



The future of science is open

Rationale, goals and milestones of the EU policies

Jean-Claude Burgelman, Head of Unit Open Science, DG RTD

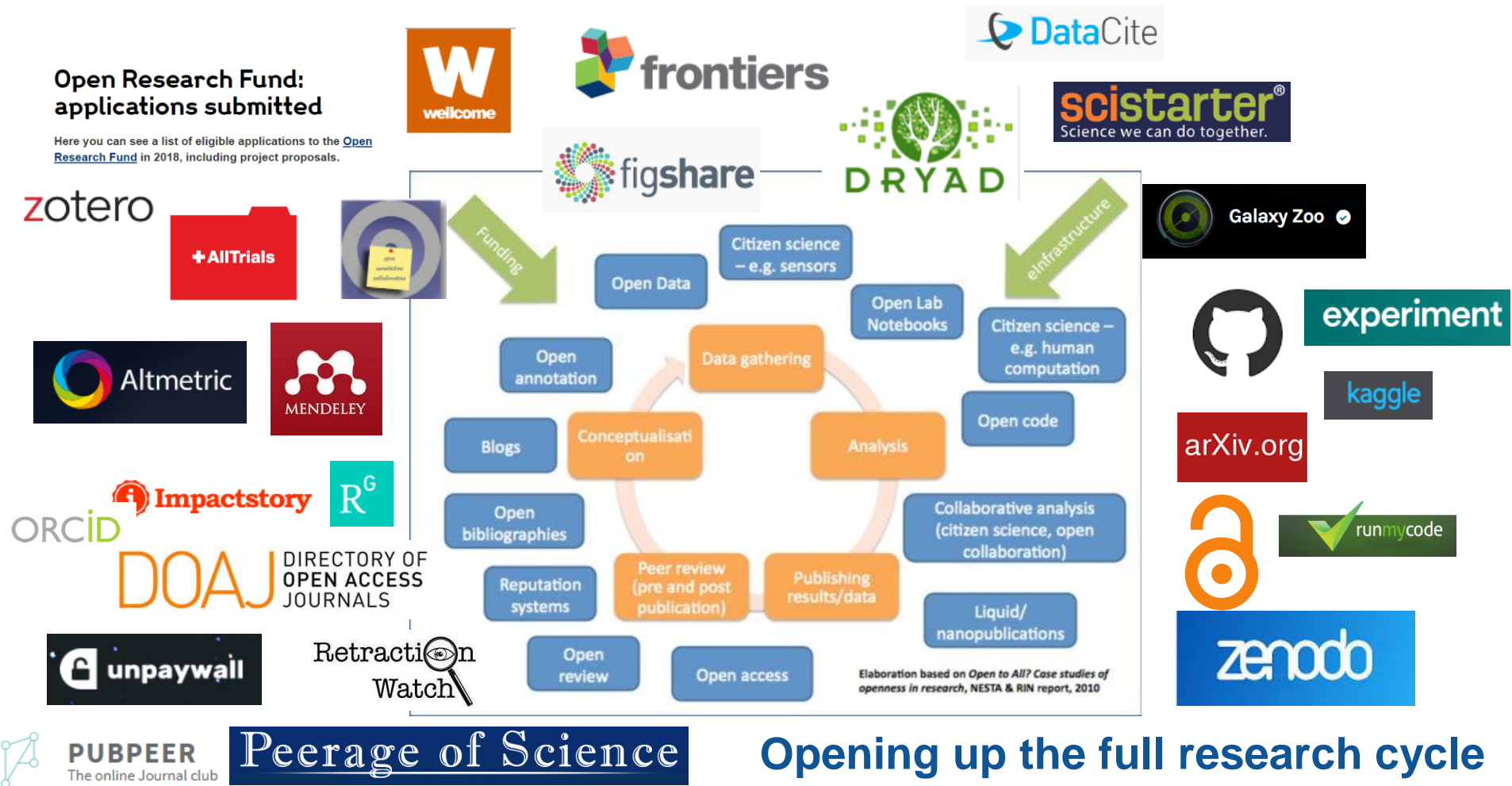
Christophe Rossel , IBM, EPS, SCNAT, OSPP

The rationale...

The nature of science modus operandi



... from a closed system to an open and sharing one



Open Science is a systemic transition of science system affecting how:

- research is performed
- knowledge is shared/diffused/preserved
- research projects/results are evaluated
- research is funded
- researchers are rewarded
- future researchers are trained

Affecting the whole research cycle and all its stakeholders

- ✓ A typical techno-economic paradigm shift (technology, market and institutional change go hand in hand)
- ✓ or to put it differently: **disruptive and hence disturbing....**

OS offers great opportunities for science, scientists & society

- **Better ROI of the R&I investments:** self evident: if all the results of our public research are made reusable, it will follow that better use is made
- **Faster circulation of new ideas:** we have 22 million EU SME's that will have access to top notch research without having to significantly pay for it!
- **More transparency of the science system:** the public taxpayer has this right
- **Fit for 21st century science purpose:** all grand societal challenges NEED cross disciplinary research

Top level policy goals



*"As I see it, European success now lies in sharing as soon as possible, (...). The days of **open science** have arrived."*

Speech at "Presidency Conference Open Science", 4 April 2016, Amsterdam

Open **Innovation**
Open **Science**
Open to the **World**



2016 - Holistic Policy Agenda: scope & ambitions

... 4 with regard to the use & management of research results and data

- ✓ **Open Data:** FAIR data sharing is the default for funding scientific research
- ✓ **Science cloud:** All EU researchers are able to deposit, access and analyse European scientific data through the open science cloud, without leaving their desk
- ✓ **Altmetrics:** Alternative metrics (*next generation metrics*) to complement conventional indicators for research quality and impact (e.g. Journal Impact Factors and citations)
- ✓ **Future of scholarly communication:** All peer reviewed scientific publications are freely accessible (OA)

Eight Policy Priorities



- ... 4 with regard to relations with research actors (researchers, institutions and funders)
- ✓ **Rewards:** The European research career evaluation system fully acknowledges Open Science activities
 - ✓ **Research Integrity:** All publicly funded research in the EU adheres to commonly agreed Open Science Standards of Research Integrity
 - ✓ **Education and skills:** All young scientists in Europe have the necessary skills and support to apply Open Science research routines and practices
 - ✓ **Citizen Science:** CS significantly contribute and are recognised as valid knowledge producers of European science



- **Mandatory Open Access to Publications:**

- 2014: mandatory

- 2018: launch of *Open Access Publishing Platform* (stand-alone peer reviewed scientific articles and pre-prints from H2020 projects)

- **Open Access to Research Data:**

- 2017: ORD Pilot (2014) is extended to entire H2020;

- Data is *as open as possible, as closed as necessary*;

- FAIR Research Data Management Plans (DMP);

- 2018: *Revised Recommendation on Scientific Information* (25 April)

- **European Open Science Cloud:**

- 2018: *launch of the 1st phase* (adoption of working document)

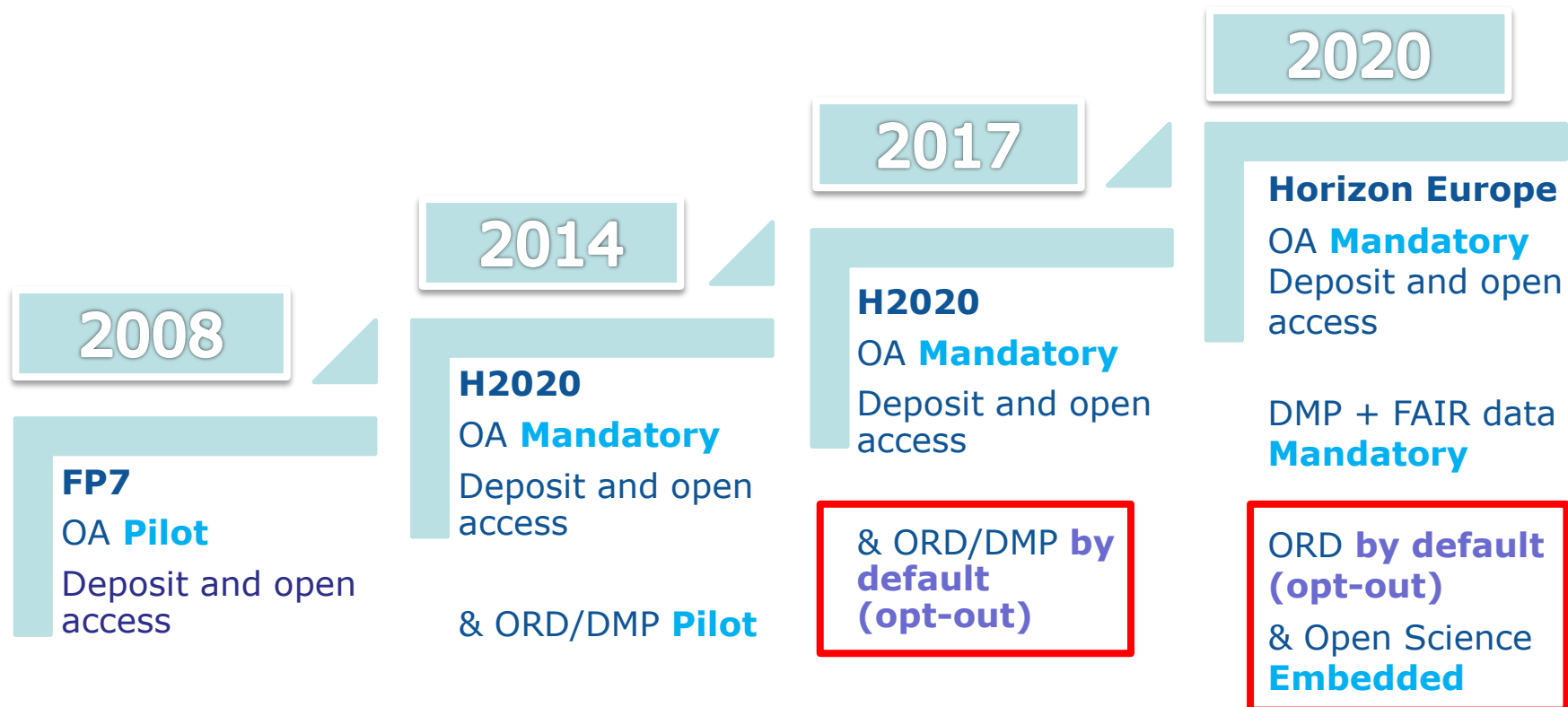
- official event: 23 Nov. 2018 in Vienna (Austrian presidency)

- **Rewards and Skills**

- 2017: new matrix proposed by OS working groups (new reports available)

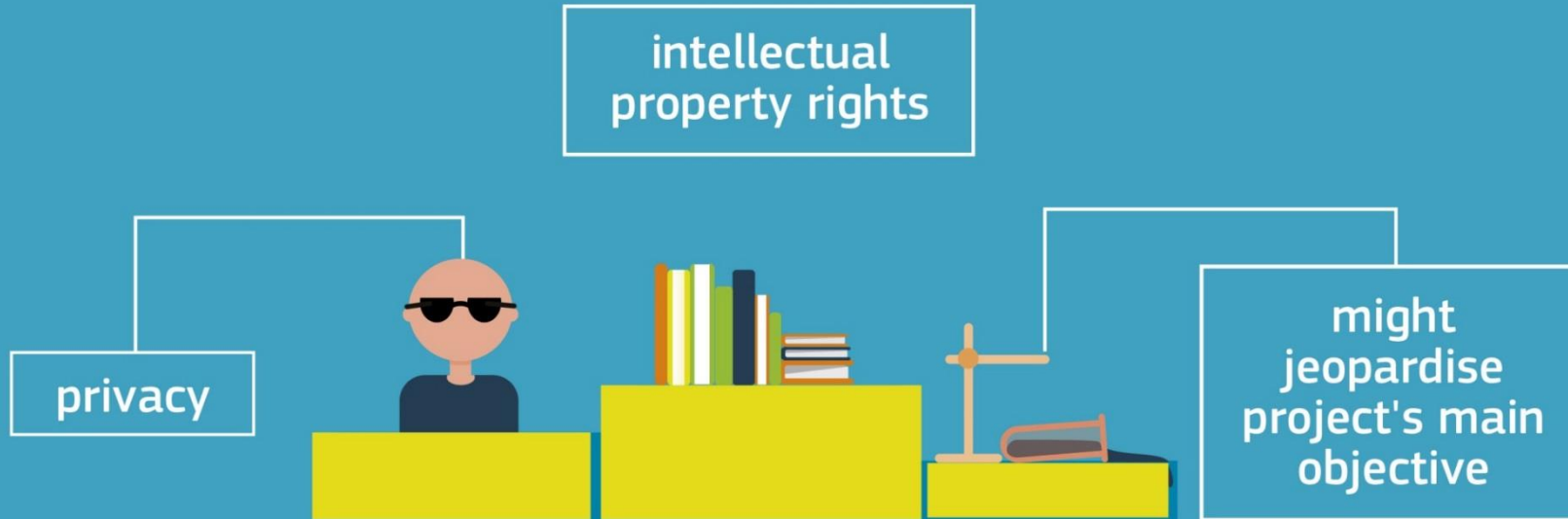


The evolution of the EU funding programmes for R&I



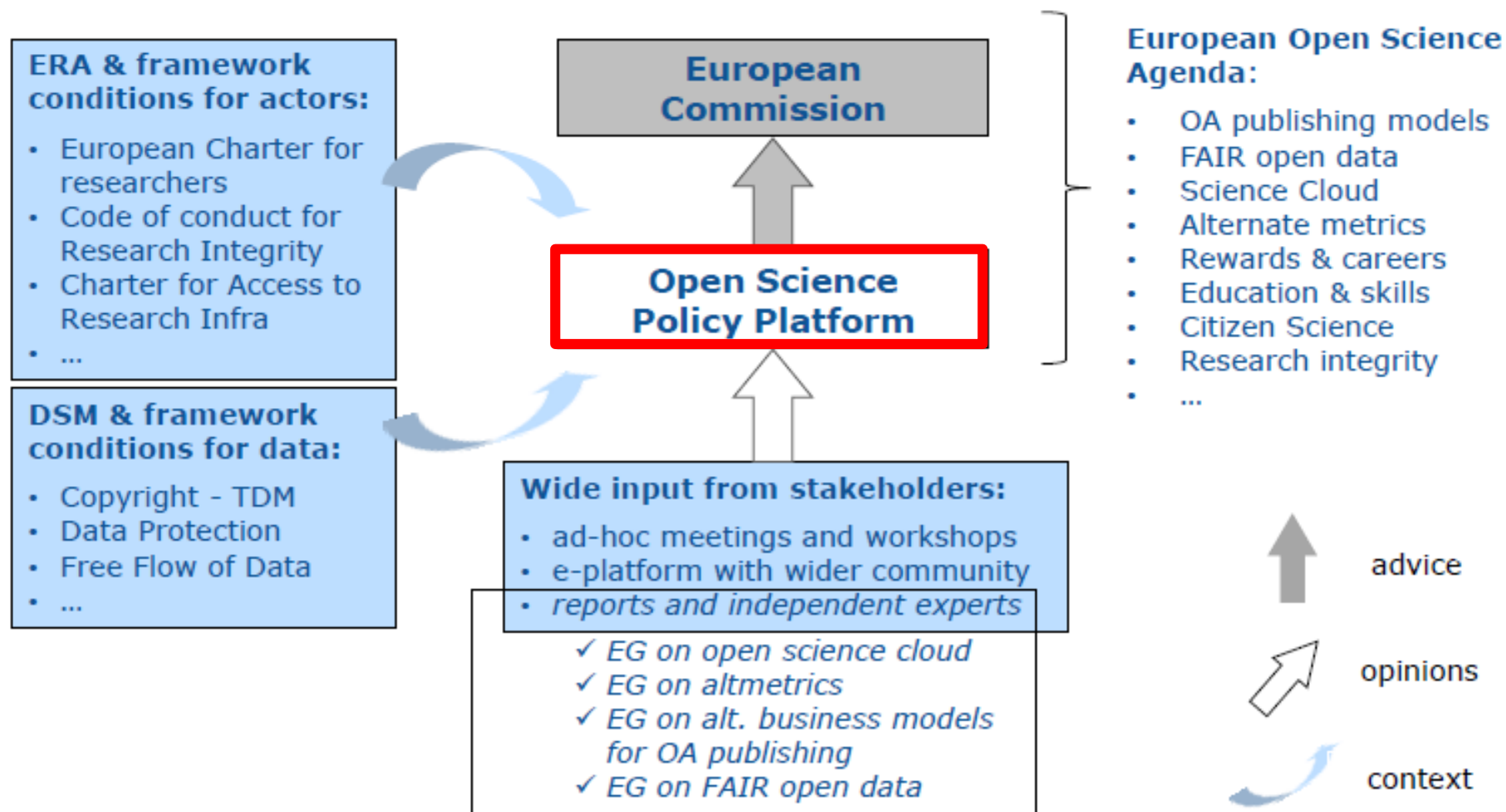
AS OPEN AS POSSIBLE, AS CLOSED AS NECESSARY

Top three reasons for opt-out:



OSPP-M1: 2016 – 2017 : recommendations

OSPP-M2: 2018 – 2019 : implementation (stakeholders events)





25 members from eight stakeholder groups:

- ✓ Universities: EUA, LERU, CEASAR, ACEU, YERUN
- ✓ Research Organisations: EARTO, EMBO, EU-LIFE, ENoLL
- ✓ Academies/Learned Societies: EPS, EUCheMS, YEAR, GYA
- ✓ Funding Organisations: Science Europe (Plan S)
- ✓ Citizen Science Organisations: ECSA
- ✓ Publishers: STM, OASPA
- ✓ Open Science intermediaries: RDA, F1000, OpenAIRE, EGI, DARIAH, GEANT, Business Europe
- ✓ Libraries: LIBER

Integrated Advice on 8 ambitions



Document adopted on **22 April 2018**, for submission to Carlos Moedas

Presentation on **29 May 2018** at the **Competiveness Council on Research and Innovation** in the multiannual financial framework (MFF)

OSPP recommendations are based on expert groups' reports and internal consultation

a) General recommendations

1. appoint **national coordinators** & task forces on OS
2. ensure **scholarly infrastructure** with adequate standardized identifiers for researchers and outputs
3. develop a **culture of OS** at institutional level with codes of ethics and integrity
4. foster **OS literacy, skills training** in whole educational system
5. develop Europe-wide **campaign to raise awareness**

https://ec.europa.eu/research/openscience/pdf/integrated_advice

b) Specific recommendations split into eight priorities

- Rewards and Incentives
- Research Indicators and Next-Generation Metrics
- Future of Scholarly Communication
- European Science Cloud
- FAIR Data
- Research Integrity
- Skills and Education
- Citizen Science

Major stakeholder groups having responsibility to drive actions stated in recommendations





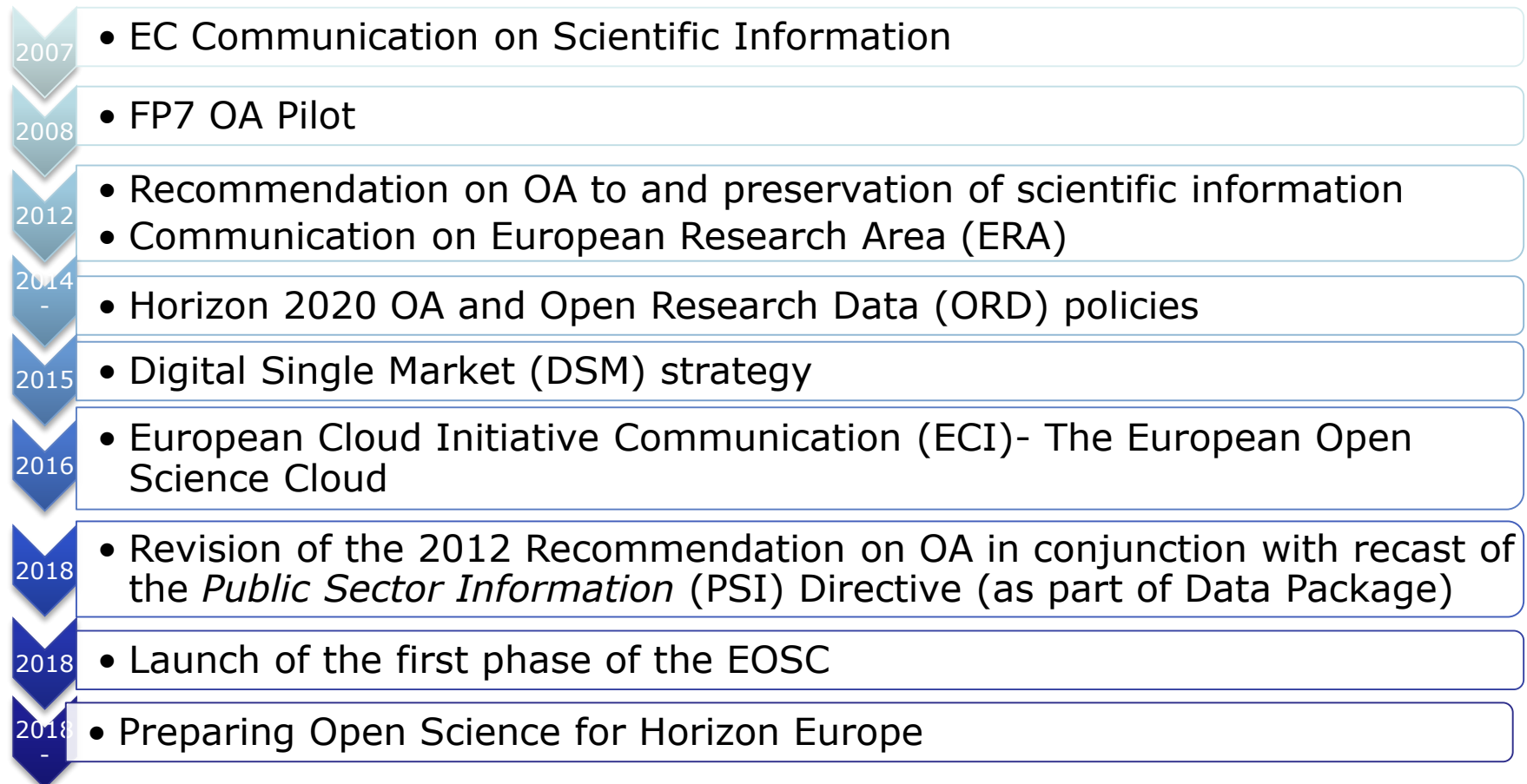
FAIR AND OPEN DATA

Actions

- Ensuring, through the *Model Grant Agreement*, that research data is open by default according to the principle '*as open as possible, as closed as necessary*'.
- Making the development and implementation of a DMP an obligation and a mandatory element of the *Model Grant Agreement* for all projects (even if opt out)
- Ensuring that Research Data Management is carried out in compliance with the FAIR principles in order to be EOSC compatible

Milestones...

European Commission policies: systematic and growing support



Data package



Revision of PSI Directive as part of package of measures to facilitate the creation of a Common Data Space in the EU

Adopted
25/4/2018

Public sector is the most data intensive sector:
expected economic value:
from 52billion EUR in 2018
to 194billion EUR in 2030 !



Public sector and publicly funded data



Private sector data



Research data

Proposal for a revision of the Directive on the reuse of public sector information

Draft Guidance on private sector data sharing in B2B and B2G contexts

Update 2012 Recommendation on access to and preservation of scientific information

2018 DATA PACKAGE

Different policy instruments for different types of data

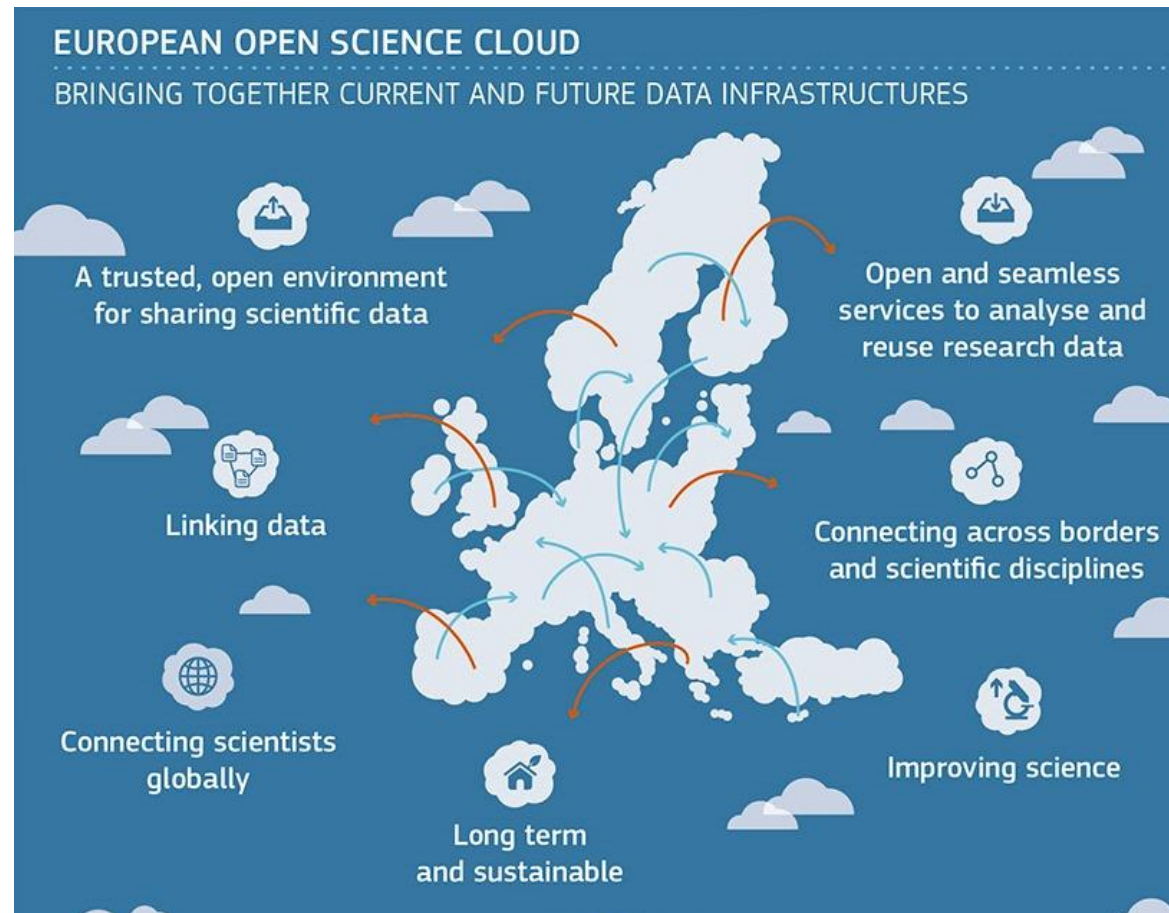
#dataeconomy #opendata

European Open Science Cloud:



a bottom up project

Federating existing initiatives to create a trusted virtual environment for enabling data driven science across boundaries and disciplines in Europe



Initiated in 2016:
Vision for EOSC

EOSC policy milestones

- | | |
|------------|---|
| June 2017 | ❑ 1 st EOSC Summit forming the coalition of the willing parties |
| Oct. 2017 | ❑ EOSC Declaration published for endorsements and to seek commitments |
| March 2018 | ❑ EOSC Roadmap presented for consultation to Council's WGs |
| May 2018 | ❑ Council conclusions endorsing the EOSC Roadmap |
| June 2018 | ❑ 2nd EOSC Summit |
| Fall 2018 | ❑ Establishment of the Governance structure; MS designate representatives to the EOSC board. Selection of members to the governance structure |
| Nov 2018 | ❑ Launch of the EOSC governance structure (Austrian Presidency, Vienna) |
| End 2020 | ❑ MS+ EC agreement on the future strategic orientation and financing scheme for the EOSC |



EOSC Governance - roles



	Membership	Role
EOSC Board	Member States/Associated Countries and EC representatives	To oversee & steer the EOSC strategy and implementation <i>→ Review and decide</i>
EOSC Executive Board	Stakeholder representatives and individual experts	To help & support the EOSC strategy, implementation, monitoring and reporting on progress of implementation <i>→ Elaborate and propose</i>
Stakeholders Forum	Stakeholders organisations; e.g. scientific/user community, universities, research institutions, research infrastructures, eInfras	To advise the Executive Board and reach-out to the scientific community <i>→ Provide input and feedback</i>



Survey on Open Science and Career Development for Researchers 2018 prepared for the European Physical Society (EPS)

Survey addressed to European Physicists (1st Quarter 2018)

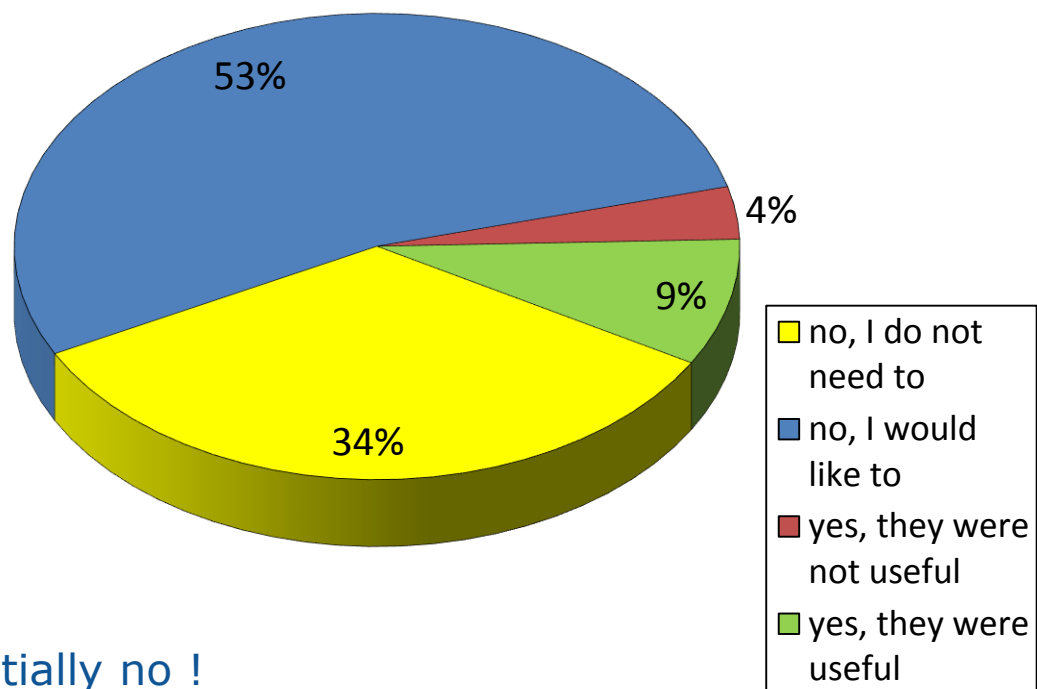
The survey had 58 questions covering the following 4 chapters



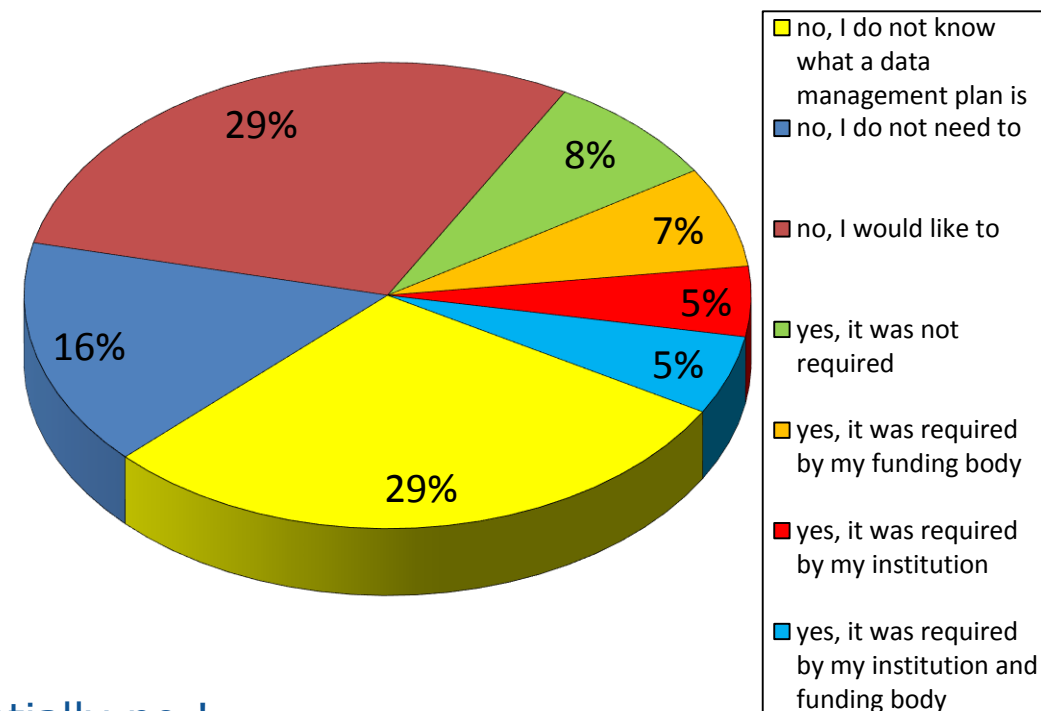
1. **Biography:** 12 questions
2. **Open Science:** 5 questions
3. **Open Data:** 15 questions
4. **Open Access:** 10 questions
5. **Career Development:** 16 questions or comments

330 participants : 73% male, 24% female from 27 countries (D, I, UK, F, CH,...)
28% professors, 25% senior researchers, 18% PhD students
76% at university, 17% at public/gvt research institute
94% Physical Science, 4% Engineering, 1% Math

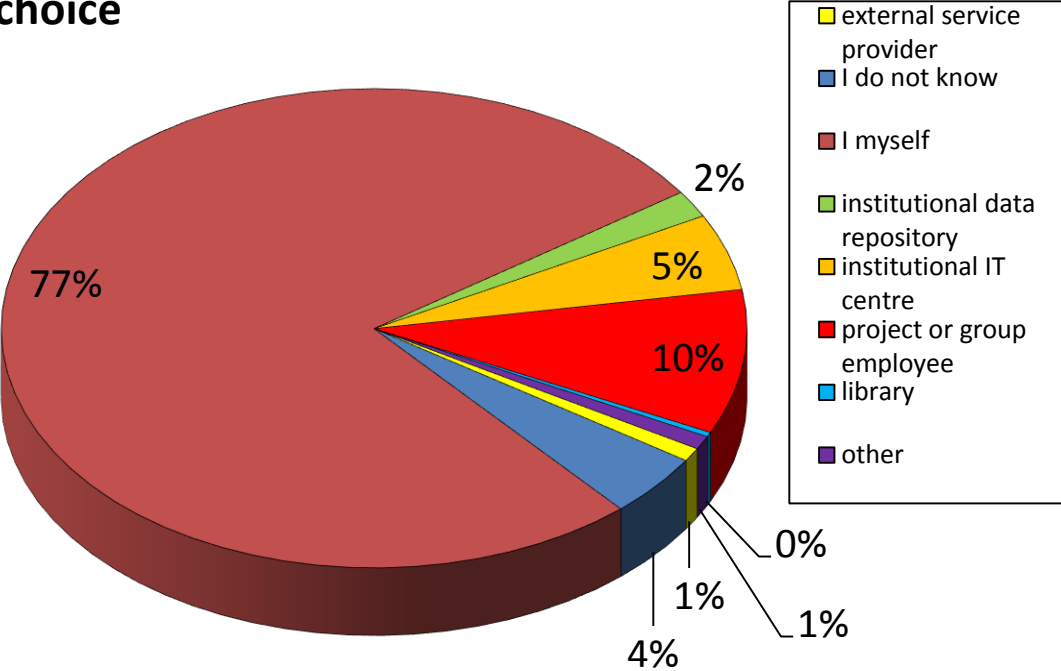
Have you followed training courses on data management?



Have you used a data management plan in your research?

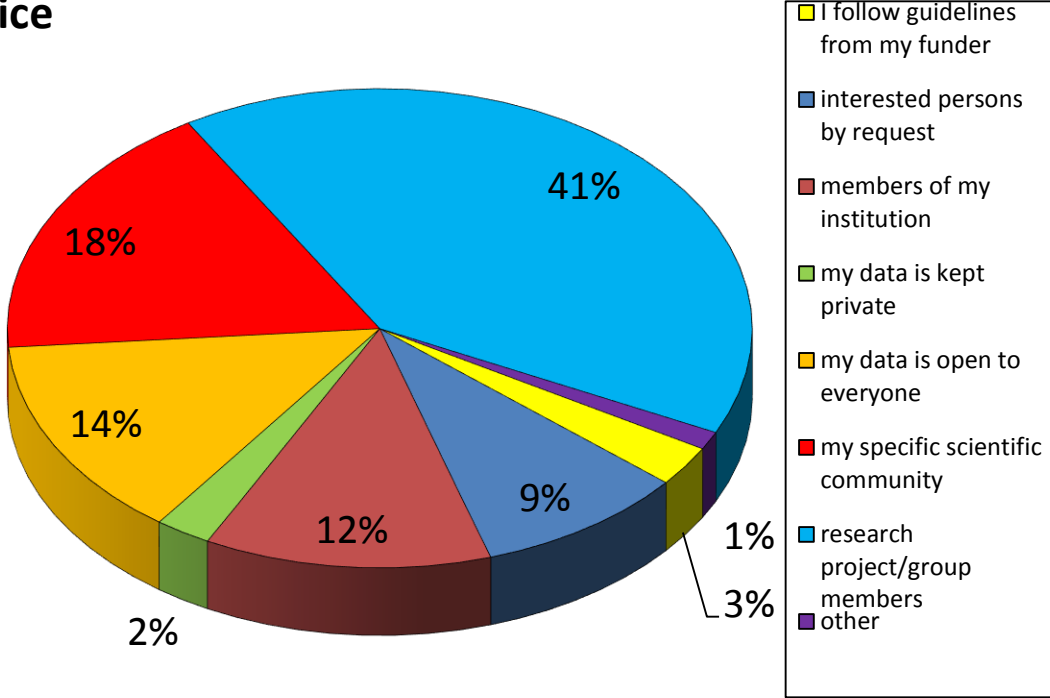


Who is responsible for archiving your research data? First choice



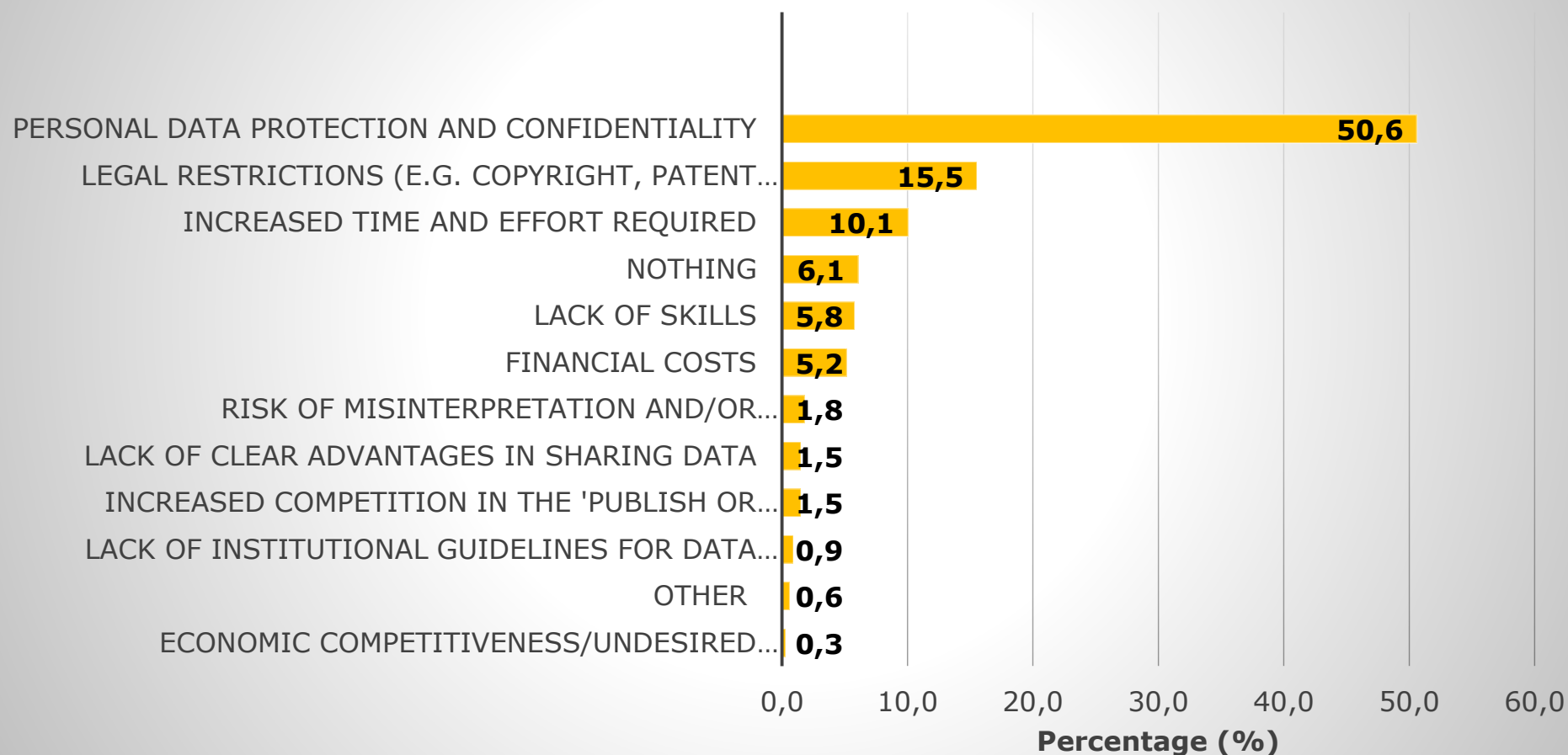
mainly myself or project/group employee

To whom do you usually grant access to your research data? First choice



mainly to own research group, institution, community and interested persons by request.

What would keep you from sharing your research data with others? first choice





Thank you!

More information at

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