European Pathways to Open Science 25 Oktober 2016

# Open Science
# Von der Vision zur Praxis

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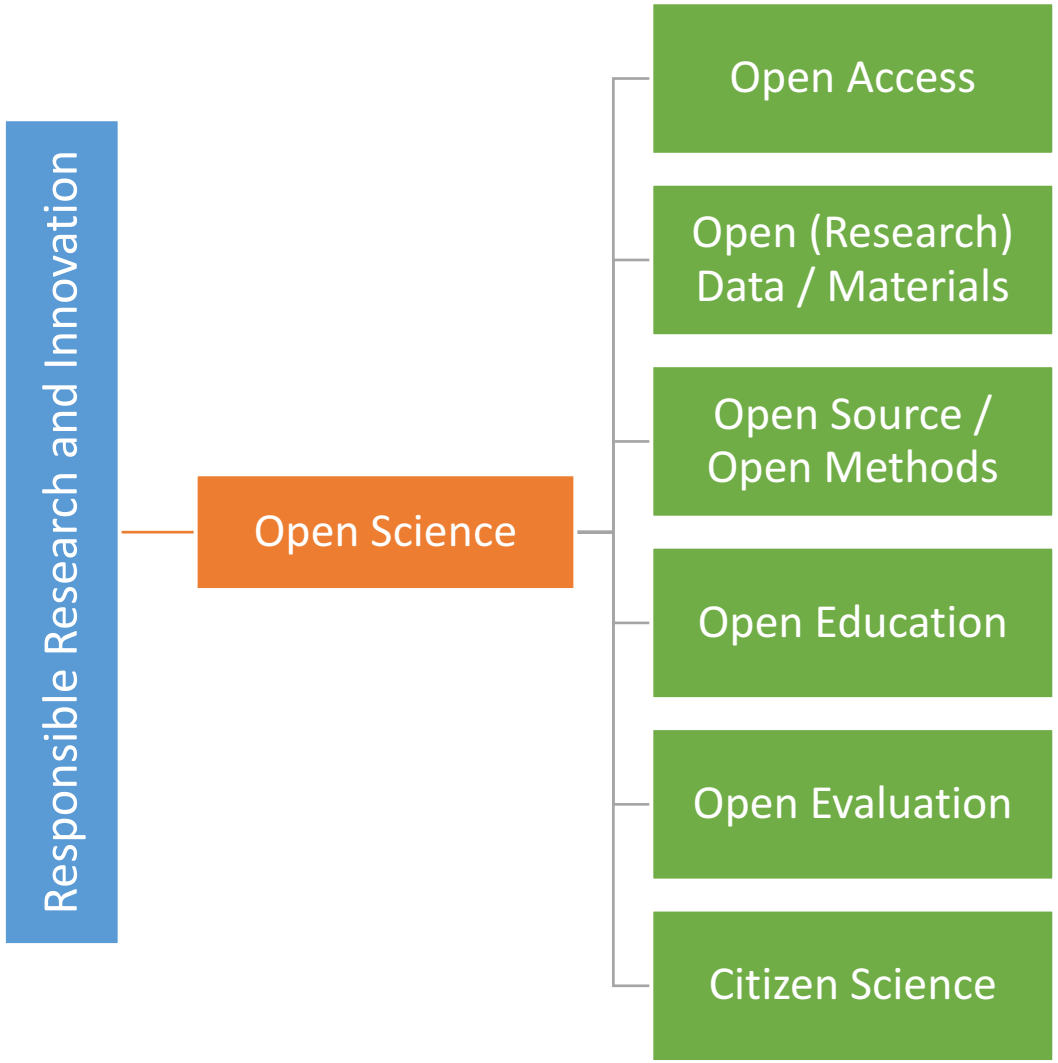
# Wissenschaft als öffentliches Gut

science commons




Open science is the idea that scientific knowledge of all kinds should be openly shared as early as is practical in the research process.

Open strategies in science share the following objectives

- sharing and collaboration
- transparency and reproducibility
- re-usability and new applications
- societal participation and feedback loops

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# The 3 Os of EU Science Policy

Jobs and growth

## Priorities of Commissioner Moedas

- Open Innovation
- Open Science
- Open to the world

**Science, Research and Innovation performance of the EU**

areas such as nanosciences and nanotechnology, ICT, materials or biotechnology. In addition, both China and South Korea have been increasing their number of highly cited publications in strategic fields at a higher speed than the EU and the US. A similar pattern applies for technological outputs.

A picture that emerges throughout the Report is ***the persistence of an innovation divide across the EU***, with the Member States having joined the EU since 2004 performing, on average, at lower levels. It should be noted, however, that the characteristics of this innovation divide appear to be gradually changing, with some of the newer Member States increasing their performance substantially. In terms of R&D intensity, for instance, Slovenia is now ranked 6th across the 28 Member States, and has surpassed Belgium and France, while both the Czech Republic and Estonia are approaching the EU average. The Report also shows the importance of the European Structural and Investment Funds in financing the research and innovation systems of the newer Member States, which will contribute to further close the innovation divide.

**The EU needs to continue improving the quality of its science base and the intensity of knowledge circulation: Open Science**

Excellent science is the foundation of future prosperity and openness is key to excellence. Despite a growing number of impressive developments at the frontier of science in Europe and an improving position of the EU worldwide, indicators of most excellent science show that the Europe is not top of the rankings in certain areas.

With more than 27% of the world total, ***the EU continues to be the largest producer of scientific publications in the world***, ahead of China, which has overtaken the US. A significant evolution since 2000 is that the EU has overtaken the US as regards the total number of highly cited publications.

There is evidence throughout the Report that continued policy attention to research and innovation and structural reforms ultimately pay off. The continued policy attention to reform the public research base and stimulate excellence has led ***the EU to diminish the gap with the US in terms of scientific quality*** whilst staying clearly ahead of countries such as South Korea, Japan and China.

A shift towards more knowledge-intensive activities also benefits employment. The Report shows that ***employment in science and technology has been particularly resilient during the crisis***. Whilst total employment in the EU decreased by 0.7% on average per year between 2008 and 2013, human resources in science and technology increased by 2.1% per year over the same period and the number of researchers by 2.5%.

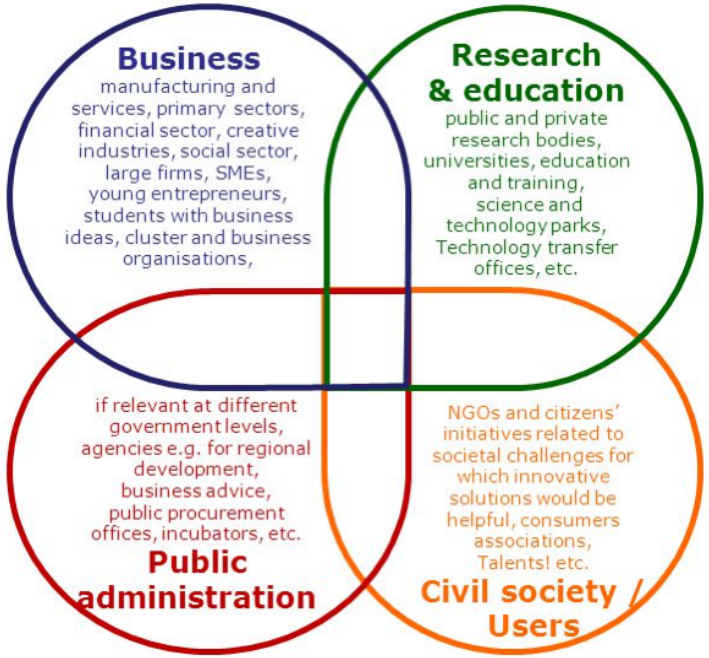
For the public science base to be fully effective in terms of increasing innovation performance and delivering impact, it needs to be well connected to the business sector and knowledge has to circulate freely. Public-private collaboration is a key aspect in this, in particular in an environment in which open innovation is becoming increasingly important and more actors are involved in the innovation process. In this respect, the EU has made some progress over the past few years, ***but its intensity of public-private collaboration still lags behind that of Japan, South Korea and, in particular, the US***. Further efforts are needed to stimulate such cooperation, and the nature of the economic fabric should be taken into account when determining the optimal policy mix.

Moreover, the mobility of human resources is also an important mechanism to foster knowledge circulation between the public and the private sector. Yet here as well, ***the EU is still not fully benefiting from the embedded knowledge of researchers trained by universities*** as the number of researchers employed by the business sector is significantly lower than in the US, Japan and South Korea.

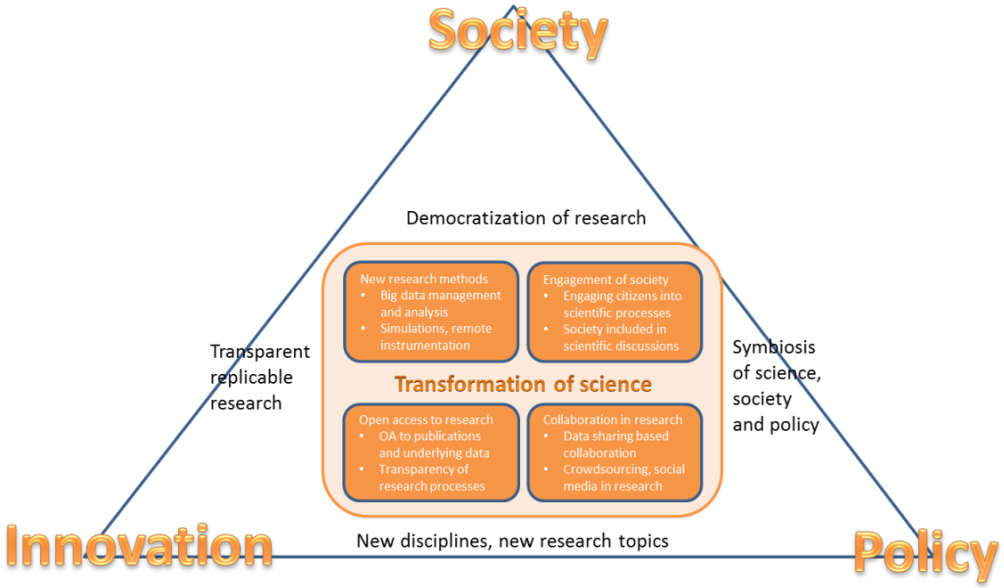
http://de.slideshare.net/mobile/xrbiotech/science-research-and-innovation-performance-of-the-eu-agenda-2016

http://de.slideshare.net/mobile/OpenAIRE_eu/a-funders-perspective-welcome-from-the-ec-caroline-colin-openaire-workshop-ghent-nov2015

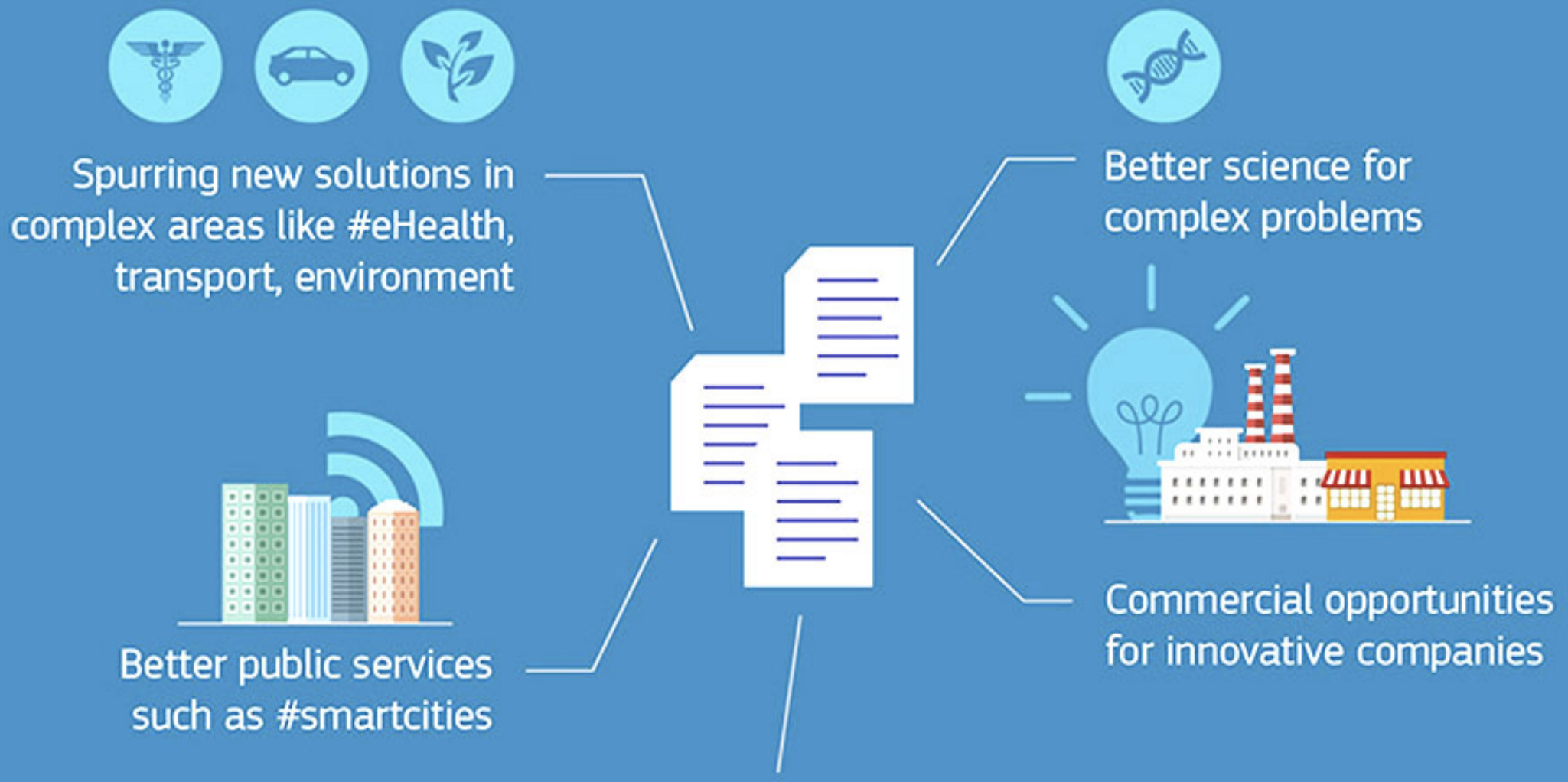
# Politische Imaginationen von Open Science



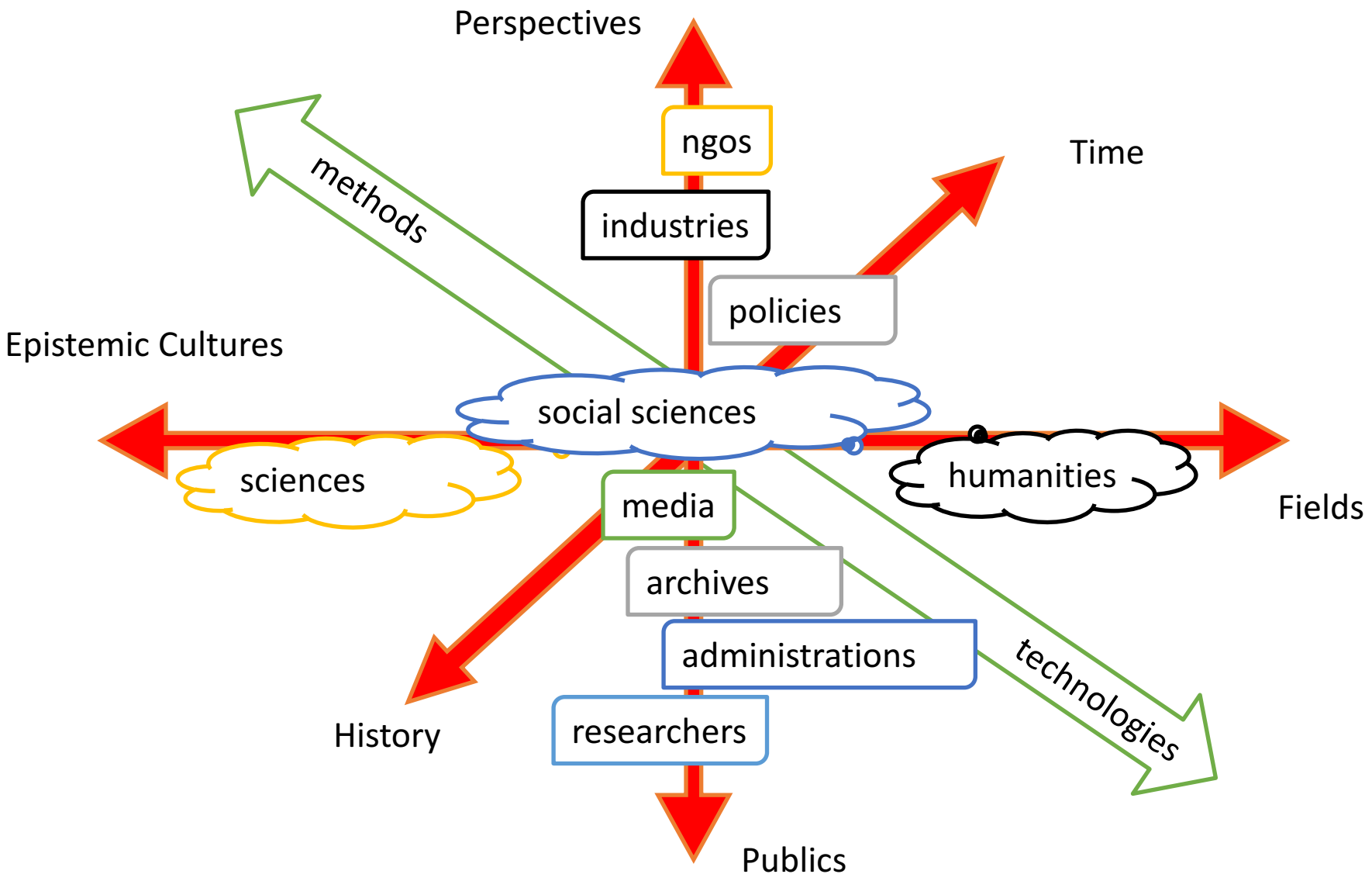

Open Science aims at transforming science through ICT tools, networks and media, to make research more open, global, collaborative, creative and closer to society.




https://ec.europa.eu/digital-single-market/en/open-science




https://www.zbw-mediatalk.eu/tag/european-open-science-agenda/


Perspectives
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industries
policies
Time
methods
Epistemic Cultures
social sciences
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Fields
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History
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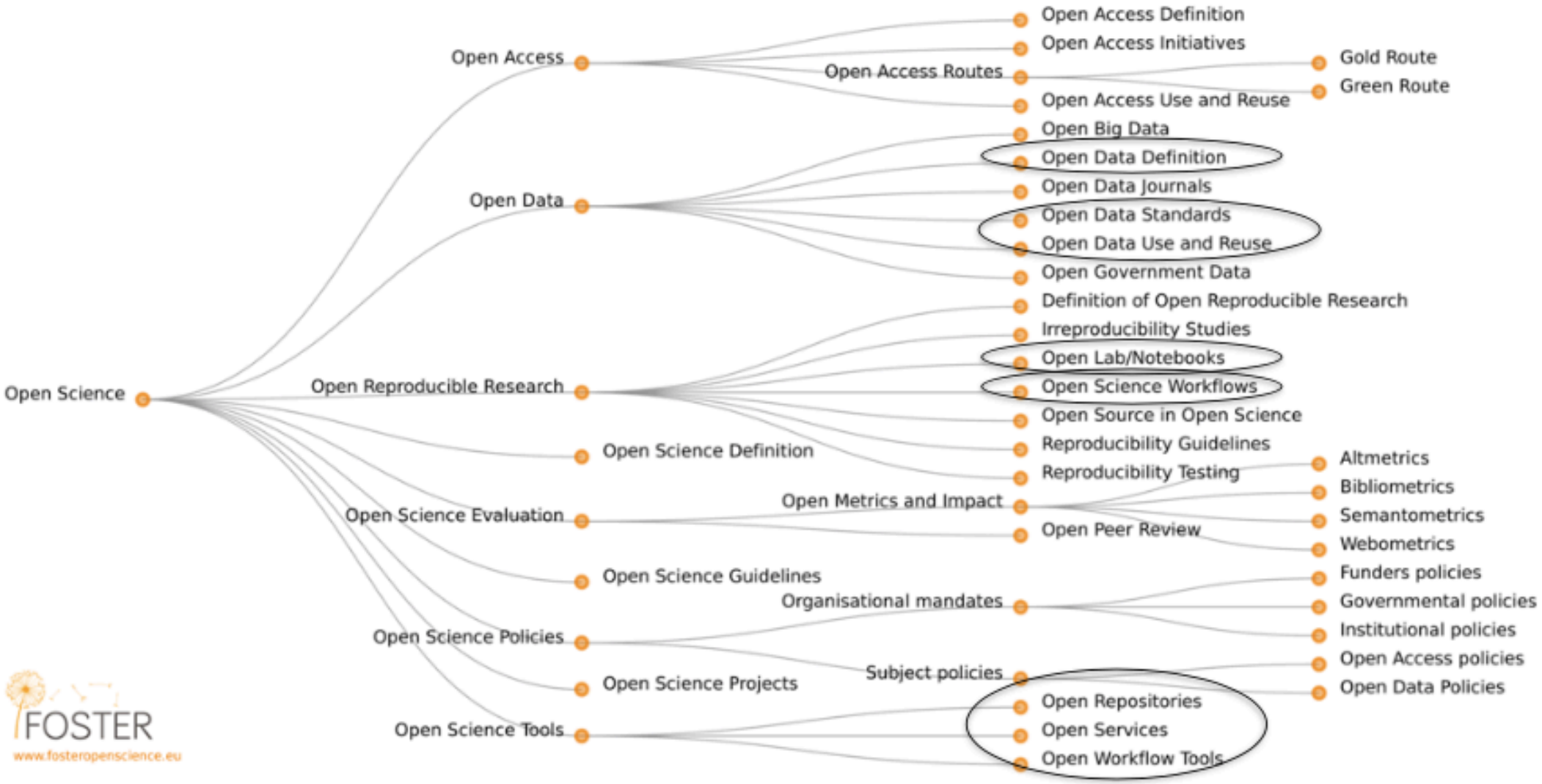
Publics

# Open Science Taxonomy

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# Expectations of Open Science

## Science

- accessibility
- transparency and reproducibility (replication)
- speeding up research
- collaboration
- visibility
- training in field specific open science skills
- science for social good
- changes in the reward system
- getting out of precarious working conditions

## Policy

- speeding up innovation (commercialisation and implementation, value creation)
- accountability and citizen/user involvement (e.g. “knowledge coalitions”)
- increasing technology acceptance
- reusability
- new technologies will bring more openness (mobile methods, data analytics, TDM,...) - openness will create more acceptance for new technologies

# Realitäten der Open Science

| |
|---|
| Ja, Offenheit existiert in vielen Ausprägungen und Zeiträumen |
| Ja, Offenheit bringt Kritik und Meinungsverschiedenheit |
| Ja, Offenheit bringt Diversität und Komplexität |
| Ja, Offenheit ermöglicht Partizipation und Intersubjektivität |
| Ja, Offenheit kostet Geld und ist aufwändig |
| Ja, Offenheit erfordert besondere Fertigkeiten und Vertrauen |
| Ja, Offenheit kann man nicht völlig kontrollieren |
| Ja, Offenheit muss die Privatsphäre respektieren |

# EU Forschungspolitik: Wo stehen wir jetzt?

**Mandatory OA policy in H2020**

business model gold OA

traditional path dependecies vs new publishing models (collective publishing platforms…)

green OA repositories

OA institutional policies

**“as open as possible, as closed as necessary”**

Data management plans

Data repositories

Open science cloud

Mandatory from 2017

Legal frameworks pending

(copyright law, open data law…)

**OS actions**

Based on OA and ORD

specific calls, not yet mainstreamed

Training platforms and raising awareness

Open science cloud

Citizen science

Open science policy platform

Marginal open education

# EU Agenda for research results in 2020?

## 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

- The role of alternative metrics in replacing/complementing conventional indicators for research quality and impact (e.g. Journal Impact Factors and citations)

## Changing business models for scientific publishing

- All peer reviewed scientific publications are freely accessible

# EU Agenda for research actors in 2020?

## Reward

- The European research career evaluation system fully acknowledges Open Science activities

## Research Integrity

- All publically 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

- Citizen scientists significantly contribute and are recognised as valid knowledge producers of European science

# Policy Challenges

## practices

- open access
- open research data
- open evaluation
- open educational resources
- and many more

## principles

- knowledge as a public good
- rights to research for social justice
- knowing differently

## policy

- inclusion
- innovation
- funding
- infrastructure
- intellectual property
- incentives

## levels

- individual
- work or project group
- institution
- national
- international

# Prioritäten für eine nachhaltige Open Science Politik

| | |
|---|---|
| Anreize schaffen | • Aufmerksamkeit generieren und Wertschätzung etablieren<br>• Top-down und bottom-up Ansätze verbinden |
| Zeit und Raum für Training und Experimente | • Lehre, Forschung, Innovation zusammendenken<br>• Transdisziplinäre Kollaboration stärken |
| Mainstreaming Open Access | • OA im Forschungssystem verankern<br>• Link Administration und Forschung stärken |
| Koordination nationaler und europ. Strategien | • Open Science durch alle Strategien stärken (Digitales Österreich, ERA; Open Innovation, …)<br>• Stakeholder zusammenbringen |
| Offene Infrastrukturen für offene Daten | • Klare Anforderungen und Roadmaps<br>• Interoperabilität fördern |
| Legale Sicherheit | • Kollaborative Forschung für offene Lizenzen und Policies sensibilisieren, Rahmen bieten |

# Vienna PRINCIPLES

## a vision for scholarly communication

1 Accessibility
2 Discoverability
3 Reusability
4 Reproducibility
5 Transparency
6 Understandability
7 Collaboration
8 Quality Assurance
9 Evaluation
10 Validated Progress
11 Innovation
12 Public Good

http://viennaprinciples.org

# Danke für die Aufmerksamkeit!

http://viennaprinciples.org - Vienna Principles

http://oana.at - Open Access Netzwerk Österreich

https://era.gv.at/object/document/2279 - Open Science Policy Briefing

http://okfn.at/themen/open-science/ - Open Knowledge Arbeitsgruppe

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