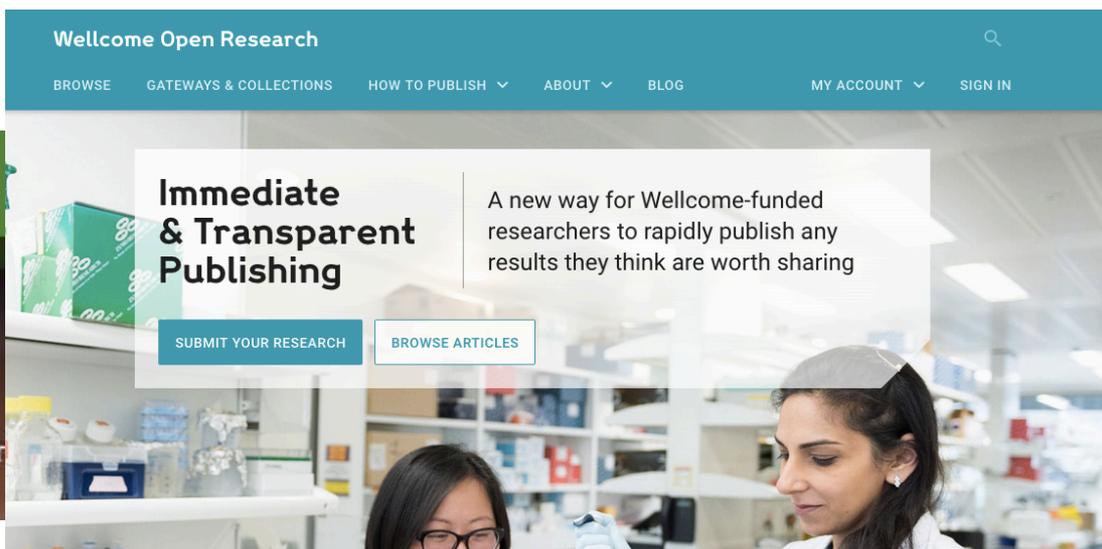
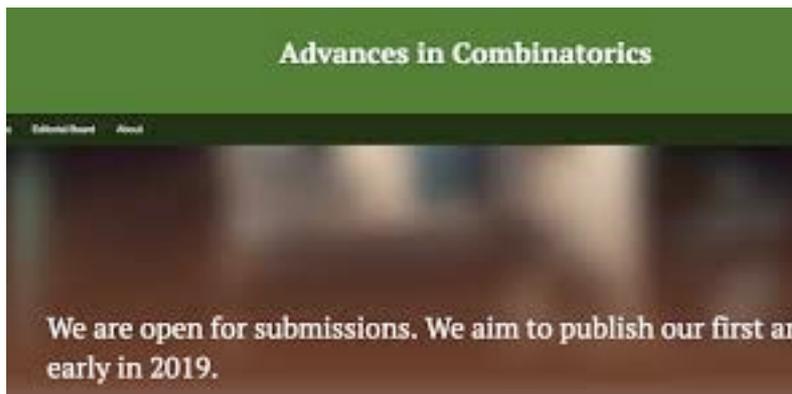


# Innovations in scholarly publishing

Figure 1 - PubFAIR high level architecture



## 1.2.1.1 Depository layer



Research data as a  
first class citizen

# Data as first class research outputs

## CHALLENGE

Wider access to scientific facts and knowledge helps researchers, innovators and the public find and re-use data, and check research results:

offers better value for EU research funds

encourages research across scientific fields



a public benefit



essential for solving today's complex societal challenges

## SOLUTION

Horizon 2020 already mandates open access to all scientific publications



From 2017,  
research data is  
**open by default,**  
with possibilities to opt out

# FAIR Principles

[Home](#) › [FAIR Principles](#)



## How can libraries get started?

Libraries have a strong tradition in describing resources, providing access and building collections, and providing support for the long-term stewardship of digital resources. Building on their specific knowledge and expertise libraries should feel confident with making research data FAIR. How can libraries get started with the FAIR principles?

- Promote the FAIR principles to local research and IT staff;
- Incorporate the FAIR principles in your Data Management Plans and your digital preservation practices and policies;
- Seek opportunities to curate, enrich, capture and preserve research data that will aid in making data findable, accessible, interoperable and reusable. Good starting points are collections of individual researchers, or a data collection of a research group;
- Train subject and data librarians on disciplinary metadata, vocabularies and tools to make data FAIR;
- Encourage researchers to deposit data with archives that embody the FAIR principles;
- Evaluate the data collections and data management practices at your institution against the FAIR principles.

# Creating an integrated ecosystem

## EUROPEAN OPEN SCIENCE CLOUD

BRINGING TOGETHER CURRENT AND FUTURE DATA INFRASTRUCTURES

A trusted, open environment  
for sharing scientific data

Open and seamless  
services to analyse and  
reuse research data

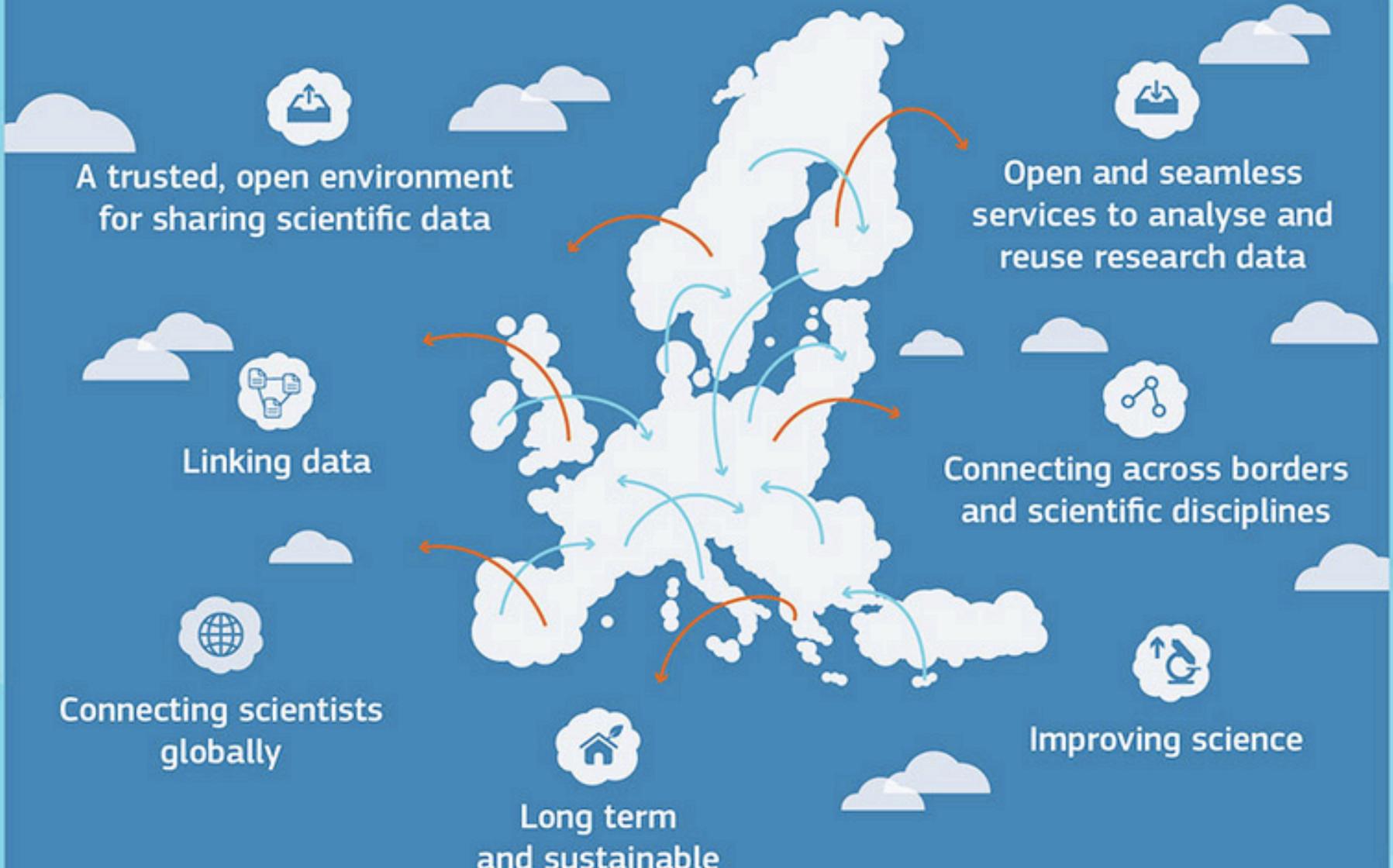
Linking data

Connecting across borders  
and scientific disciplines

Connecting scientists  
globally

Improving science

Long term  
and sustainable



# Addressing the Incentive System

# The way we assess research contributions is too heavily dependent on publishing in the international journals



<http://www.shanghairanking.com/>

**ARWU is an influential ranking list of world universities compiled by Shanghai Jiao Tong University (SJTU).**

Each year, the top 500 universities in the world are ranked based on a set of criteria:

Criteria	Indicator	Weight
Quality of Education	Alumni of an institution winning Nobel Prizes and Fields Medals	10%
Quality of Faculty	Staff of an institution winning Nobel Prizes and Fields Medals	20%
Per Capita Performance	Per capita academic performance	10%
Total	-	100%

From ARWU website: <http://www.shanghairanking.com/ARWU-Methodology-2017.html>

Peer review and scientific publishing

# Nobel winner declares boycott of top science journals

Randy Schekman says his lab will no longer send papers to Nature, Cell and Science as they distort scientific process

Ian Sample, science correspondent

@iansample

Monday 9 December 2013 19.42 GMT



“The pressure to publish in "luxury" journals encourages researchers to cut corners and pursue trendy fields of science instead of doing more important work.”

(Randy Schekman, University of California, Berkeley )

## Improving how research is assessed

Join the organizations and individuals who have signed the Declaration on Research Assessment.

[Sign the declaration](#)

[Read the full declaration »](#)

# Declaration on Research Assessment (DORA)

## General Recommendation

1. Do not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions.

# Five prerequisites for a sustainable knowledge commons

1

Strengthen local institution-based services that preserve and provide access to diverse and valuable research products

Connect local services to national, regional and global networks through the adoption of interoperable standards and practices

2

3

Begin to redistribute funds towards services that add value to the networks, such as peer review

Improve the processes used to evaluate research contributions to include a wider range of qualitative and quantitative metrics and indicators

4

5

Adopt the principles and governance that will ensure the commons reflects the needs of the global research community

# What are we doing? Working with universities and national/regional organizations to build a global network for open scholarship



Japanese Institutional Repositories Online Cloud





# What can you do?

- Raise awareness with your community about the benefits of open access / open science
- Strengthen institutional services for managing and publishing content
- Work with researchers to adopt good practices for data management
- Continue to engage with international colleagues

Thank you!

**তোমাদের সবাইকে ধন্যবাদ**