



Opening up scientific information in Horizon 2020 and beyond

*Verso una scienza aperta:
Horizon 2020 e oltre*

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**Decennale della Dichiarazione di Messina
Messina, 4 novembre 2014**

Outline

- **Open access: general approach**
- **Open access to publications in Horizon 2020**
- **Open Research Data Pilot in Horizon 2020**
- **The broader policy context: open science**



European
Commission

OPEN  **ACCESS**

Why open access?

Goal: optimise the impact of publicly-funded research and innovation

Expected impacts of opening up scientific information:

- Better science (build on previous results)
- More efficient science (avoid duplication & promote re-use)
- Economic growth (accelerated and open innovation)
- Improved transparency (involving citizens & society)

How?

- Open up scientific information resulting from EU-funded research (Horizon 2020)
- Work with Member States to encourage co-ordination of policies (→ Network of National Points of Reference)

Political basis: Scientific information package (Communication & Recommendation to MS) and ERA Communication, July 2012

Open access to what scientific information?

1. Scientific publications:

Open Access (OA): online access at no charge to the user

Two main OA publishing business models

- **Self-archiving:** deposit of manuscripts & **immediate/delayed OA** provided by author ("Green OA")
- **OA publishing:** costs covered & **immediate OA** provided by publisher ("Gold OA")

2. Research Data:

Open Research Data (ORD): data that can be accessed, mined, exploited, reproduced and disseminated – free of charge for any user

Scientific information: increasingly blurred boundaries

- Scientific publications ... are data

Text is data (text and datamining)

Underlying research data

- Research data can be published (data publications)

Open Access to Publications



OPEN  ACCESS

Basis: OA to publications in FP7

OA Pilot in FP7

- "Best effort" basis
- 7 areas
- 20% of total FP7 budget (2007-2013)
- Support from researchers, need for more support



OA (gold) publishing costs eligible in FP7

- Since the beginning of FP7, for all projects
- Limited to duration of project



e-Infrastructure: OpenAIRE / OpenAIRE+

- EU-funded portal giving access to repositories across Europe (implements FP7 Pilot), network of helpdesks
- 73,000 publications in 7.900 projects, 37.000 OA, others still under embargo/restricted



OA to publications in H2020: mandate

- Each beneficiary must ensure OA to all peer-reviewed scientific publications relating to its results
 - Deposit a machine-readable copy in a repository (possibly OpenAIRE compliant)
 - Ensure OA on publication or at the latest within 6 months (12 for SSH)
- **New:** Aim to deposit at the same time the research data needed to validate the results ("underlying data")
- **New:** Ensure OA to the bibliographic metadata that identify the deposited publication, via the repository

OA to publications mandate: other issues

Routes towards OA:

- **OA publishing/gold** and **self-archiving/green** considered valid and complementary routes
- Always deposit into a repository (also in the case of gold OA)

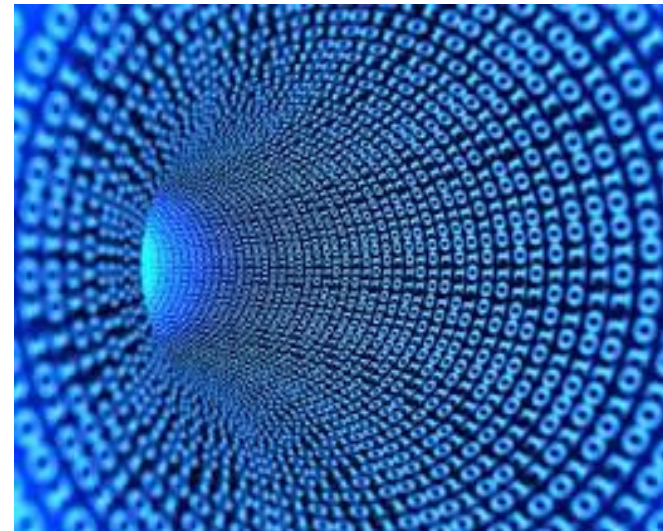
Costs for OA publishing:

- Eligibility of OA publishing costs during the grant (as in FP7)
- Piloting a mechanism for open access publishing after the end of the grant agreement (call EINFRA-2-2014 – eInfrastructure for Open Access)

Licencing:

- Encourage authors to retain their copyright and to grant adequate licences to publishers (e.g. Creative Commons)

Open Access to Research Data



New: Pilot on Open Research Data in Horizon 2020:

- Scope of the Pilot?
- What data is covered?
- What about data management?
- What are the requirements?
- When can actions opt out?

Pilot on Open Research Data: Scope

Areas of the 2014-2015 Work Programme participating in the Open Research Data Pilot are:

- Future and Emerging Technologies (FET)
- Research infrastructures – part e-Infrastructures
- Leadership in enabling and industrial technologies – Information and Communication Technologies (LEIT-ICT)
- Societal Challenge: Secure, Clean and Efficient Energy – part Smart cities and communities
- Societal Challenge: Climate Action, Environment, Resource Efficiency and Raw materials – except raw materials
- Societal Challenge: Europe in a changing world – inclusive, innovative and reflective Societies
- Science with and for Society

Actions in other areas can participate on a voluntary basis!

Pilot on Open Research Data: What data?

Types of data concerned:

- Data (including associated metadata) needed to validate the results presented in scientific publications ("**underlying data**")
- **Other data** (including associated metadata) as specified in a data management plan (DMP)

What about data management?

- New focus on Data management in H2020
- All proposers to submit general information on data management - evaluated under criterion 'Impact'
- Data Management Plans (DMPs) mandatory for all actions participating in the Pilot (deliverable within the first six months)
- Other projects invited to submit a DMP if relevant for their planned research
- DMP questions (template: Data Management Guidelines):
 - What data will be collected or generated?
 - What standards will be used and 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: requirements?

Beneficiaries participating in the Pilot will:

- Deposit a) underlying and b) "other data" as specified in the DMP into a research data repository of their choice
- Take measures to make it possible to access, mine, exploit, reproduce and disseminate free of charge (using e.g. Creative Commons licences)
- 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)
- **Note:** Actions participating in the Pilot are not obliged to make all datasets open (details described in DMP)

Pilot on Open Research Data: opting out

Actions may opt out of the Pilot on Open Research Data in Horizon 2020 in a series of cases (submission stage):

- If the project will not generate / collect any data
- In case of conflict with the obligation to protect results
- In case of conflict with confidentiality obligations
- In case of conflict with (national) security obligations
- In case of Conflict with rules on protection of personal data
- If the achievement of the action's main objective would be jeopardised by making specific parts of the research data openly accessible

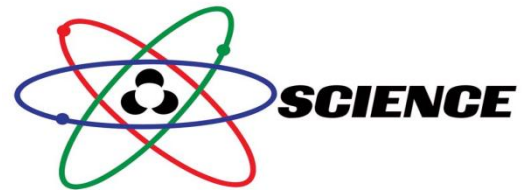
ORD Pilot: first numbers

- Preliminary!
- Basis: 3054 Horizon 2020 proposals
 - 442 of 1824 in scope proposals **opt out (24.2%)**
 - 334 of 1230 not in scope proposals **participate on a voluntary basis (27.2%)**
- More analysis needed: e.g. reasons for opt-out and voluntary opt-in

ORD Pilot: a chance to co-shape policy

- Opening up research data: the new frontier
- Ambitious, yet pragmatic design: broad scope, opt-out, voluntary participation possible
- Pilot is flexible; numerous safeguards in place
- Need to collect and analyse many and varied experiences
- Uptake of and experiences with the Pilot will be monitored
- Support & monitoring to be developed
- **Participating in the Pilot means co-shaping European policy on opening up research data ... in the next Framework Programme!**

The broader policy context:



Open (Digital) Science is ...

The process of **transforming, opening up** and **democratising** science and research through **ICT**, with the objective of **making science more efficient, and transparent, changing the interaction between science and society, and enabling broader societal impact and open innovation.**

Open Science: building blocks

**Collaborative and
multidisciplinary**

Accessible & re-usable

Participatory

**Focus on societal
benefits**

Open Science: challenges

- No access limitations

- Virtual Research Environments

- Interdisciplinarity

- Alternative metrics for science and research

- Open peer review

E-infrastructures
(e.g. for big data)

Open access
to research
results &
processes

Citizen
engagement,
citizen science,
crowdsourcing

Evidence-based
policy making /
Global Systems
Science

- Alternative publishing models (towards "fair gold"?)

- Research data standards, open metadata, open source, open software

- Text and Data-mining

- Link science and society in policy decisions

- Societal data deluge and data-intensive modelling

Accompany a change in culture !

for researchers, research organisations and industry



Open Science: EC-level action

July - September 2014: Public consultation "Science 2.0: Science in Transition"

October - December 2014: Multi-stakeholder workshops on consultation findings (themes: research careers, peer review, science and society relations, altmetrics)

June 2015: Open Science Conference in Brussels (TBC)

2015-16: Towards a Communication on the transformation of science in the digital age?



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Grazie!

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<http://ec.europa.eu/digital-agenda/en/science-and-technology/digital-science>

<http://ec.europa.eu/digital-agenda/en/open-access-scientific-knowledge-0>

http://ec.europa.eu/research/science-society/open_access

Guidelines on OA to Scientific Publications and Research Data in Horizon 2020:

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

Guidelines on Data Management in Horizon 2020:

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