Credit: Swiss National Science Foundation

Building a global knowledge commons through open access and open science

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COAR?

- An international association founded in 2009
- Office is based in Göttingen, Germany
- Members & Partners: over 120 institutions from 35 countries in Australia, Africa, Asia, Europe, North and South America
- Institutional membership fees: EUR 500
- CARL was a founding member
- ? Members from Asian region

Vision

A global knowledge commons based on a network of open access repositories

Working for a sustainable, global knowledge commons based on a network of open access digital 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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Twitter: @COAR_eV

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)

Asia OA is a special forum hosted by COAR in which members of the Asian open access community can share information, meet each other and build relationships. It has a mailing list and organizes meetings to facilitate greater exchange beyond national boundaries.

This community is dedicated to people working in the academic environment based in the Asian region. It celebrates Asian cultural diversity and unique way of doing things.

To join the mailing list, send an email to: office@coar-repositories.org

What is open science?

- Began with open access to publications, but moving to data and other types of research outputs
- Parallels to Open Government/Open Data movement

Open science involves:

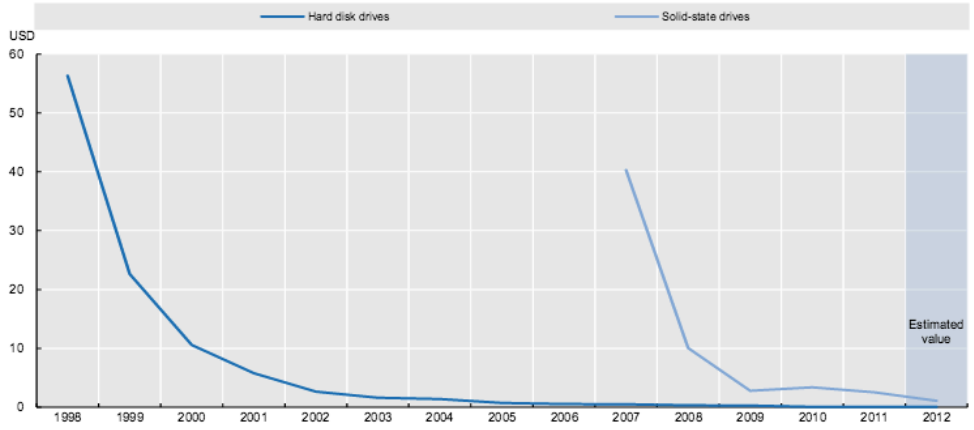
- Sharing and access to all types of research outputs
- Transparency of research findings
- Open peer review & open citations
- Equitable flow of knowledge

What is driving this trend?

1. Verification, reproducibility and transparency of scientific results
2. New scientific discoveries through re-use and integration of datasets
3. Greater social and economic benefits through application of research outputs
4. And because we can…

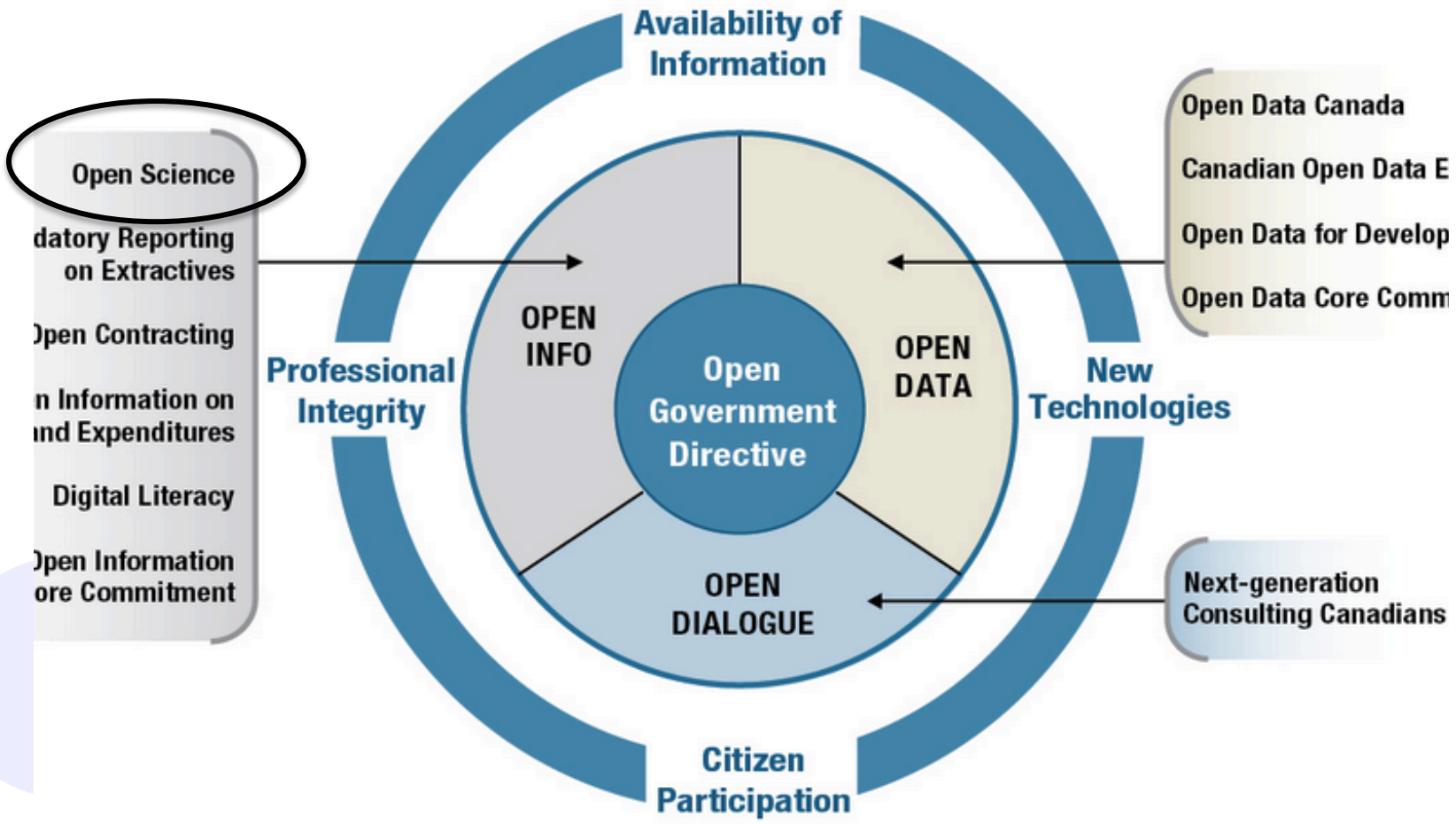
Figure ES.1 Average data storage cost for consumers

1998-2012, per Gbit



Source: OECD (2014), *Measuring the Digital Economy: A New Perspective*, OECD Publishing, Paris.

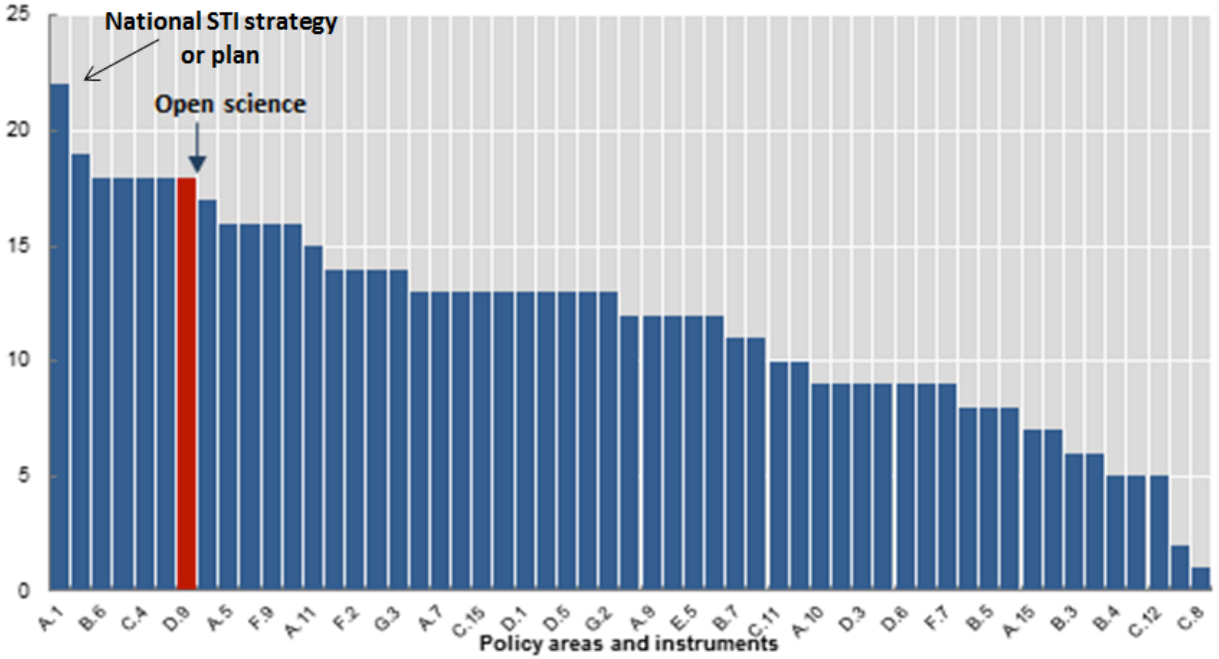
Eg. Canada's Open Government Action Plan



Open science is a global trend

Open science: a hot issue for OECD and non-OECD countries

Number of countries reporting that the situation has recently substantially changed in the policy area, compared with other STI policy areas or instruments



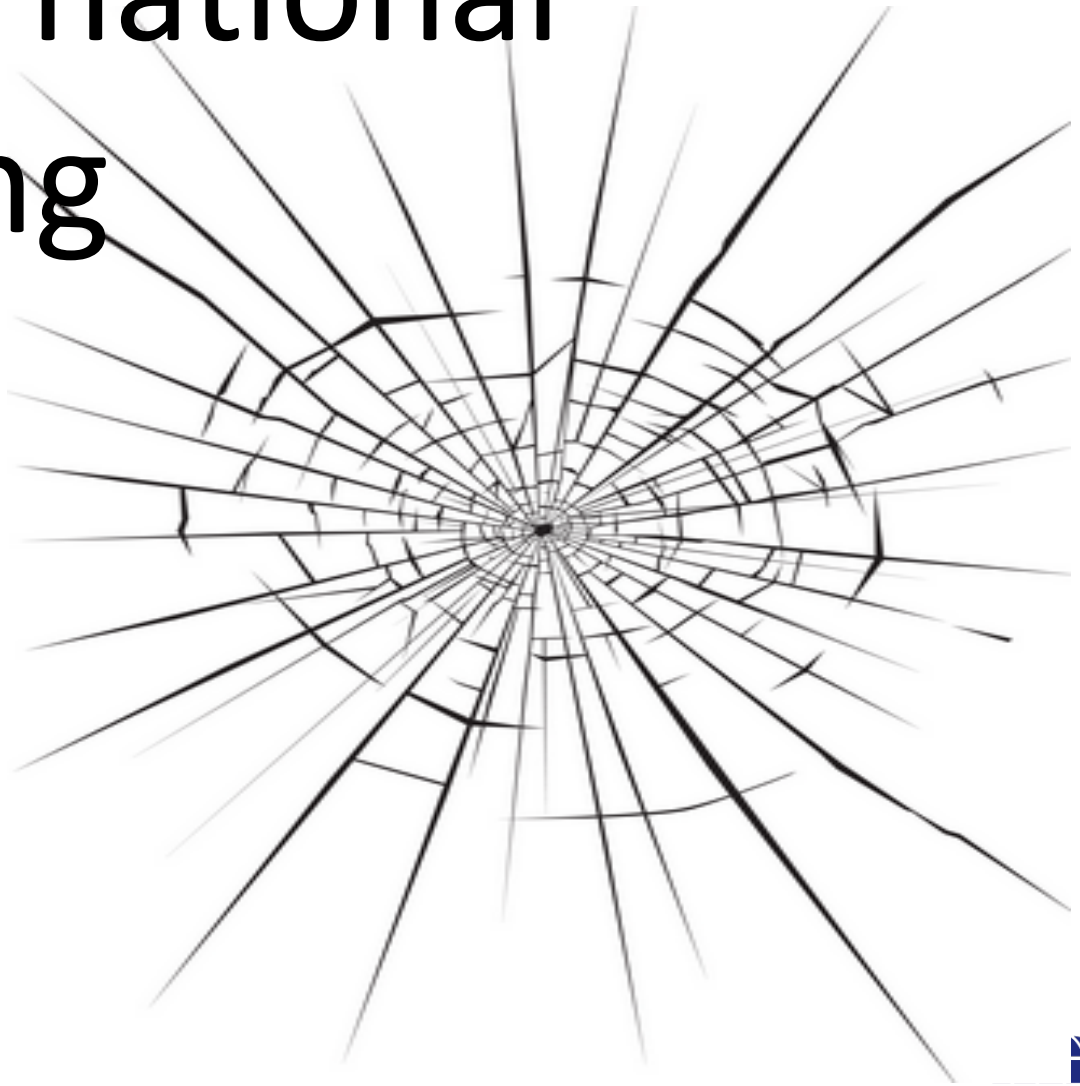
Note: Simple counts do not account for the magnitude and impact of policy changes.

Source: Country responses to the STI Outlook policy questionnaire 2014.

Current priorities for open science:

- **Publications (open access)**
- **Research data (open data)**

The international publishing system is broken!



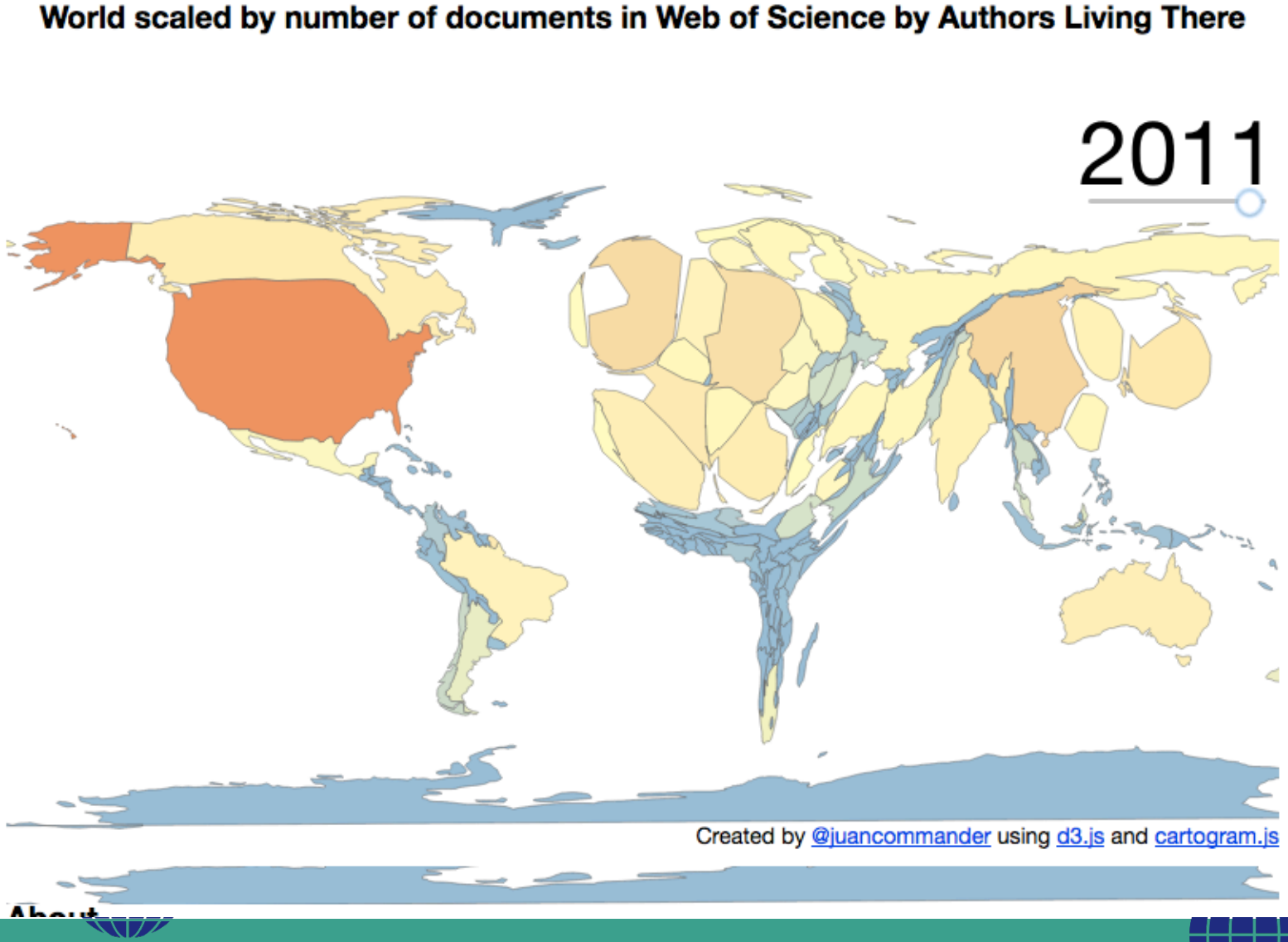
The access problem

TABLE 1: AVERAGE 2015 PRICE FOR SCIENTIFIC DISCIPLINES

DISCIPLINE	AVERAGE PRICE PER TITLE	DISCIPLINE	AVERAGE PRICE PER TITLE
Chemistry	$4,871	Zoology	$2,073
Physics	4,341	Technology	2,058
Engineering	3,039	Math & Computer Science	1,866
Biology	2,977	Health Sciences	1,694
Astronomy	2,730	General Science	1,643
Food Science	2,496	Agriculture	1,589
Botany	2,277	Geography	1,571
Geology	2,195		

SOURCE: LJ PERIODICALS PRICE SURVEY 2015

The participation problem



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

We are all complicit!

INDEXED IN 2016 JOURNAL CITATION REPORTS THOMSON REUTERS

Available online at www.sciencedirect.com

ScienceDirect

ELSEVIER

journal homepage: www.aidm-online.com

REVIEW ARTICLE

How to publish a scientific manuscript in a high-impact journal

Emad M. El-Omar*

CrossMark

10 simple strategies to increase the impact factor of your publication

by sven | Mar 5, 2015 | |

Impact factors are heavily criticized as measures of scientific quality. However, they still dominate every discussion about scientific excellence. They are still used to select candidates for positions as PhD student, postdoc and academic staff, to promote professors and to select grant proposals for funding. As a consequence, researchers tend to adapt their publication strategy to avoid negative impact on their careers. Until alternative methods to measure excellence are established, young researchers have to learn the "rules of the game".

OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

The Oligopoly of Academic Publishers in the Digital Era

Vincent Larivière, Stefanie Haustein, Philippe Mongeon

Published: June 10, 2015 • DOI: 10.1371/journal.pone.0127502

Abstract

The consolidation of the scientific publishing industry has been the topic of much debate within and outside the scientific community, especially in relation to major publishers' high profit margins. However, the share of scientific output published in the journals of these major publishers, as well as its evolution over time and across various disciplines, has not yet been analyzed. This paper provides such analysis, based on 45 million documents indexed in the Web of Science over the period 1973-2013. It shows that in both natural and medical sciences (NMS) and social sciences and humanities (SSH), Reed-Elsevier, Wiley-Blackwell, Springer, and Taylor & Francis increased their share of the published output, especially since the advent of the digital era (mid-1990s). Combined, the top five most prolific publishers account for more than 50% of all papers published in 2013. Disciplines of the social sciences have the highest level of concentration (70% of papers from the top five publishers), while the humanities have remained relatively independent (20% from top five publishers). NMS disciplines are in

Open access has arrived!

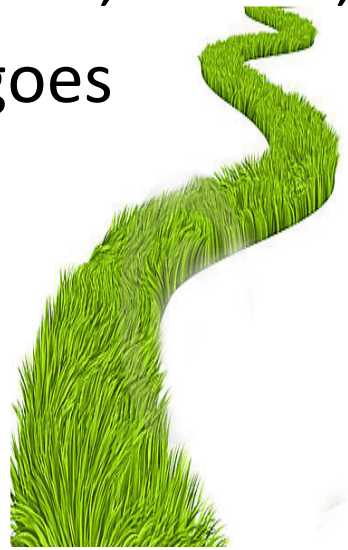
The two roads to open access

Open access journals

- Journals without subscriptions
- A variety of business models
- The large publishers are using APCs

Open access repositories

- More than 3000 based at institutions around the world
- Repository networks (e.g. NII, OpenAIRE, LA Referencia, SHARE, etc.)
- Embargoes



Smooth transition?

Photo credit: Roy Gumple (www.allposters.com)

The solutions of the major publishers: APCs (Article Processing Charges)

ELSEVIER

Open access publication fee

A fee is payable by the author, or their institution or funder to cover the publication costs. Fees range from $500 to $5,000 US Dollars. Visit your journal's home-pages for specific pricing information.

Open Choice: Your research. Your choice.

Open Choice allows you to publish open access in the majority of Springer's subscription-based journals.

The price to publish open access

The initial wide variety in APC prices and their general convergence shows that APC prices are not grounded in the actual cost of producing an article but rather are reflections of what the market can bear (Lawson, "APC Pricing", 2014). The report's estimate of £1,500-£2,000 may have encouraged cheaper journals to raise prices in order to be seen as high quality.

"Article processing charges (APCs) and subscriptions. Monitoring open access costs", Jisc. United Kingdom. Junio 2016 https://www.jisc.ac.uk/reports/apcs-and-subscriptions

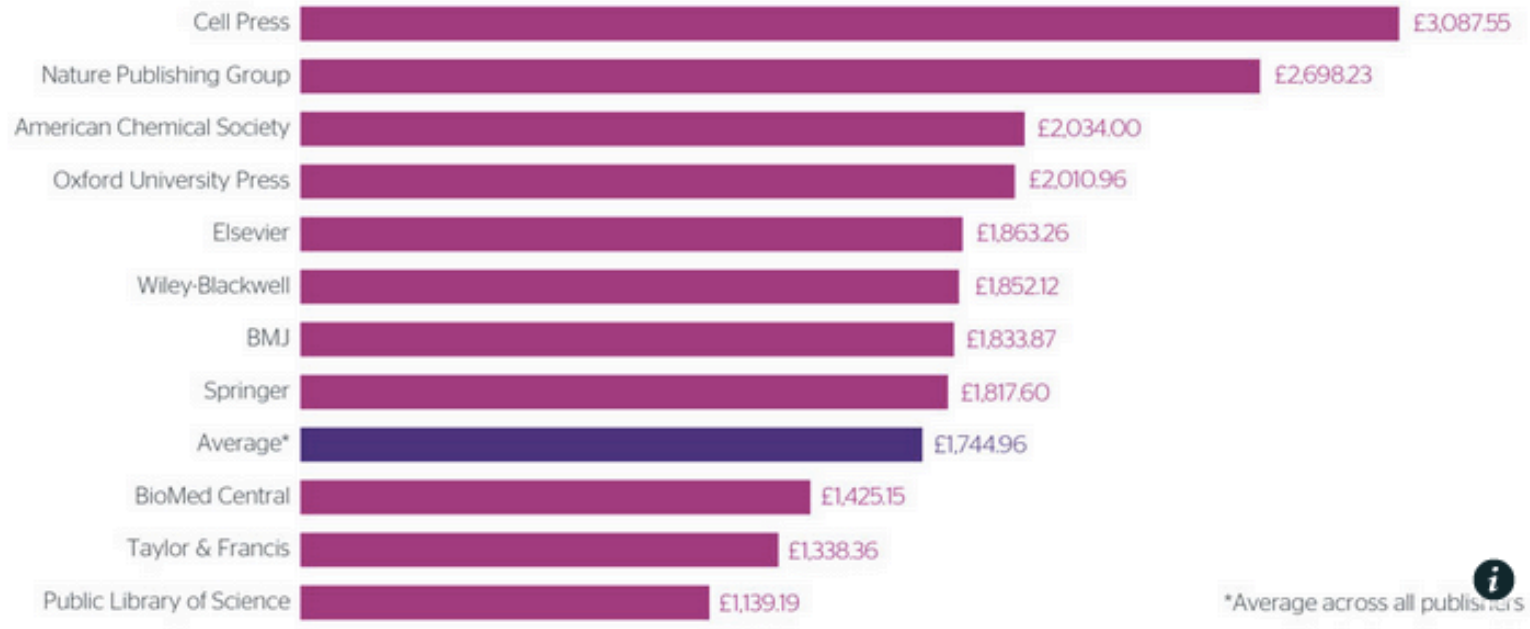


Figure 9: Average APC

£0.75 GBP = $1 US

Average price = $2334.58 US

European Union: May. 27, 2016

The Competitiveness Council meeting in Brussels this week. EU Competitiveness Council

In dramatic statement, European leaders call for 'immediate' open access to all scientific papers by 2020

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.

Another option…

Strengthen and add value to our local journals and repository networks

#9: Local infrastructure that is sustainable and inclusive

(Open, distributed systems, like the Internet, are more flexible, sustainable and less likely to failure or being bought out by commercial industry)

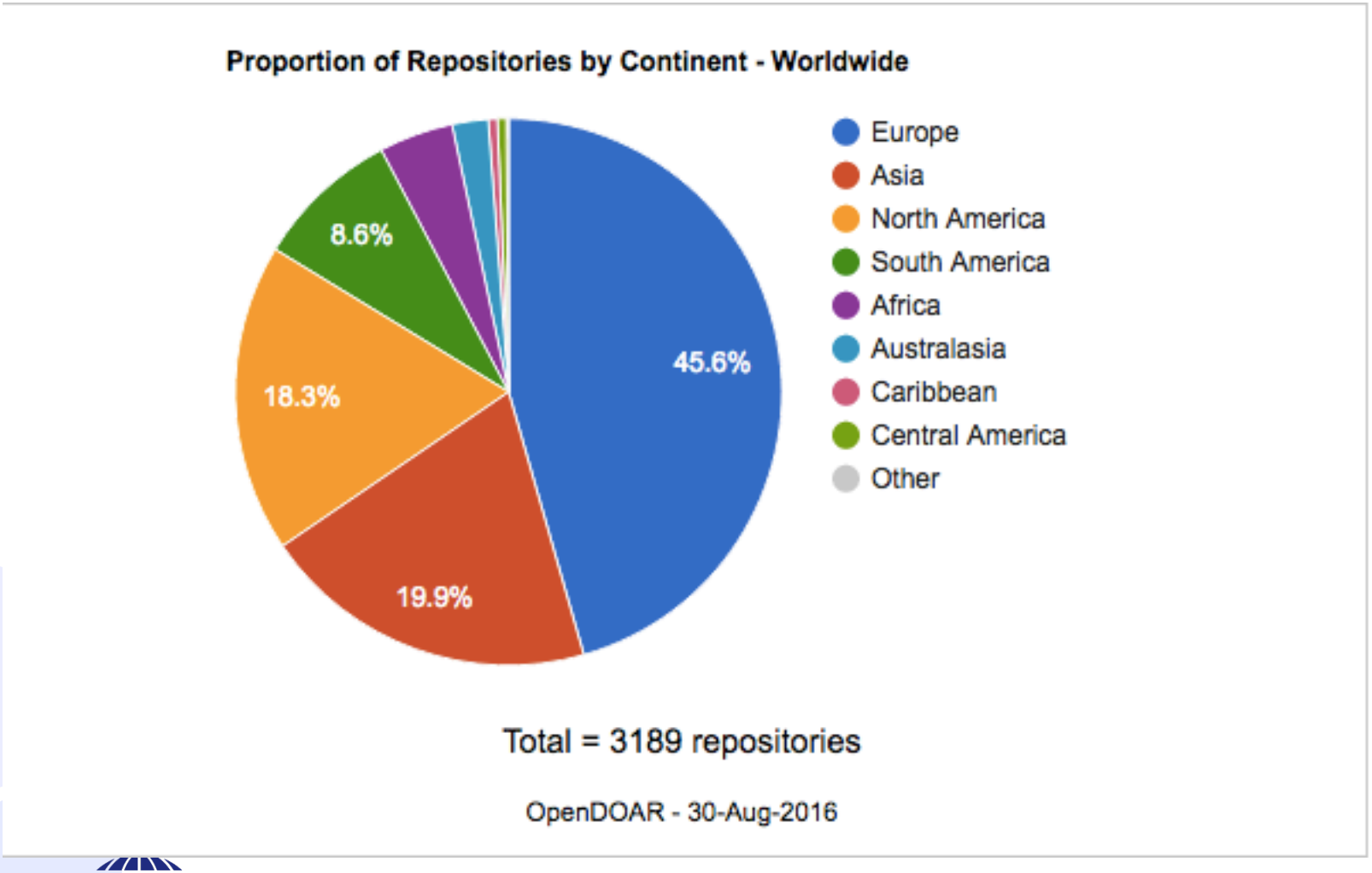
The vast majority of open access policies are green

OA Policy Requirements - Pasteur4OA Project (European Commission)

Criterion (Green OA)	Number of policies	Criterion (Gold OA)	Number of policies
Deposit in repository required (Green OA)	381	OA publishing required	2
Deposit in repository requested	140	Recommended alternative to Green OA	97
Deposit in repository not specified	141	Permitted alternative to Green OA	101
		Not specified/other	463
Total	**663**		**663**

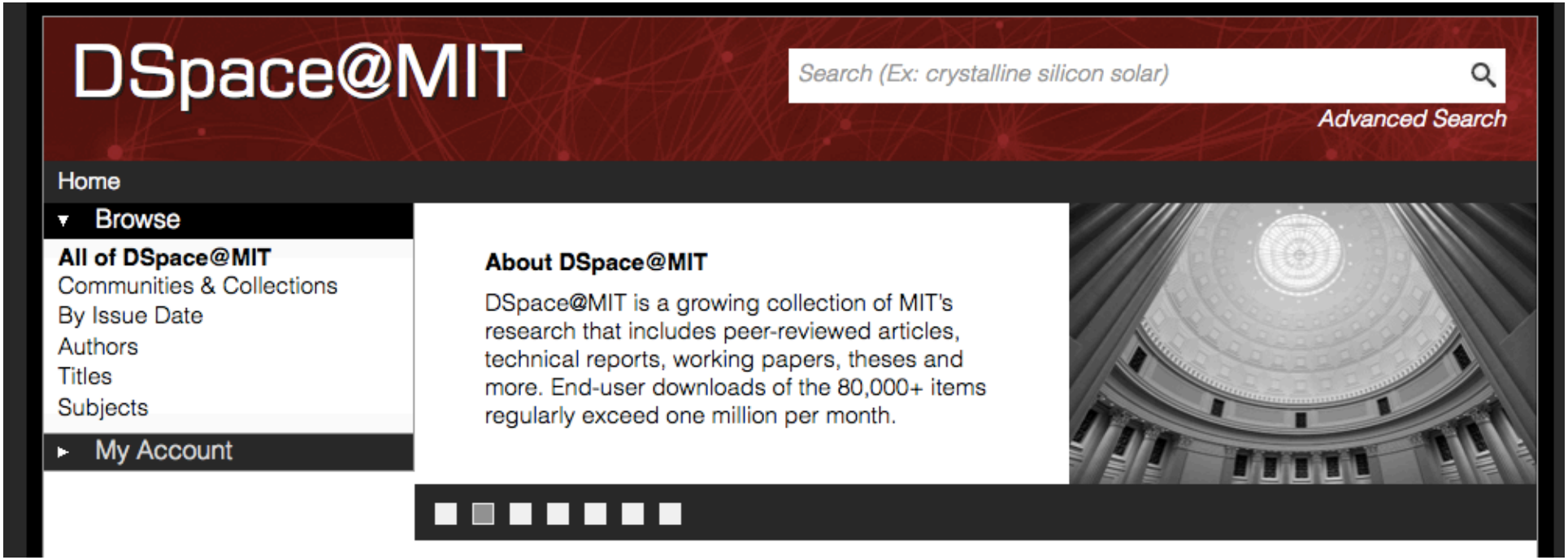
Table 3: Open Access policies: Green and Gold OA criteria

Current state of repositories internationally



Dual mission of repositories

1. Provide access to intellectual outputs of the institution, to the local community and to the world
2. Contribute as a node in a global knowledge commons



An institutional repository is/are…

"a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members." (Cliff Lynch 2002)

"digital collections capturing and preserving the intellectual output of a single or multi-university community" (Raym Crow 2002)

Science is increasingly global!

GÉANT Global Connectivity Map

From repositories to repository networks

中国科学院 机构知识库服务网格
CHINESE ACADEMY OF SCIENCES Institutional Repositories Grid

OpenAIRE

SHARE

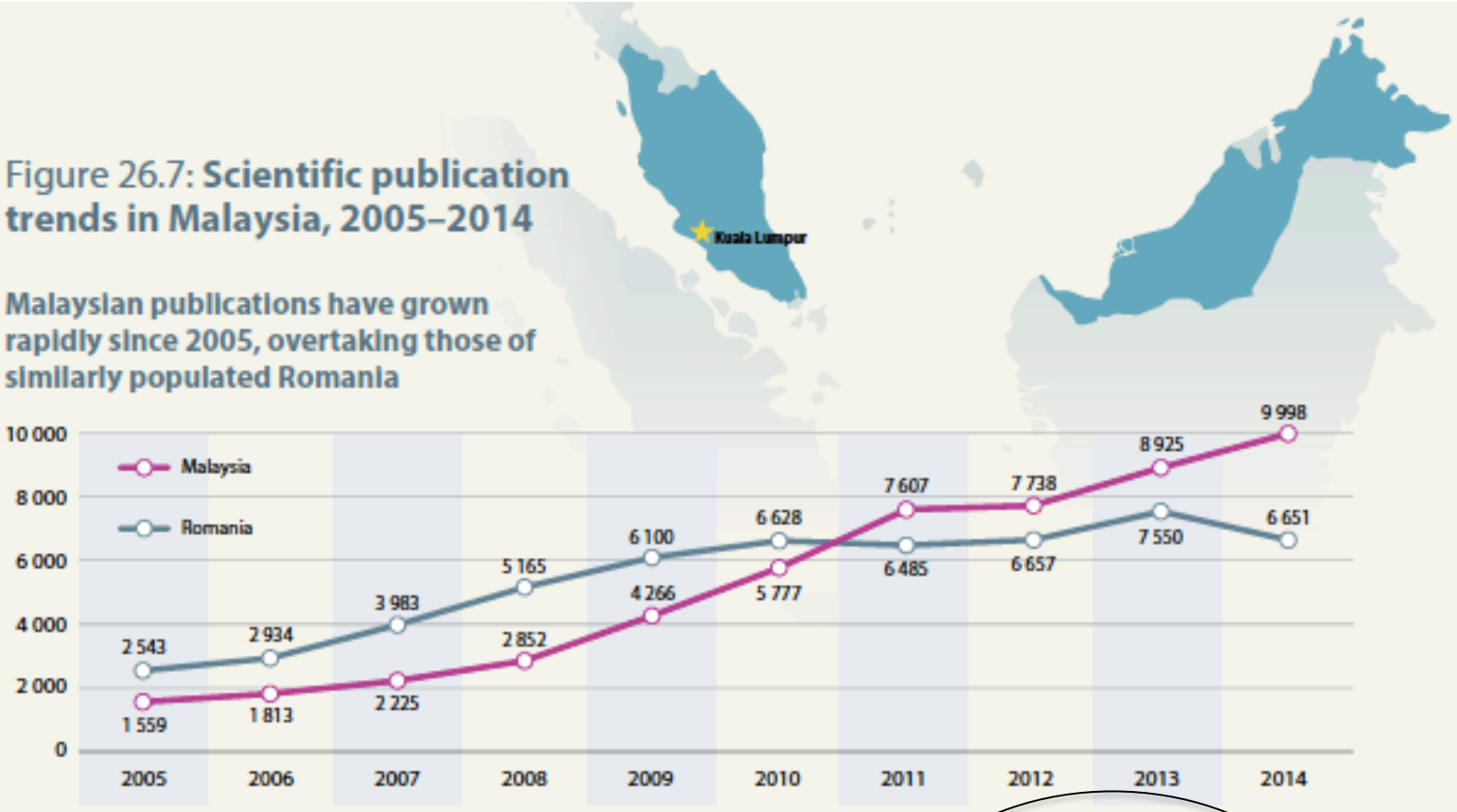
LA REFERENCIA

オープンアクセスリポジトリ推進協会
－JPCOAR : Japan Consortium for Open Access Repository－

The current role of repository networks

- Harvest from repositories
- Define community policies, practices, and standards
- Facilitate a community of practice
- Curate and transform metadata
- Track open access publications
- Create a brand for repositories

Figure 26.7: **Scientific publication trends in Malaysia, 2005–2014**



Malaysian publications have grown rapidly since 2005, overtaking those of similarly populated Romania

0.83

Average citation rate for Malaysian publications, 2008–2012; the OECD average is 1.08; the G20 average is 1.02

8.4%

Share of Malaysian papers among 10% most-cited, 2008–2012; the OECD average is 11.1%; the G20 average is 10.2%

46.4%

Share of Malaysian papers with foreign co-authors 2008–2014; the OECD average is 29.4%; the G20 average is 24.6%

Aligning repository networks

1. Strategic coordination

To have a shared vision and a stronger voice for the repository community internationally

2. Data exchange

To demonstrate that we are building truly global services!

3. Harmonization and standardization

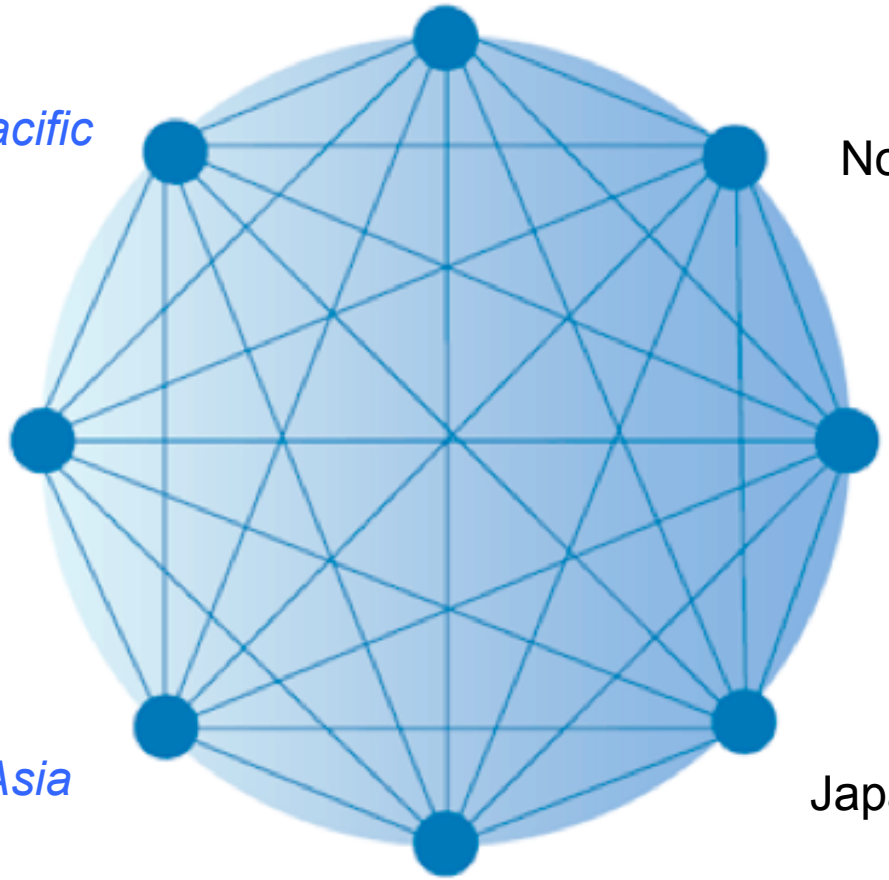
To support the development of value added services across region

Latin America (LA Referencia)

Australia/Pacific

North America (SHARE)

Africa



Europe (OpenAIRE)

Asia

Japan (NII)

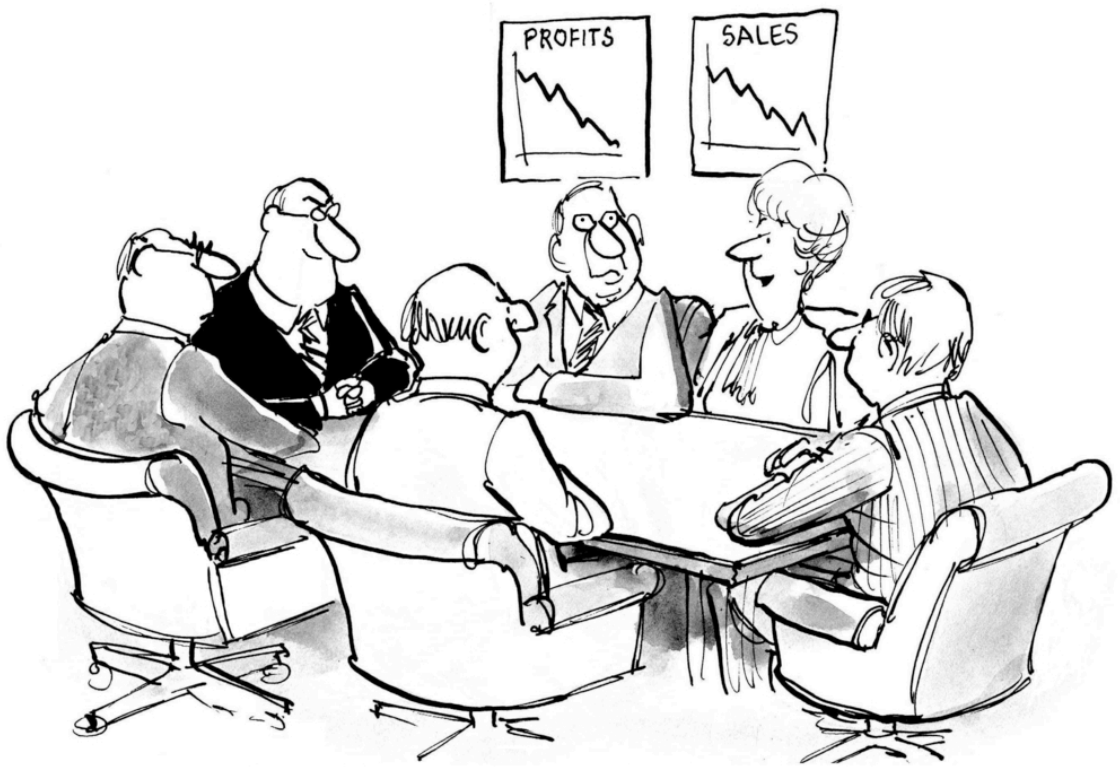
China (CAS)

-- journal article --

URI	http://purl.org/coar/resource_type/c_6501
Definition (en)	A journal article is a self-contained nonfiction prose composition on a particular subject, written by one or more authors who conducted the research and for publication in an academic or scholarly journal.
Preferred label (en)	**journal article**
Preferred label (zh)	**学术论文**
Preferred label (es)	**artículo**
Preferred label (it)	**articolo in rivista**
Preferred label (fr)	**article**
Preferred label (de)	**Wissenschaftlicher Artikel**
Preferred label (ru)	**журнальная статья**
Preferred label (ca)	**article de revista**
Preferred label (pt)	**artigo**

COAR Controlled Vocabularies: #1 resource type (currently in English, Chinese, Dutch, French, Italian Portuguese, Russian, **Spanish**, Turkish)
Version 1.0 available on the COAR website
https://www.coar-repositories.org/activities/repository-interoperability/ig-controlled-vocabularies-for-repository-assets/deliverables/ **Version 1.1 will be available soon**

In their current form, repositories only perpetuate the flawed system



"What if we don't change at all ...
and something magical just happens?"

COAR Working Group, Next Generation Repositories

Eloy Rodrigues, chair (COAR, Portugal)
Andrea Bollini (CINECA, Italy)
Alberto Cabezas (LA Referencia, Chile)
Donatella Castelli (OpenAIRE/CNR, Italy)
Les Carr (Southampton University, UK)
Leslie Chan (University of Toronto, Canada)
Rick Johnson (SHARE/University of Notre Dame
Paolo Manghi (CNR, Italy)
Lazarus Matizirofa (NRF, South Africa)
Pandelis Perakakis (Open Scholar, Spain)
Oya Rieger (Cornell University, US)
Jochen Schirrwagen (University of Bielefeld, Germany)
Daisy Selematsela (NRF, South Africa)
Kathleen Shearer (COAR, Canada)
Tim Smith (CERN, Switzerland)
Herbert Van de Sompel (Los Alamos National Laboratory, US)
Paul Walk (EDINA, UK)
David Wilcox (Duraspace/Fedora, Canada)
Kazu Yamaji (National Institute of Informatics, Japan)

Next generation repositories

To position repositories as the foundation for a distributed, globally networked infrastructure for scholarly communication

_on top of which layers of value added services will be deployed,

_thereby transforming the system, making it more research-centric, open to and supportive of innovation,

_while also collectively managed by the scholarly community.

Two central ideas for actualize our vision:

1. Improve the functionality of repositorios
   -To be of, not just on the web
   -Global interoperability (exposing content in a standardized way)
   -Pro-active repositories

Data Sync

Two central ideas for actualize our vision:

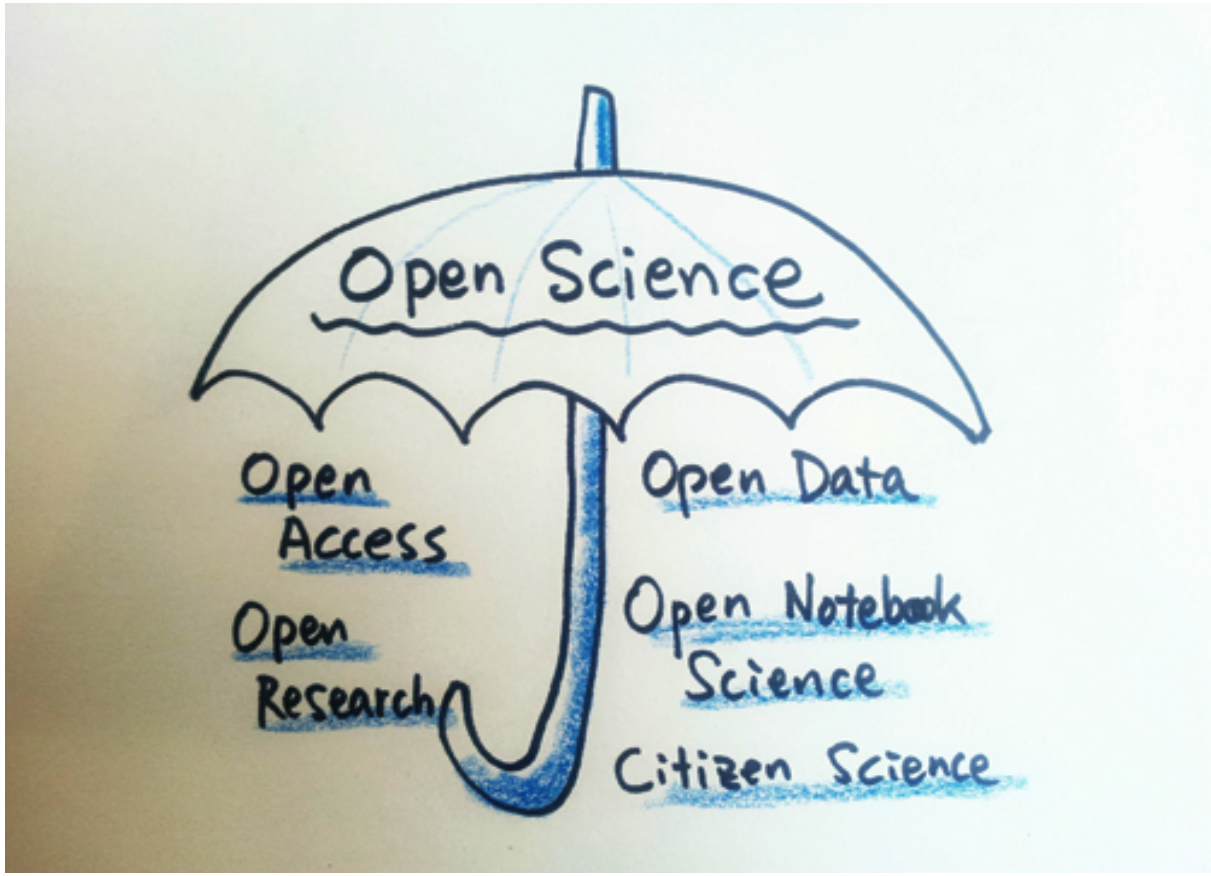
2. Support and encourage the development of value added services

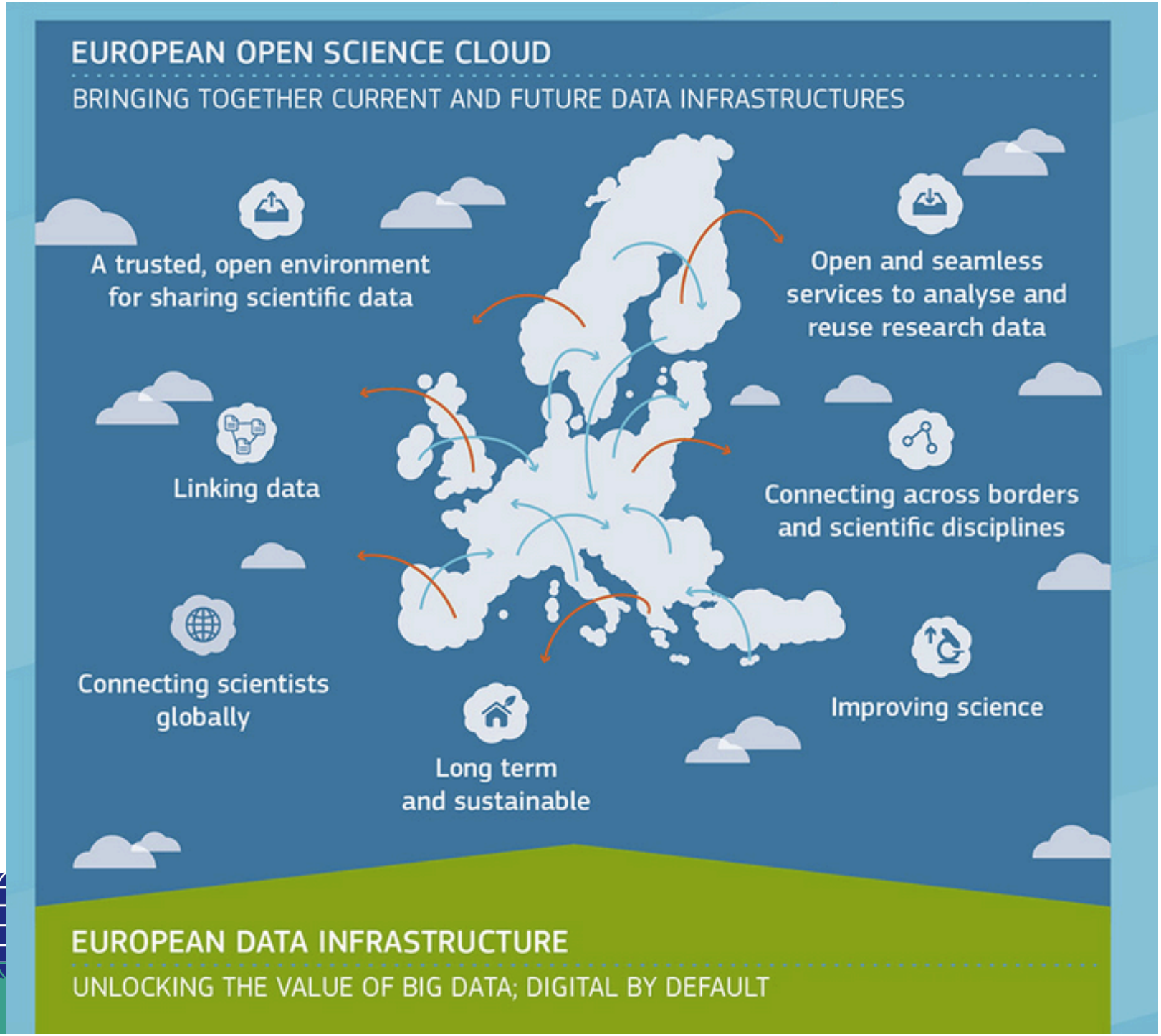
-Comentaries and peer-review

-Usage measures

Our vision involves more that just articles

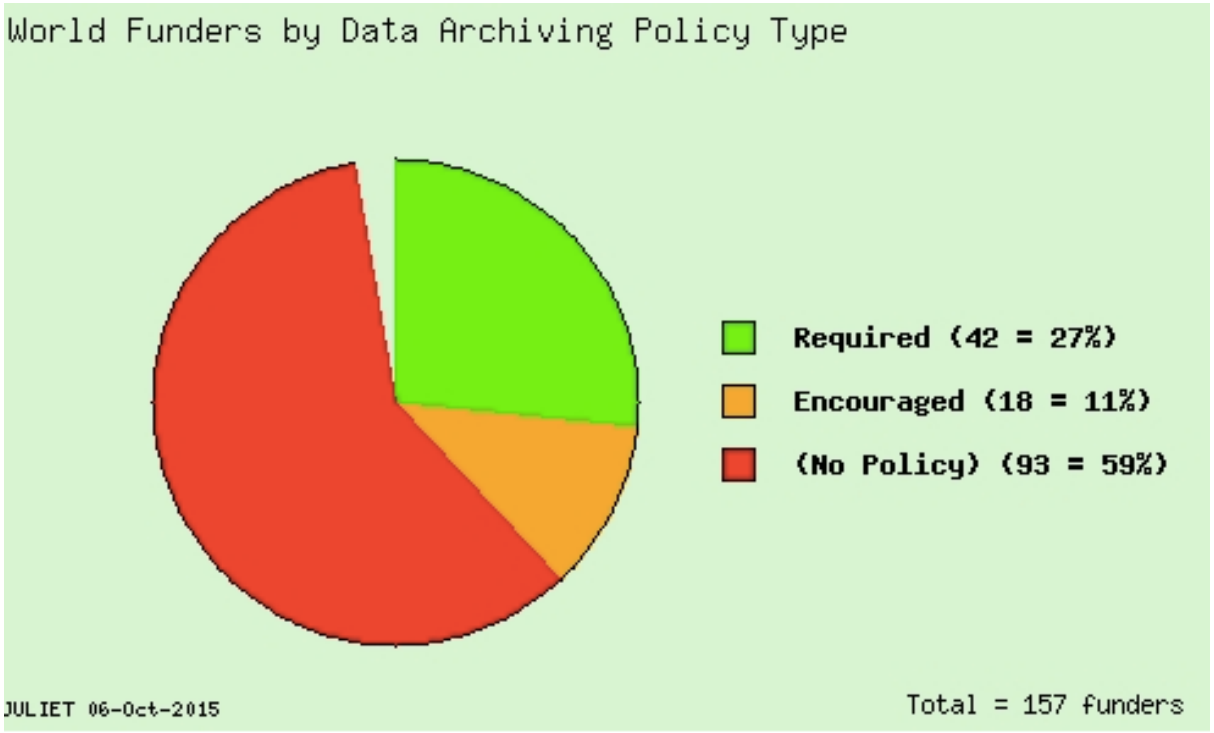
All the valuable products of research should be shared!




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
EUROPEAN DATA INFRASTRUCTURE
UNLOCKING THE VALUE OF BIG DATA; DIGITAL BY DEFAULT

Research Data Management is like a three-legged stool…

Funders' Data Policies



United Kingdom (all funders have data policies)
And United States, European Commission, Canada, Finland…
and a few others.

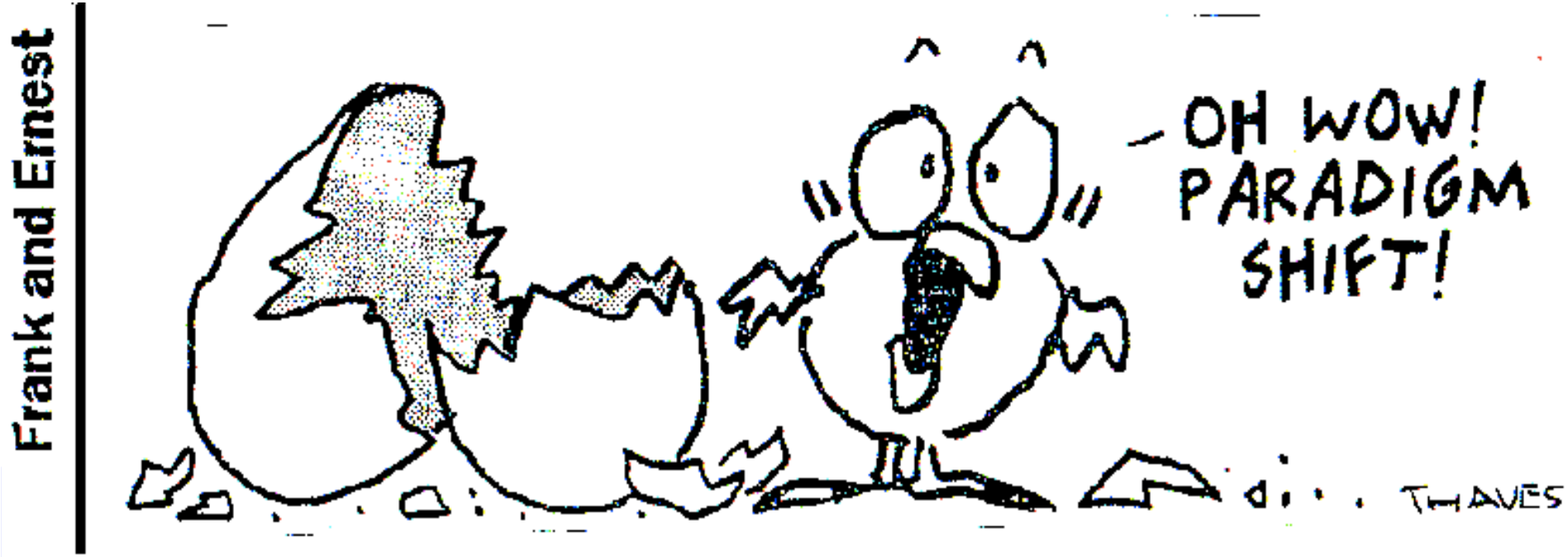
Typical Elements of a Data Policy

Policy requirements	
Data quality and standards	Investigators are required to adhere to international standards to enable access and reuse in the discipline. Data documentation and metadata must accompany data so that the data is understandable by others.
Data access and sharing	Investigators are required to make data available to be shared (usually upon publication of results or shortly thereafter, although some agencies do allow embargo periods). Requirements for deposit of metadata into a local or national catalogue
Data retention and preservation	Data should be retained for a certain time limit, where possible, investigators must deposit their data in a long-term archive to ensure the preservation of their data.
Data management plans	Research proposals must include a Data Management Plan in proposal.

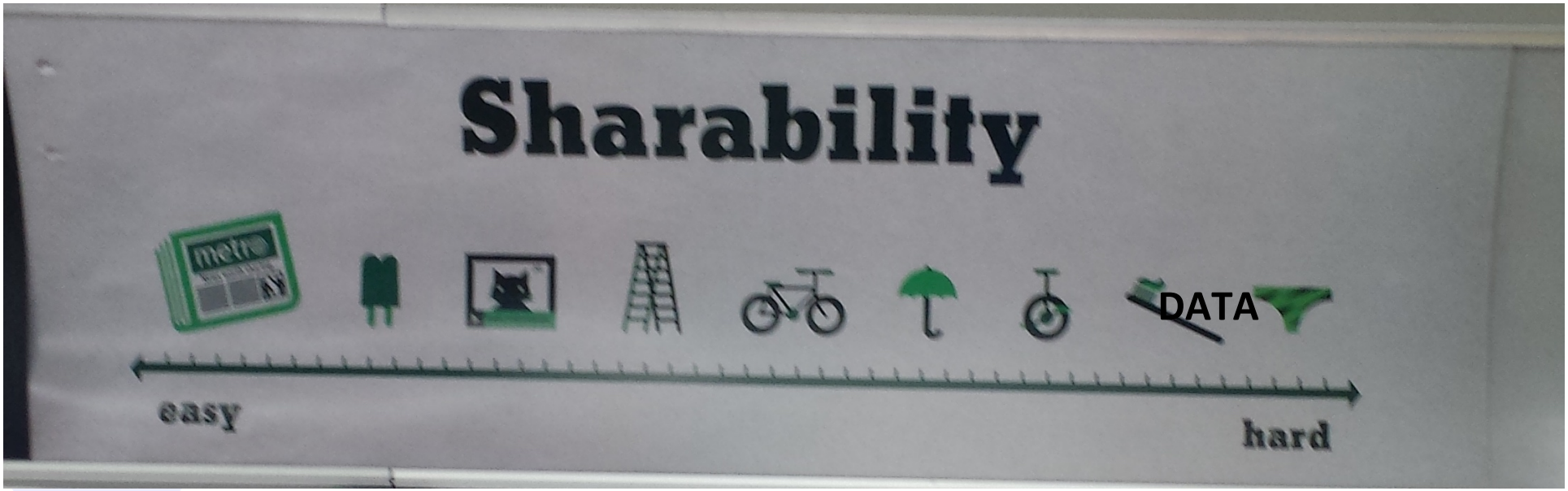
Exceptions

Common exceptions to policies	
Privacy	The rights and privacy of individuals who participate in research must be protected at all times. Thus, data intended for broader use should be free of identifiers that would permit linkages to individual research participants and variables that could lead to deductive disclosure of the identity of individual subjects.
Traditional knowledge	Where local and traditional knowledge is concerned, rights of the knowledge holders shall not be compromised.
Data of a sensitive nature	Where data release may cause harm, specific aspects of the data may need to be kept protected (for example, locations of nests of endangered birds or locations of sacred sites).
Intellectual property/Data ownership	It may be necessary on occasion to delay publication for a short period to allow time for applications to be drafted.

A lot of this is about cultural change



Many researchers would rather share their toothbrush than there data…



Data sharing practices

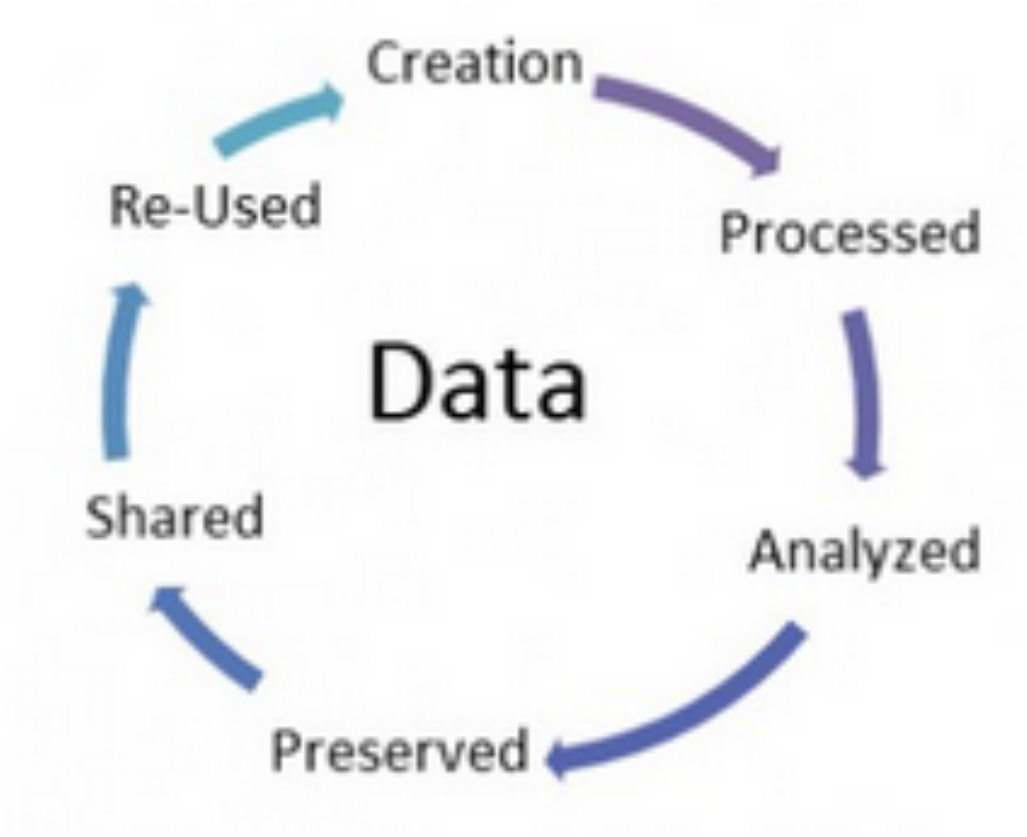
From Wiley's Research Data Insights Survey, 2014
http://exchanges.wiley.com/blog/2014/11/03/how-and-why-researchers-share-data-and-why-they-don't/
2,250 responses from around the world

Both policy requirements and incentives are critical for cultural change

From the cover of "Cultural Change Through Measurable Management by Robin Byrne

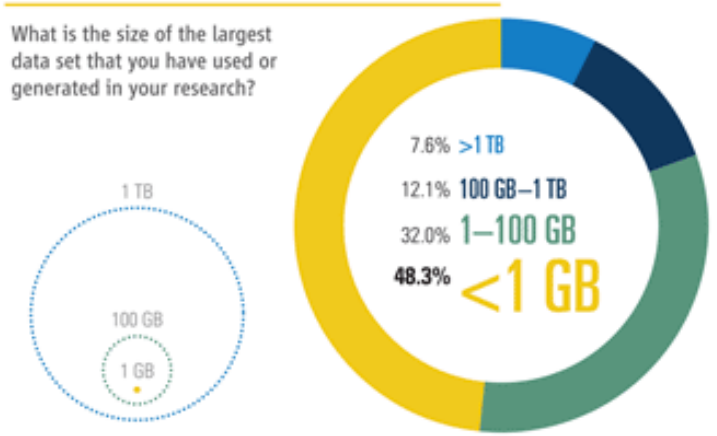
Infrastructure and Services

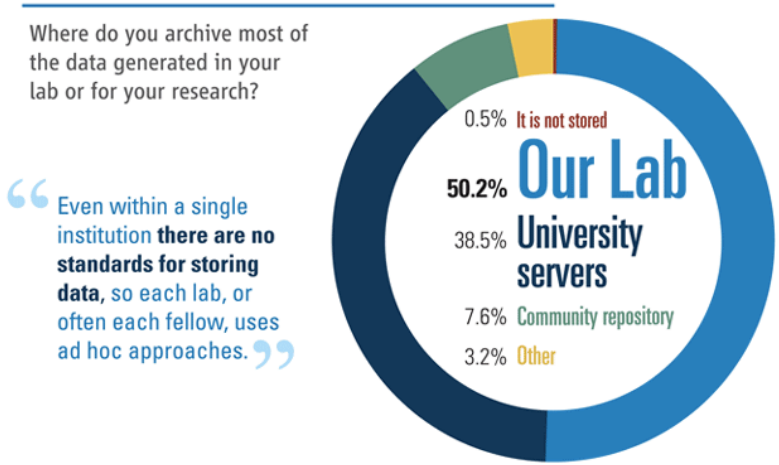
Data sharing requires good management across the data lifecycle



The data landscape

The 2011 survey by *Science*, found that 48.3% of respondents were working with datasets that were less than 1GB in size and over half of those polled store their data only in their laboratories. *Science* 11 February 2011: Vol. 331 no. 6018 pp. 692-693 *DOI:* 10.1126/science.331.6018.692





The data landscape

These services still only support a small portion of the research datasets produced by researchers around the world!

Concluding thoughts

- Repositories are a technology, and technologies change
- What we are really promoting is **a vision in which institutions, universities, and their libraries are the foundational nodes in a global scholarly communication system**
- We can do this by leveraging, expand and enhancing the already globally connected international repository network
- We need to start now with a shared vision

terima kasih!