

Building Together an Open Science Monitor

Tracking trends for open access, collaborative and transparent
research across countries and disciplines

Open Science Conference, Berlin, 19-20 March 2019

*“The European Union could save
€10.2 billion per year by using
FAIR* and free open access
research data.”*

PwC EU Services (March 2018). *Cost-Benefit analysis for FAIR research data - Cost of not having FAIR research data*. Directorate General for Research and Innovation (European Commission).

*FAIR: Data meeting standards of Findability, Accessibility, Interoperability and Usability.

Overview

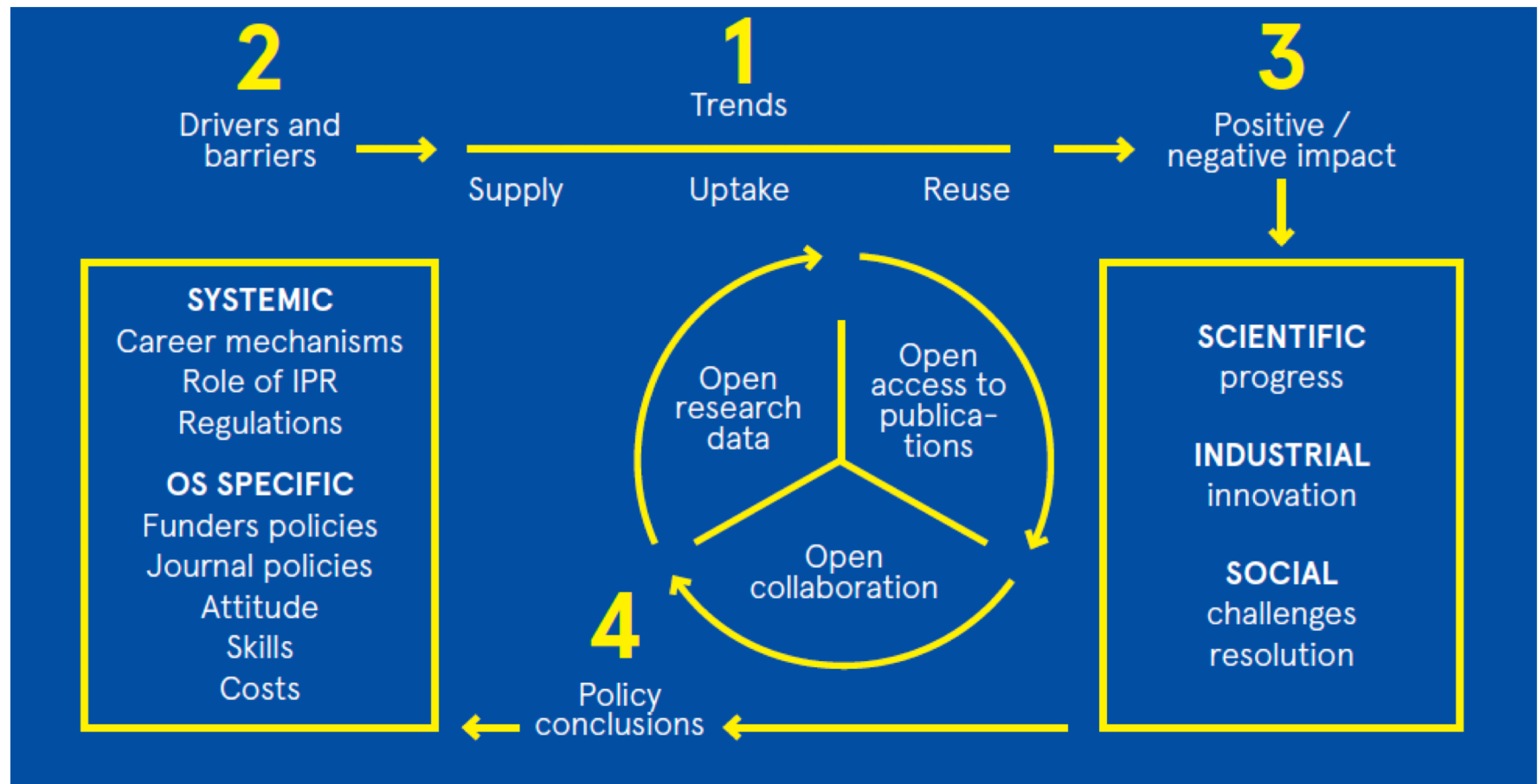
The **Open Science Monitor** was initiated by the European Commission in 2013 with the aim of **monitoring and analysing open science trends** worldwide in a **collaborative and open way**.

Why Develop an Open Science monitor?

To determine the **scope, nature** and the **impacts** of Open Science in Europe and globally across the research cycle in order to **provide an evidence-based view of evolution of Open Science** and **facilitate policy making**.

Steps to Building an Open Science Monitor

The study team will follow the following methodology to continue to build the Open Science Monitor.



Trends: Open Access to Publications

Open access to publications refers to freely, legally and sustainably accessing research publications. These are divided into:

Gold/Hybrid Open Access: research outputs made OA by the publisher.

- Journal publications are freely available on the journal website.
- The cost of publishing is recovered upfront typically as an Article Publishing Charge (APC).
- In gold, the whole journal is OA.
- In hybrid, a single publication is OA in a non-OA background.

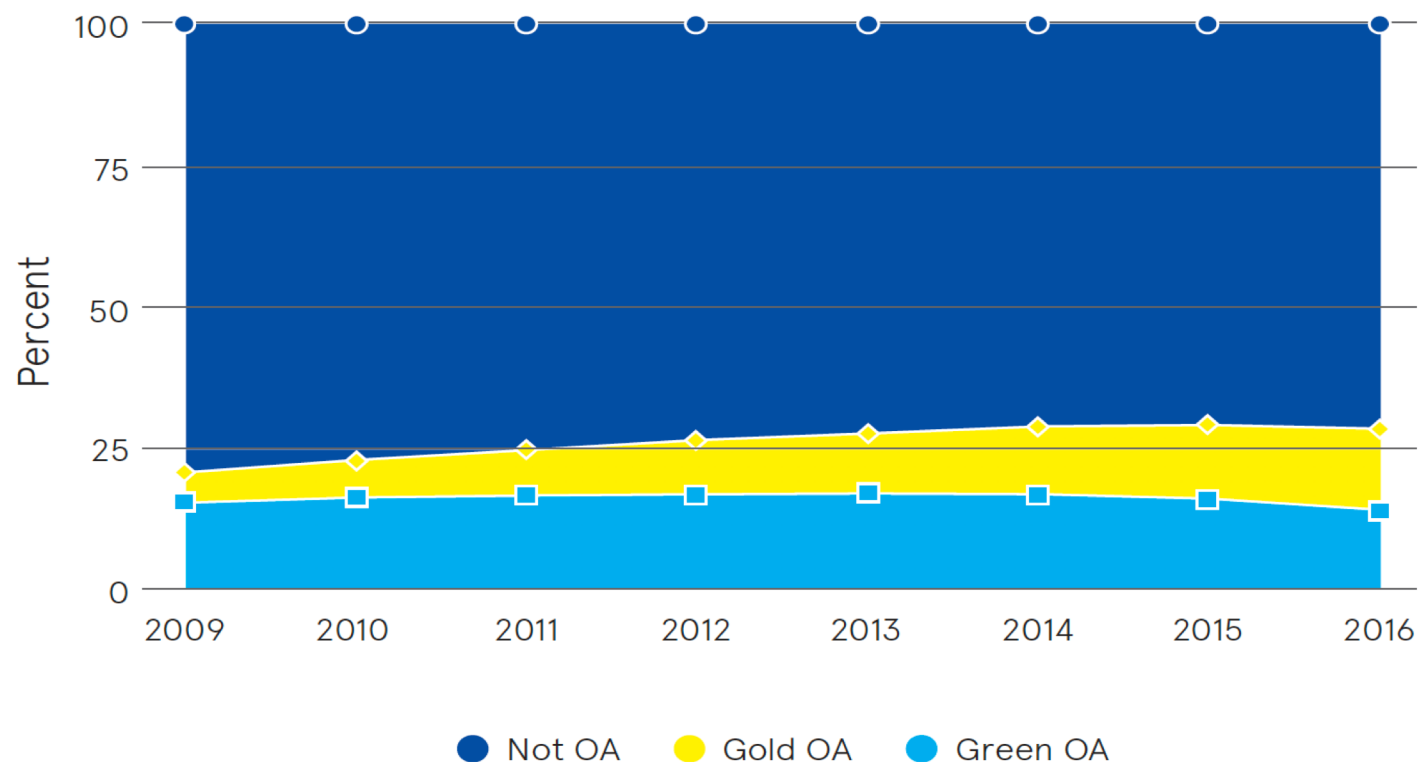
Green Open Access: research outputs made OA by the author independently in an OA repository and in a version of the subscription article.

- There is no Article Publishing Charge (APC).

Trends: Open Access to Publications

Percentage of open access publications (gold and green) by year on total

Source: Consortium's own analysis of Scopus database



Trends: Open Research Data

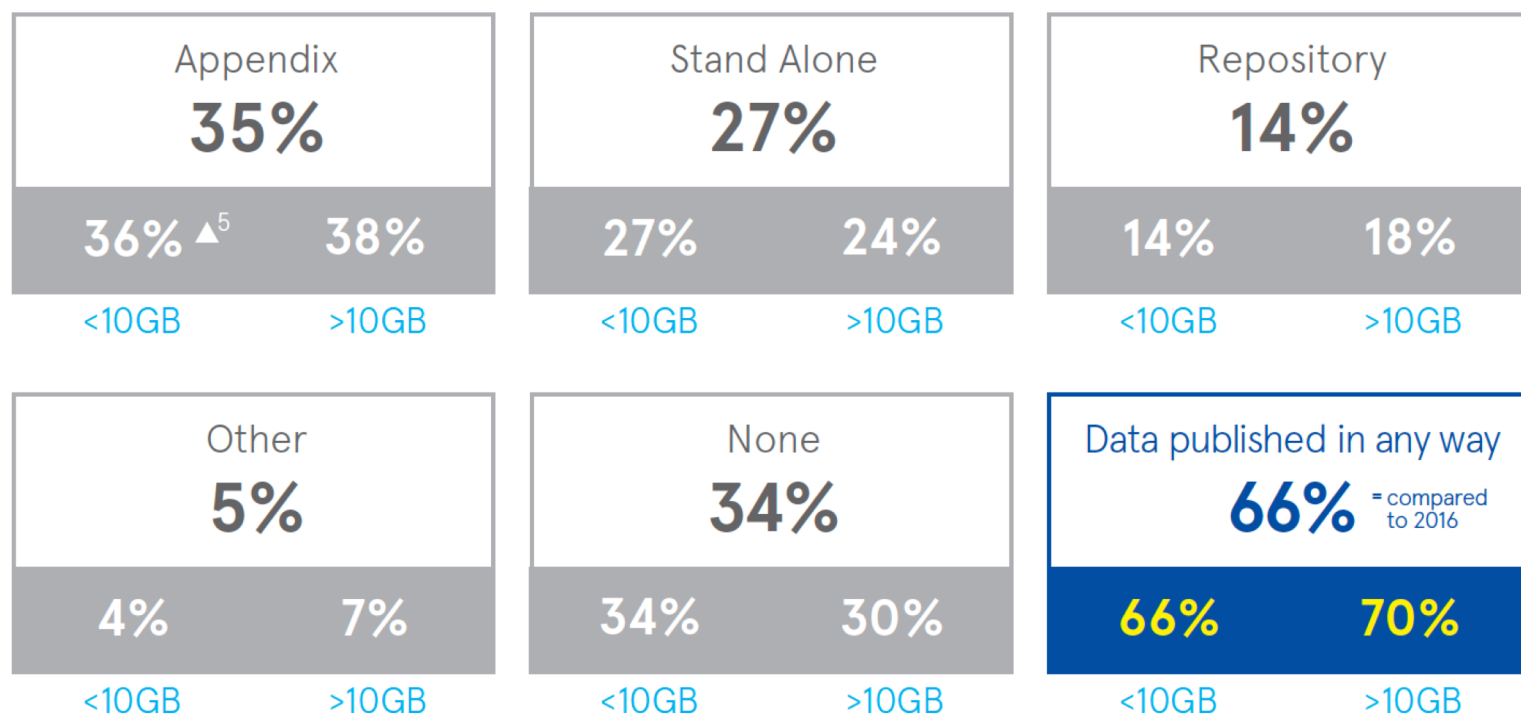
Open research data refers to the data underpinning scientific research results that has no restrictions on its access, enabling anyone to access it.

- The number of researchers sharing data in their last project has remained stable with no growth shown over the past two years.
- 42% of researchers declare that they rely on data from other researchers and 74% declare they would benefit from access to others' research data.
- The majority of researchers do take steps to manage their research data for potential future reuse (89%).

Trends: Open Research Data

Means of publishing the research data used or created in previous project by researchers

Source: Open Science Monitor Survey on Open Research Data 2018

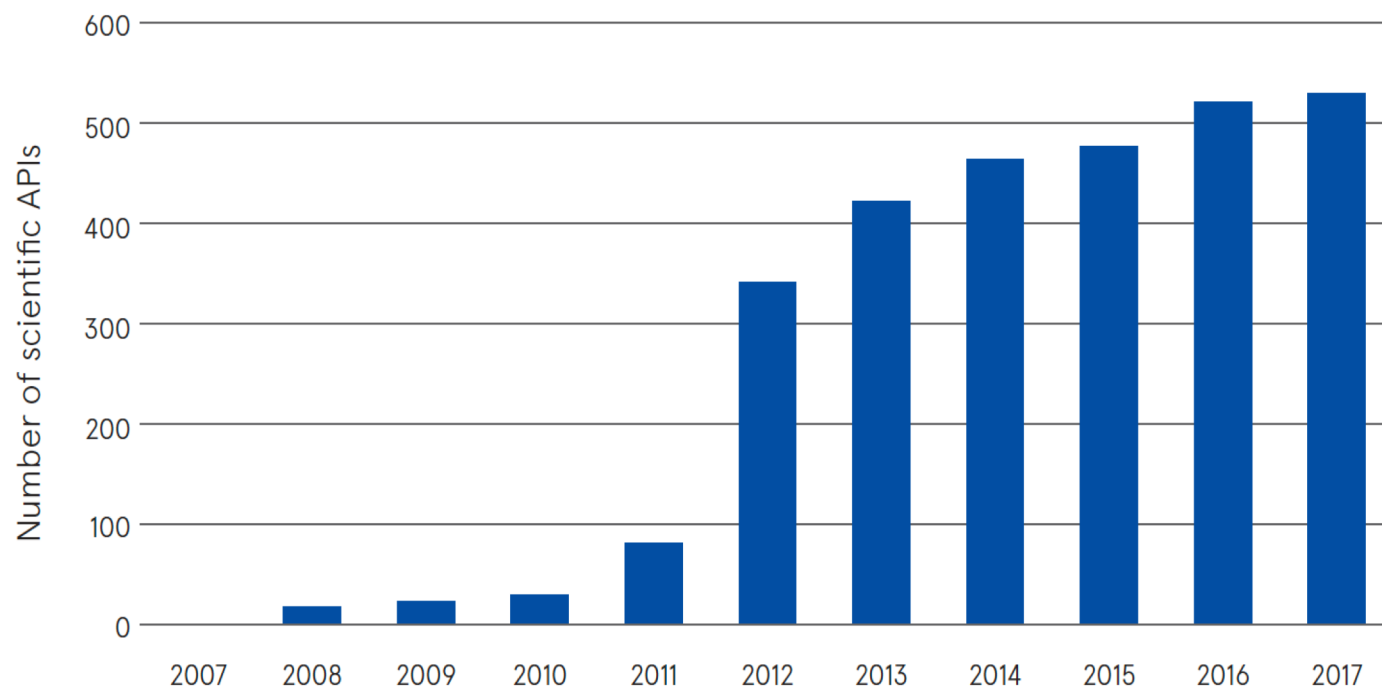


Trends: Open Collaboration

Open scientific collaboration refers to the forms of collaboration in the course of the scientific process that do not fit under open data and open publications.

Number of scientific APIs

Source: ProgrammableWeb - Reference date. April 20th 2018



Drivers Behind Open Science

There are many different drivers at play which can facilitate the adoption of open science. Journal and funders' policies are increasingly in place. Examples of the drivers behind open science include:

Funder
mandates on OA

Research journal
mandates on OA

Funder
mandates on
data archiving

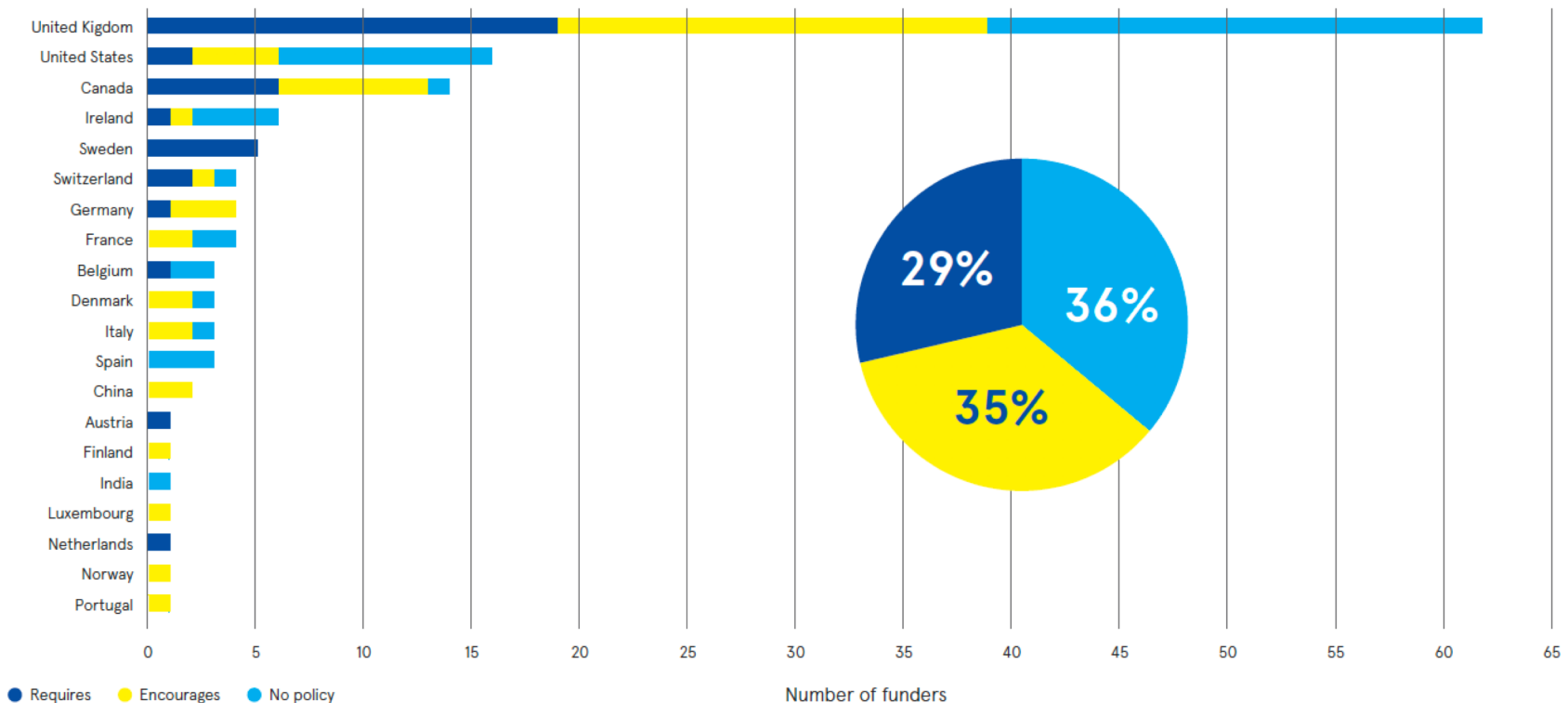
Journal policies
on Open Data

Journal policies
with regards to
Open Code

Drivers Behind Open Science: Example of Funder Mandates on OA

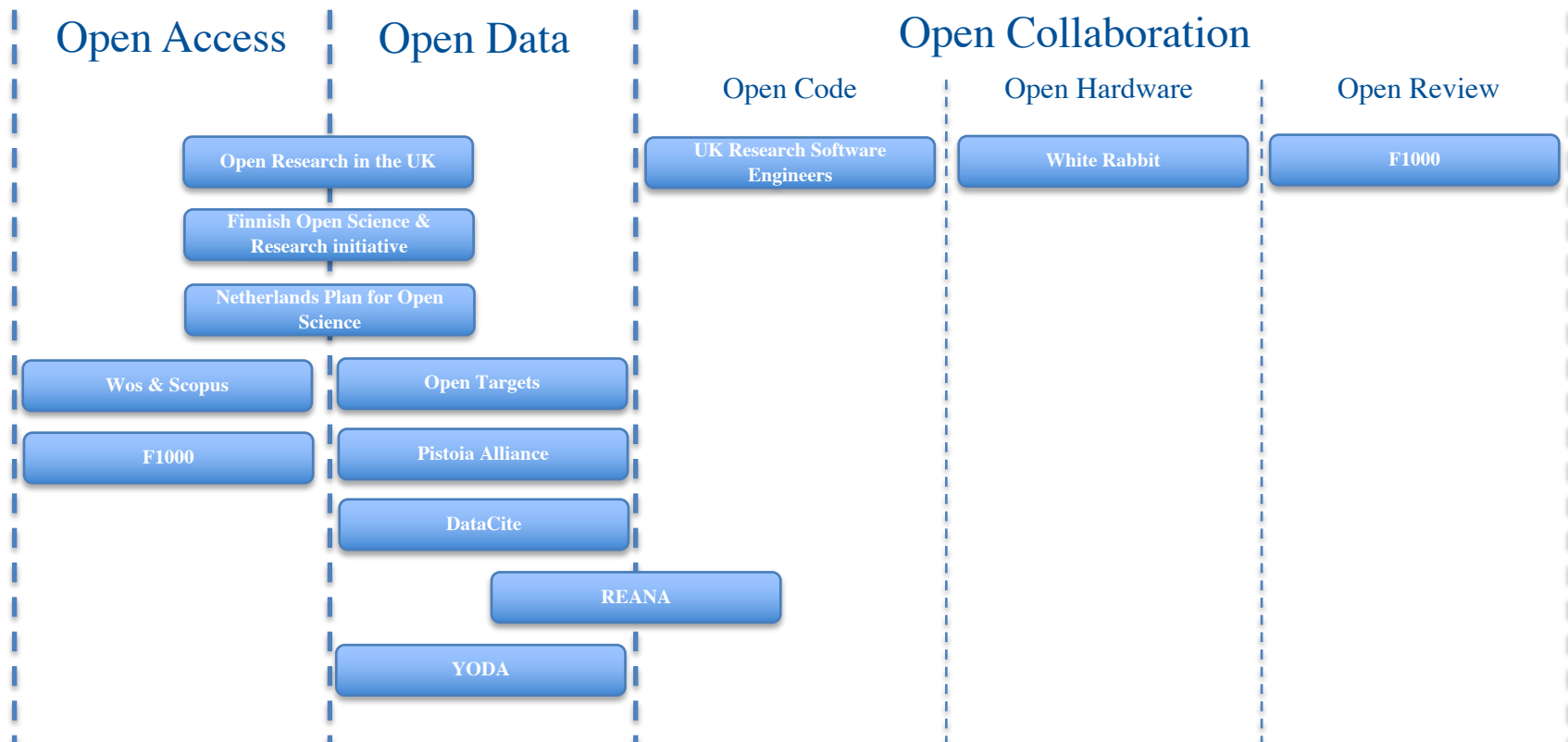
Number of funders with policies on open access – publishing, by type of mandate and country

Source: Sherpa-Juliet – Reference date: April 19th 2018



Case Studies

The OSM delivers 30 case studies on the drivers and barriers encountered regarding open science and the direct impact on three main areas: science, industry and society.



Approach

- To deliver a **monitoring system** (for Europe) and (global) **observatory for trends** in Open Science;
- To **set up a global reference point for the Open Science** community to interact with;
- To **determine the impacts of Open Science in the scientific domain**;
- To provide **structured analysis of policy-relevant trends** in Open Science.

“as open as possible, as closed as necessary”

Conclusions from the Council of the European Union on the underlying principle for optimal reuse of research data (2016).

An Open & Collaborative Process

- Methodology presented in draft, publicly commentable format. 300 comments received and discussed at expert workshop: https://www.makingspeechstalk.com/ch/Open_Science_Monitor/.
- Revised methodology published, with answer to each comment.

Main changes:

- Integration of Unpaywall data alongside Scopus.
- Double checking of results using different sources (e.g. WoS).
- Scopus data accessible to researchers to replicate methodology.
- Advisory board and LinkedIn group established.

Data sources used

During the elaboration of the Open Science Monitor, a wide variety of data sources are being used:

- **Bibliometrics:** for instance, open access to publications indicators, and partially for open data and altmetrics;
- **Online repositories;**
- **Surveys;**
- **Ad hoc analysis in scientific articles or reports;**
- **Data from specific services:** open science services often offer data on their uptake, as for Sci-starter or Mendeley.

The stakeholders involved in the study include researchers, research institutions, publishers, service providers, policy makers and research funders.

Proprietary vs. Open Data

The project uses the widest possible range of data. In some cases, proprietary data are still necessary (e.g. Scopus) because of the accuracy and richness of metadata. Hopefully, once the European Open Science Cloud is fully deployed, indicators will be automatically produced from open data sources.

Key bibliographic information

First author, incl. initials
Journal name
Title of publication
Publication year
Volume
Page numbers
DOI
PMID
EID (Scopus)
UT (WoS)

Additional bibliographic information

Journal name
Subject classification
Higher-level field labels

Field labels created by CWTS

Address information
• Country
• Institution

Address cleaning by CWTS

Thank you for your attention!

Get involved, have your say:

Contact:

Study Coordinator: david.osimo@lisboncouncil.net

Contribute to improving indicators:

<https://www.linkedin.com/groups/12143884/>

Access the Open Science Monitor:

www.ec.europa.eu/info/open-science-monitor/