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KOBE UNIVERSITY

Open Science Initiatives by the European Union

October 2015

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The European Union

500 million people - 28 countries - a Single Market*

- 7% of the World's population
- 24% of world expenditure on research
- 32% of high-impact publications
- 32% of patent applications

Member states of the European Union
Candidate and potential candidate countries

*Free movement of people, goods, services and capital

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- Policy Background
- Horizon 2020
  - OA in Horizon 2020
  - OA Data
  - Infrastructures
- International Cooperation
- Conclusions

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Policy Background

Priorities of Commissioner Moedas:

- Open Innovation
- Open Science
- Open to the world

(Speech on 22 June 2015)

The European Commission is a...

Policy maker

- It proposes EU legislation & legislates with other EU institutions
- It invites Member States to act

Funding agency

- It sets its own access and dissemination rules for EC-funded research

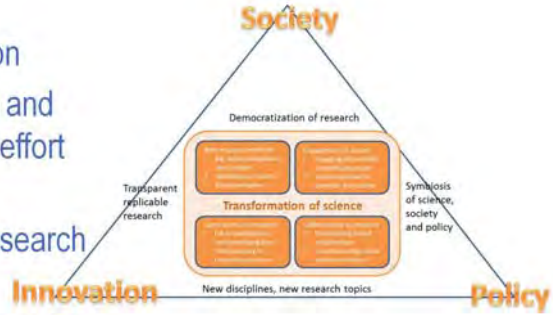
Capacity builder

- It funds projects that support EC/EU policy

Policy developed on OA jointly by DG RTD and CNECT, with input from the research family

Commission rationales for OS/OA

- Accelerate innovation
- Foster collaboration and avoid duplication of effort (greater efficiency);
- Build on previous research results
- Involve citizens and society



Incentives for Scientists

For open access to publications:

- Wider and quicker dissemination of scientific results
- OA costs are reimbursed under H2020

For open access to data:

- Ease of access for data and tools
- Open new research avenues
- Interdisciplinary research
- Cooperate with different institutions/countries
- Career recognition for creating / maintaining data sets
- Availability of training for data set management
- Increased transparency leading to better verification

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International Background

- 2002 Budapest Open Access Initiative
- 2003 Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities
- 2003 Bethesda Statement on Open Access Publishing
- 2004 OECD Ministerial Declaration on Access to Research Data from Public Funding
- Various G8 Meetings

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European OA/OS Policy Development

- European Research Advisory Board study (2006):
  - *EURAB recommends that the Commission should consider mandating all researchers funded under FP7 to lodge their publications resulting from EC-funded research in an open access repository […].*
- **Communication** on Scientific Information in the Digital Age: Access, Dissemination and Preservation (2007)
- **Communication:** ICT Infrastructures for e-Science (2009)
- **Digital Agenda for Europe** (2010)

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Council Conclusions on Scientific Information in the Digital Age (2008)

Introduced number of priorities for member states and the Commission.

- Reinforce national strategies for preservation and dissemination
- Enhance cooperation & large scale infrastructures
- Maximise access for researchers
- Ensure long term preservation of scientific information
- Monitor good practice (EC)
- Experiment with open access in FPs (EC)
- Encourage research into digital preservation (EC)

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2012 Activities

- Communication 'A reinforced European Research Area partnership for excellence and growth'
- Communication 'Towards better access to scientific information: boosting the benefits of public investments in research'
- Recommendation on access to and preservation of scientific information

Science 2.0

- Consultation launched by the EC in 2014
  - To assess awareness of the changing modus operandi of science
  - Opportunities and challenges
  - To identify policy implications and actions to strengthen the competitiveness of the European science and research system.

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Consultation process on Science 2.0

- Online consultation open from 03.07.2014 to 30.09.2014
  - 498 submitted responses of which 164 Organisations and 38 Public Authorities
  - 25 position papers voluntary submitted in addition to questionnaire (LERU, UK University Organisations, Dutch University Association, EuroTech University Alliance, Publishers (Elsevier, STM), Research Funding Agencies etc.)
- Outcomes validated in 4 stakeholder workshops
- **Key findings (February 2015): open access to scientific publications and research data as important part of open science**

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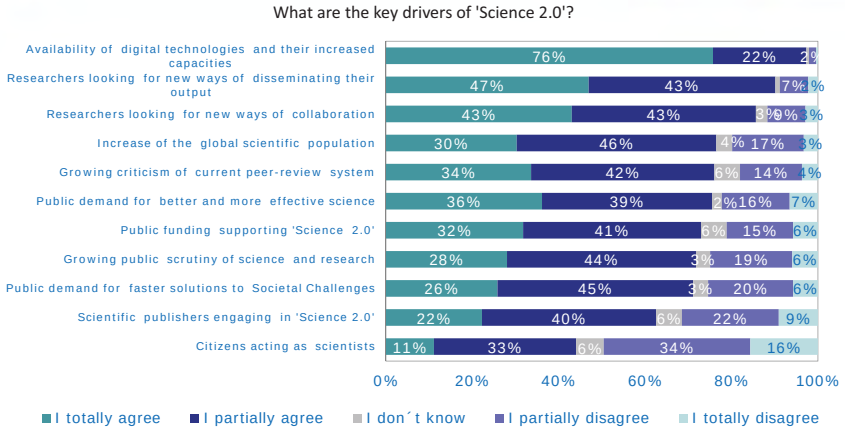

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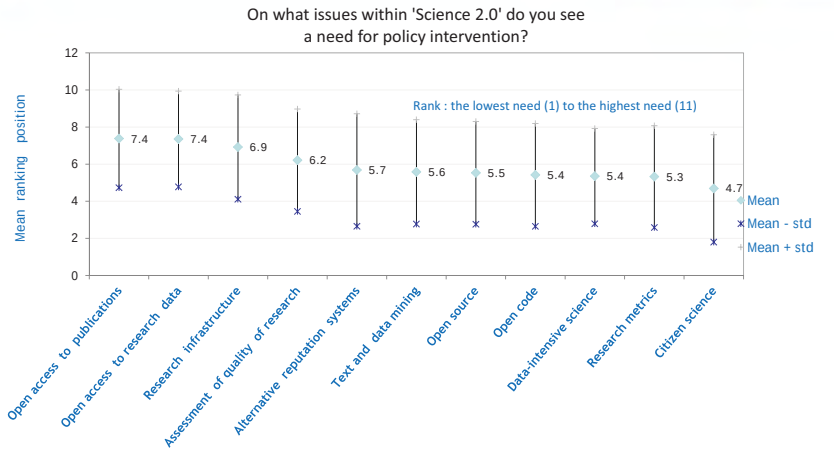
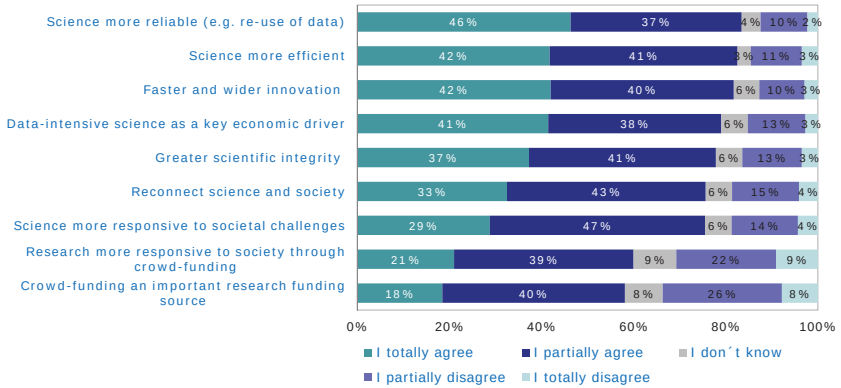
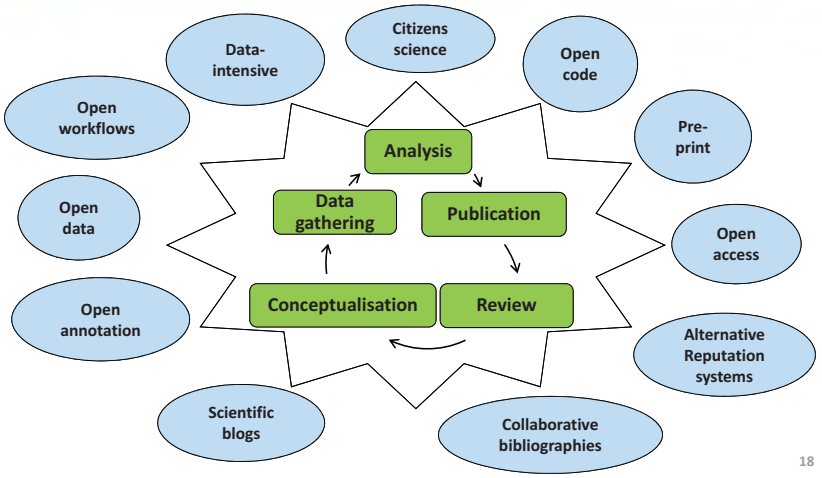


What are the implications of 'Science 2.0' for society, the economy and the research system?





Open Science
Competitiveness Council 29 May 2015

Member States have expressed their wish for the development of a European Open Science Agenda

Council Conclusion, 29 May 2015:

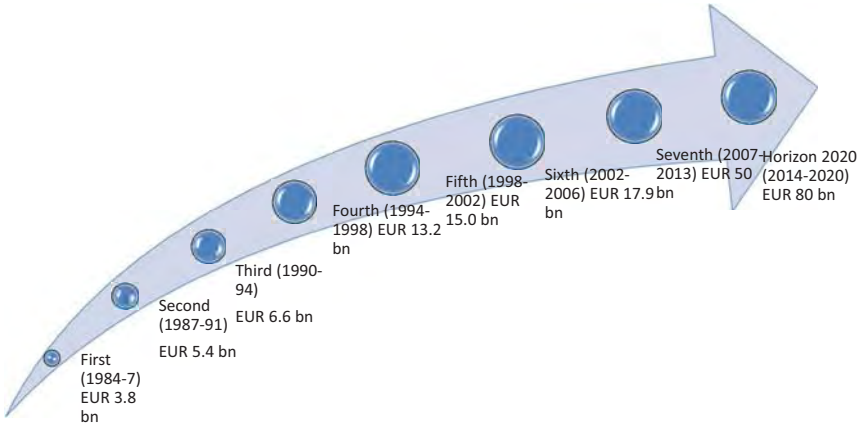
CALLS for action to remove obstacles to wide access to publicly funded research publications and underlying data;

CALLS for actions addressing better data management and, in this context, WELCOMES the Pilot on Open Research Data under Horizon 2020;

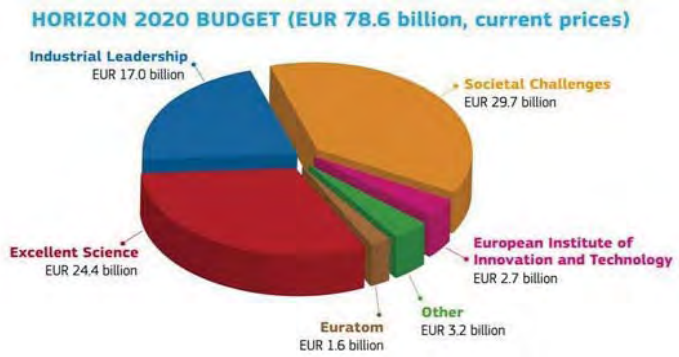
In the context of the implementation of the European Research Area (ERA), LOOKS FORWARD to the possible development of action plans or strategies for open science

Horizon 2020

European Union Framework Programmes



Horizon 2020: Three Key Pillars



Excellent Science

- **European Research Council (13bn)**

Supporting top researchers from anywhere in the world to work in Europe

- **Future and Emerging Technologies (2.6bn)**

Supporting visionary thinking through collaborations between science and engineering

- **Marie Skłodowska-Curie actions (6.1bn)**

Providing opportunities for training and career development of individual researchers

- **Research infrastructures (2.4bn)** - including e-infrastructure

Ensuring access to world-class facilities

Industrial Leadership

(EUR 17 billion)

- **Leadership in enabling and industrial technologies**
  Advanced manufacturing, microelectronics, nanotechnology, biotechnology, ICT and space
- **Access to risk finance**
  Leveraging private finance and venture capital for research and innovation
- **Innovation in SMEs**
  Fostering all forms of innovation in all types of SMEs

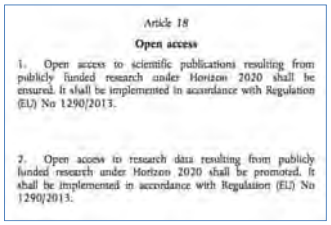
Societal Challenges

(EUR 29.7 billion)

- Health, demographic change and wellbeing
- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy
- Secure, clean and efficient energy
- Smart, green and integrated transport
- Climate action, environment, resource efficiency and raw materials
- Inclusive, innovative and reflective societies
- Secure societies

OA in Horizon 2020

- Regulation establishing Horizon 2020 (article 18)
- Specific Programme (preamble 1.3)
- Rules for Participation (article 43)
- Work Programme 2014-15 (Introduction 1.5 and relevant areas)
- Model Grant Agreement (articles 6.2.D.3, 29.2 and 29.3)
- Annotated Model Grant Agreement
- Guidelines on Open Access to Scientific Publications and Research Data in Horizon 2020
- Guidelines on Data Management in Horizon 2020



Article 18

Open access

1. Open access to scientific publications resulting from publicly funded research under Horizon 2020 shall be ensured. It shall be implemented in accordance with Regulation (EU) No 1290/2013.

2. Open access to research data resulting from publicly funded research under Horizon 2020 shall be promoted. It shall be implemented in accordance with Regulation (EU) No 1290/2013.

With regard to the dissemination of results through scientific publications, open access shall apply under the terms and conditions laid down in the grant agreement. Costs relating to open access to scientific publications that result from research funded under Horizon 2020, incurred within the duration of an action, shall be eligible for reimbursement under the conditions of the grant agreement. [...] the grant agreement shall not stipulate conditions regarding open access to publications which would result in additional publishing costs after the completion of an action.

From FP7 to H2020: OA to publications
from pilot to underlying principle

FP7

- **Green** open access pilot in 7 areas of FP7 with 'best effort' stipulation
- Allowed embargoes: 6/12 months
- **Gold** open access costs eligible for reimbursement as part of the project budget while the project runs

Horizon 2020

- **Obligation** to provide OA, either through the **Green** or **Gold** way in **all areas** (deposition mandatory either way)
- Allowed embargoes: 6/12 months
- **Gold** open access costs eligible for reimbursement as part of the project budget while the project runs & **post-grant support being piloted**
- Authors encouraged to retain copyright and grant licences instead

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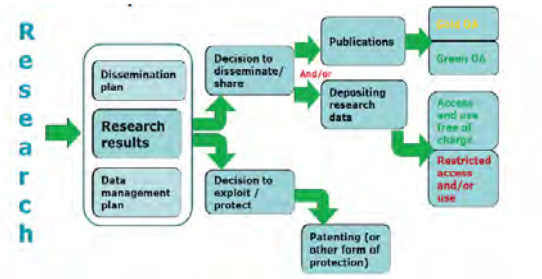
What OA is NOT

- Not an obligation to publish
- Not at odds with patenting (see graph)
- OA publications go the same peer review process



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OA Data

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Data management in Horizon 2020

- Data Management Plans (DMPs) mandatory for all projects participating in the Pilot, optional for others
  - DMPs are NOT part of the proposal evaluation, they need to be generated within the first six months of the project and updated as needed
  - All proposers to submit general information on data management - evaluated under criterion 'Impact'
- DMP questions:
  - What data will be collected / generated?
  - What standards will be used / how will metadata be generated?
  - What data will be exploited? What data will be shared / made open?
  - How will data be curated and preserved?

Pilot on Open Research Data in H2020

Types of data concerned:

- Data needed to validate the results presented in scientific publications ("underlying data")
- Other data as specified in data management plan (=up to projects)

Beneficiaries participating in the Pilot will:

- Deposit this data in a research data repository of their choice
- Take measures to make it possible to access, mine, exploit, reproduce and disseminate free of charge
- Provide information about tools and instruments at the disposal of the beneficiaries and necessary for validating the results (where possible, provide the tools and instruments themselves)

EC: Support & monitoring (Annotated MGA, Specific guidance etc…)

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Infrastructures

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European Open Science Agenda – potential infrastructure actions (under consideration)

Develop research infrastructures for Open Science, e.g.:

- Mandate the development of common interfaces and data standards
- Coordinate at European Level the funding/ maintenance and interoperability of research infrastructures
- Support the development of a European Open Science Cloud for data, protocols and methodologies

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Issues to be addressed (e-infrastructure)

The EC in coordination with EU Member States is looking after research data as an infrastructure

As a valuable and a strategic resource, research data opens at least three key issues to be addressed(*):

- How data can be networked
- How to envision and set up data governance on a global scale
- How the EU can play a leading role in helping start and steer this global trend

(*) Fred Friend, Jean-Claude Guédon Herbert van de Sompel "Beyond Sharing and Re-using: Toward Global Data Networking"

A European Open Science Cloud

- The cloud aims to provide all EU researchers a virtual environment with free, open and seamless services for data storage, management, analysis and re-use, across disciplines.
- The cloud will federate existing and emerging horizontal and thematic data infrastructures, effectively bridging today's fragmentation and ad-hoc solutions.
- The cloud will add value - scale, data-driven science, inter-disciplinarity, data to knowledge to innovation - and leverage current and past infrastructure investment (10b per year by MS, two decades EU investment).

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A European Open Science Cloud

Actions

- Horizon 2020 Research Infrastructure Actions for a "European Open Science Cloud" and "Data and Distributed Computing e-infrastructures for Open Science".
- High-level Cloud Expert Group to advise on the shape of a 'European Open Science Cloud' initiative. Overall, the group will advise the Commission on the strategy for the European Open Science Cloud initiative as part of the Digital Single Market.

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International Cooperation

Through international fora / initiatives :

- Global Research Council
- Data Research Alliance, COAR
- OECD
- G7

Bilateral Cooperation EU-Japan

- EU-Japan Science Policy Forum on Science 2.0 (Kyoto 2014)
- Participation in seminars:
  - e.g. Kobe University Symposium on Open Science (October 2015)
- Participation in joint studies

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Roadmap & Conclusions

Short-term Roadmap for EU Policy on Open Science

Autumn 2015:

Set up of the Open Science Policy Platform
Implementation of Open Science Monitor

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

May 2016:

Presentation of the European Open Science Agenda to the Competitiveness Council

Conclusion

- Accretion of policies on OA over past decade
- EC worked with member states, leveraged funding programmes to promote OA
- Need to ensure quality of reform – lengthy process and need for transparency
- Evolution from OA to Science 2.0 and Open Science
  - Convergence of technologies, openness, research capacity

We welcome your input

Twitter: @OpenAccessEC

Contacts DG RTD

Functional mailbox:
RTD-OPEN-ACCESS@ec.europa.eu

PO as appropriate

Links

EC OA website
http://ec.europa.eu/research/swafs/index.cfm?pg=policy&lib=science

Open Access Resources (Netvibes – EC Central Library)
http://www.netvibes.com/open-access

Study to measure growth of OA
http://science-metrix.com/en/publications/reports

H2020 guidance
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf
http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-data-mgt_en.pdf