European Open Science Agenda

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**European Commission
DG Research & Innovation**

**Annual Joint Programming Conference (ERA-LEARN)
Building and Sustaining Commitment to PPPs
Brussels, 15 January 2016**

Commissioner view

"There is a revolution happening in the way science works. Every part of the scientific method is nowadays becoming an open, collaborative and participative process"

Speech at "A new start for Europe" Conference, 22 of June, 2015, Brussels

Priorities of Commissioner Moedas:

Open Science as part of an open approach

- **Open Innovation**
- **Open Science**
- **Open to the world**

Open Science – what is at stake?

In total in 2014, LERU members alone had an economic impact across Europe of

€71.2 billion GVA
900,000 jobs

Study by **BiGGAR economics**
www.biggareconomics.co.uk

Open Science – Moving fast

101 Innovations in Scholarly Communication

innoscholcomm.silk.co

Jeroen Bosman @jeroenbosman
Utrecht University Library

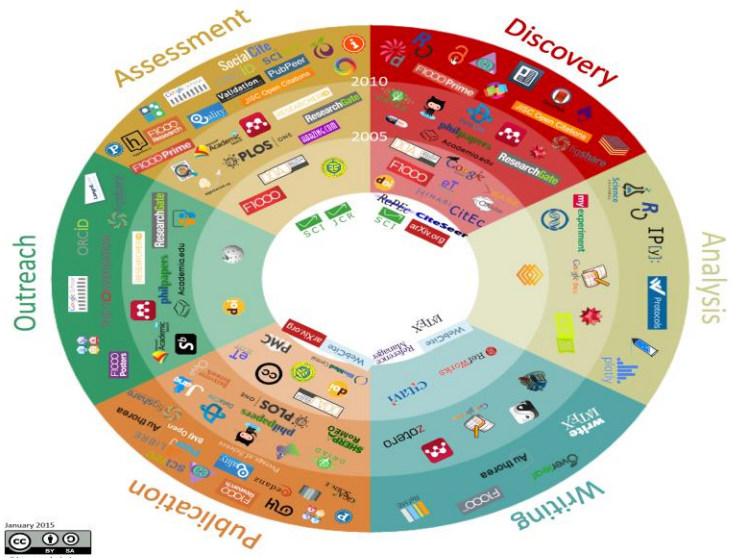
The Changing Research Workflow

Bianca Kramer @MsPhelps
Utrecht University Library

Science is in transition. This poster gives an impression of the exploratory phase of a project aiming to chart innovation in scholarly information and communication flows from evolutionary and network perspectives.

We intend to address the questions of what drives innovation and how these innovations change research workflows and may contribute to more **open, efficient** and **good** science.

101 Innovative tools and sites in 6 research workflow phases (< 2000 - 2015)



Most important developments in 6 research workflow phases

	Discovery	Analysis	Writing	Publication	Outreach	Assessment
Trends	social discovery tools	datadriven & crowdsourced science	collaborative online writing	Open Access & data publication	scholarly social media	article level (alt)metrics
Expectations	growing importance of data discovery	more online analysis tools	more integration with publication & assessment tools	use of altmetrics for "publish first, judge later"	use of altmetrics for monitoring outreach	more open and post-publication peer review
Uncertainties	support for full-text search and text mining	willingness to share in analysis phase	acceptance of collaborative online writing	effect of journal/publisher status	requirements of funders & institutions	who pays for costly qualitative assessment?
Opportunities	discovery based on aggregated OA full text	open labnotes	semantic tagging while writing/citing	reader-side paper formatting	using repositories for institutional visibility	using author-, publication- and affiliation-IDs
Challenges	real semantic search (concepts & relations)	reproducibility	safety/privacy of online writing	globalization of publishing/access standards	making outreach a two-way discussion	quality of measuring tools
Most important long-term development	multidisciplinary + citation-enhanced databases	collaboration + data-driven	online writing platforms	Open Access	more & better connected researcher profiles	importance of societal relevance + non-publication contributions
Potentially most disruptive development	semantic/concept search + contextual/social recommendations	open science	collaborative writing + integration with publishing	circumventing traditional publishers	public access to research findings, also for agenda setting	moving away from simple quantitative indicators

Typical workflow examples

January 2015
all logos excluded

Open Science – Big players

Open Science – genesis of our policy

Extensive stakeholder consultation

- ✓ Public consultation (July-September 2014)
- ✓ Validation workshops (October-December 2014)
- ✓ Final report (February 2015):
  http://ec.europa.eu/research/consultations/science-2.0/science_2_0_final_report.pdf

Broad consensus on five policy action lines

- *(developed thereafter)*

Strong support by MS and Council

- ✓ Policy debate & Council conclusions 'data-driven economy' (29 May 2015)

Reflected in the Commission top priorities

- ✓ Included in the Digital Single Market strategy (6 May)

European Open Science Agenda

Called for by Member States (COMPET, 29 May)

5 broad policy action lines (from public consultation, validated by stakeholders incl. MS and endorsed in DSM):

- ✓ Fostering and creating incentives for open science
- ✓ Removing barriers for open science
- ✓ Mainstreaming and further promoting open access policies
- ✓ Developing an open science cloud
- ✓ Embedding open science in society to make science more responsive to societal and economic expectations

European Open Science Policy Agenda (1)

Foster Open Science: Creating incentives, e.g.

- Promote best practices, research integrity, Citizen Science etc.

- Establish an **Open Science Policy Platform**

European Open Science Agenda (2)

Remove barriers, e.g.

- Development of '**alternative**' **metrics**
- Propose a **European "code of conduct"**
- Address low **open data-skills** amongst researchers and the underuse of **professional support** (librarians, repository managers etc.)

European Open Science Agenda (3)

Mainstream Open Access to publications and data, e.g.

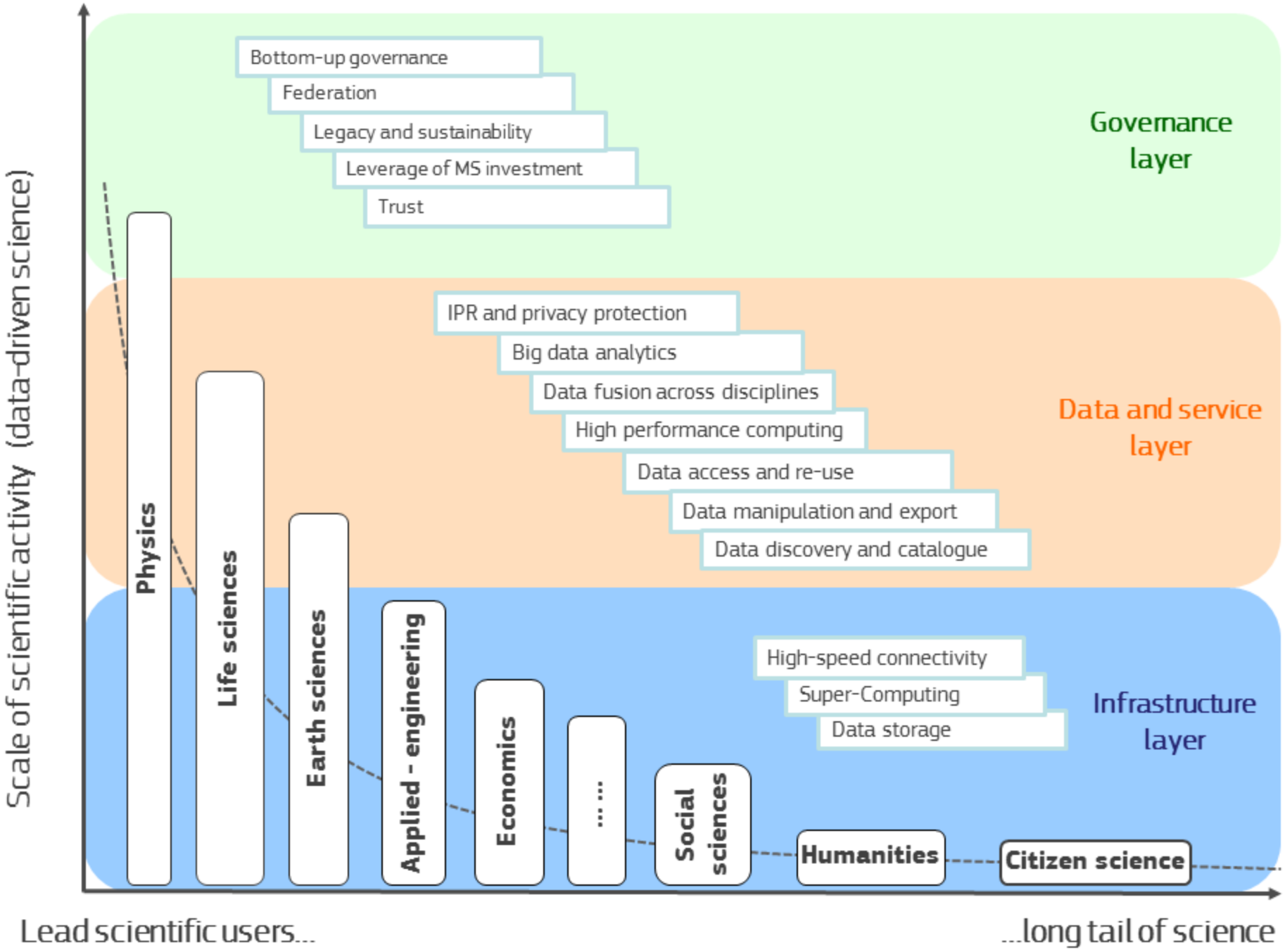
- Consider extending the **Horizon 2020 pilot** on Open Access to data

- Develop **EU guidelines** for addressing IPR issues and the funding of data-management

European Open Science Agenda (4)

Develop research infrastructures for Open Science, e.g.

- Common interfaces and data standards
- Coordinate funding/ maintenance and interoperability
- **European Open Science Cloud** for data, protocols and methodologies


Scale of scientific activity (data-driven science)
Governance layer
Bottom-up governance
Federation
Legacy and sustainability
Leverage of MS investment
Trust
Data and service layer
IPR and privacy protection
Big data analytics
Data fusion across disciplines
High performance computing
Data access and re-use
Data manipulation and export
Data discovery and catalogue
Infrastructure layer
High-speed connectivity
Super-Computing
Data storage
Physics
Life sciences
Earth sciences
Applied - engineering
Economics
... ...
Social sciences
Humanities
Citizen science
Lead scientific users...
...long tail of science

European Open Science Cloud is part of Europe´s ambition to **support the transition to Open Science** and make the most of **data-driven science**.

- **Strongly stated need:** cost-effective, privacy and IPR-conscious.
- Virtual environment **for all European researchers** to store, manage, analysis and re-use data
- **Federation of existing and emerging** data infrastructures
- **Added value:** scale, data-driven science, inter-disciplinarity, data to knowledge to innovation

European Open Science Agenda (5)

Open Science as **Socio-Economic Driver, e.g.**

- Address Societal Challenges by implementing **Joint Open Science Initiatives**

- Call for action in Horizon 2020 programme "Science with and for Society", work programme 2016-17

Activities

Ongoing, e.g.

- Establishment of Open Science Policy Platform
- Expert groups on 'European Open Science cloud' and 'altmetrics'
- Implementation of the Open Science Monitor

Upcoming, e.g.

- Call for proposals: 'Training on Open Science'- SWAFS WP 2016, EUR 0.9 million
- Call for proposals: 'Joint open science initiatives'- SWAFS WP 2017, EUR 3 million
- Call for proposals: 'Piloting the European Open Science Cloud'- INFRA WP 2016, EUR 10 million
- Expert groups on 'rewards for Open Science' and 'changing business models for publishing'

Short-term Roadmap for Policy on Open Science

Autumn 2015\Spring 2016:

Concretization of Open Science actions under the *DSM strategy* (Juncker priority)

4-5 April 2016:

Conference on Open Science during the Dutch Presidency: Discussion of the European Open Science Agenda

May 2016:

Competitiveness Council: Adoption of Council Conclusions on Open Science

This is a common endeavor. Contribute!

http://ec.europa.eu/research/openscience/