Open Science in the EU

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6 priorities of the European Research Area

1) effective national research systems,

2) optimal transnational cooperation and competition (jointly addressing grand challenges + Research Infrastructures)

3) an open labour market for researchers

4) gender equiality and gender mainstreaming in research

5) optimal circulation and transfer of scientific knowledge (OA)

6) international cooperation

N.B. Government of the Republic of Moldova approved the **National roadmap for integration into ERA for 2019-2021** (Government decision nr. 1081 of 08.11.2018)

Open Science - definitions

- the way research is carried out, disseminated, deployed and transformed by digital tools, networks and media. *(EC definition, https://ec.europa.eu/digital-agenda/en/open-science)*

- efforts by researchers, governments, research funding agencies or the scientific community itself to make the primary outputs of publicly funded research results – publications and the research data – publicly accessible in digital format with no or minimal restriction as a means for accelerating research; these efforts are in the interest of enhancing transparency and collaboration, and fostering innovation *(OECD definition, http://dx.doi.org/10.1787/5jrs2f963zs1-en)*

- the movement to make scientific research, data and dissemination accessible to all levels of an inquiring society *[FOSTER, Open Science Definition https://www.fosteropenscience.eu/taxonomy/term/7]*

Open Science components

- **Open research content** coming from public research
- **Open e-Infrastructures** for public and private resarch
- **Open scientific culture** – by adapting assessment and reward systems to OS objectives

Open Science - rationale

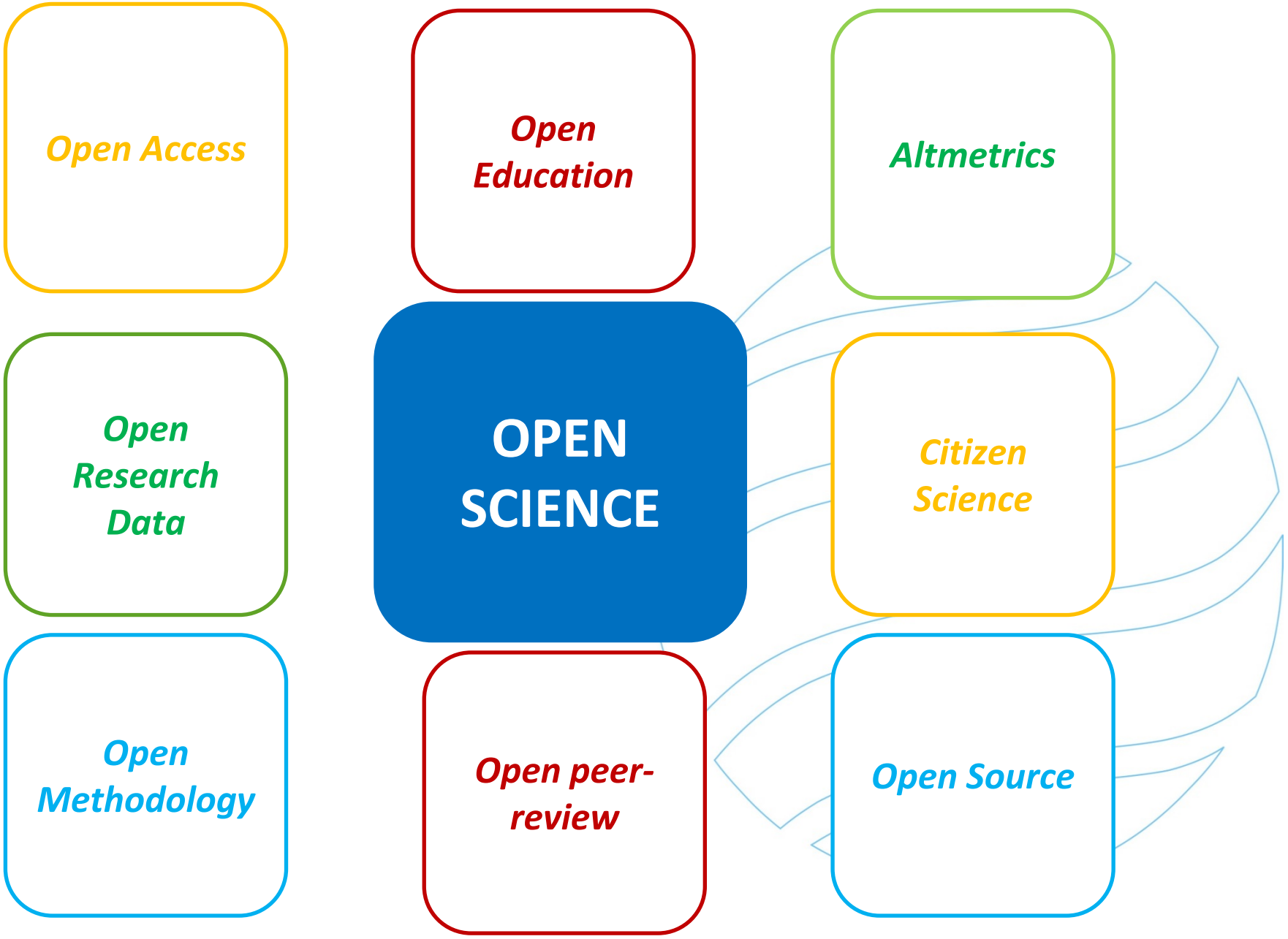
'Open Science' is not a new concept itself, many other terms have been used (Science 2.0, e-Science, etc.)

Sociological argument of OS: scientific knowledge is a product of social collaboration and its ownership belongs to the community

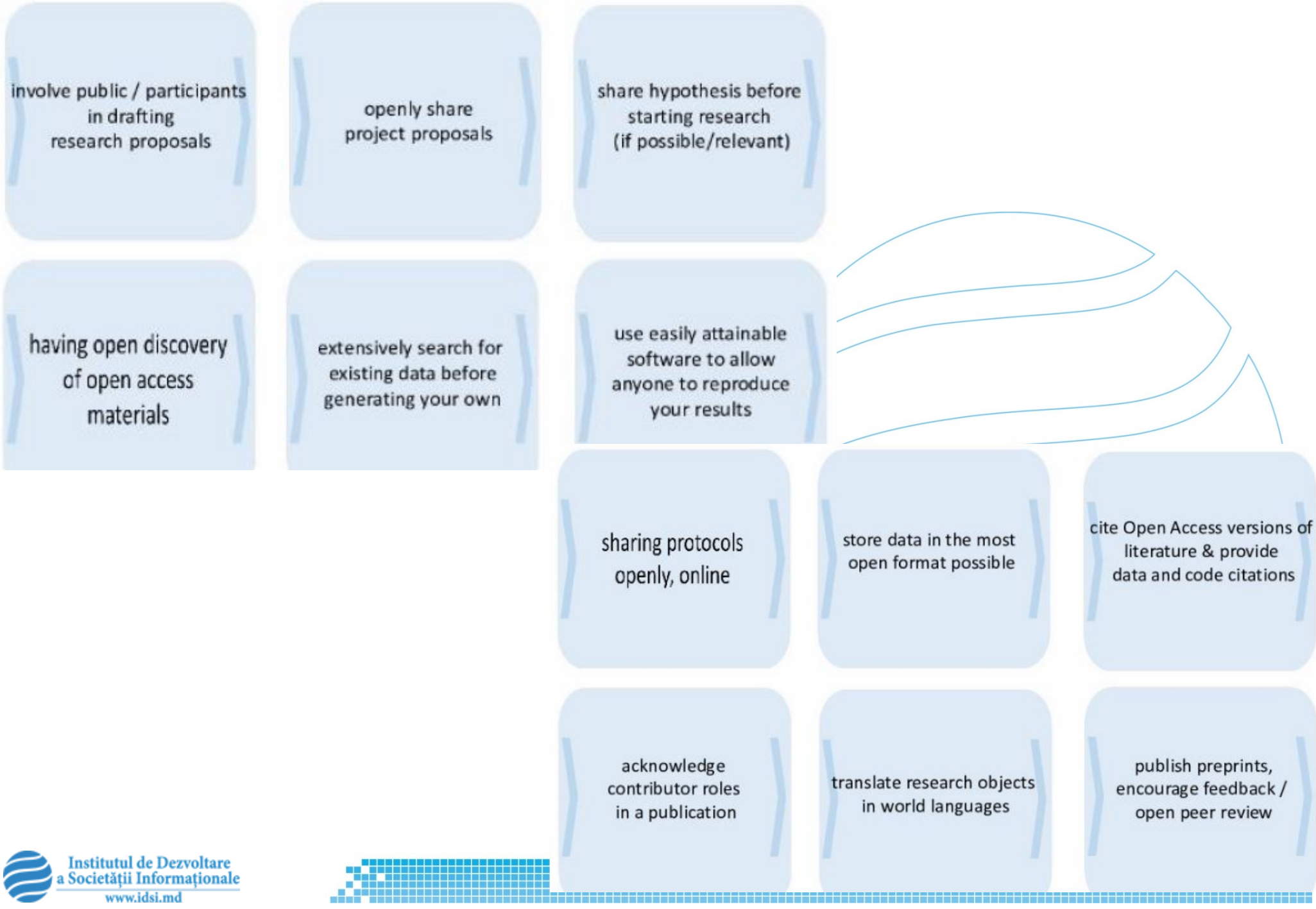
Economic argument of OS: scientific outputs generated by public research are a public good that everyone should be able to use at no cost

Open Science is to science what Web 2.0 was to social and economic transactions

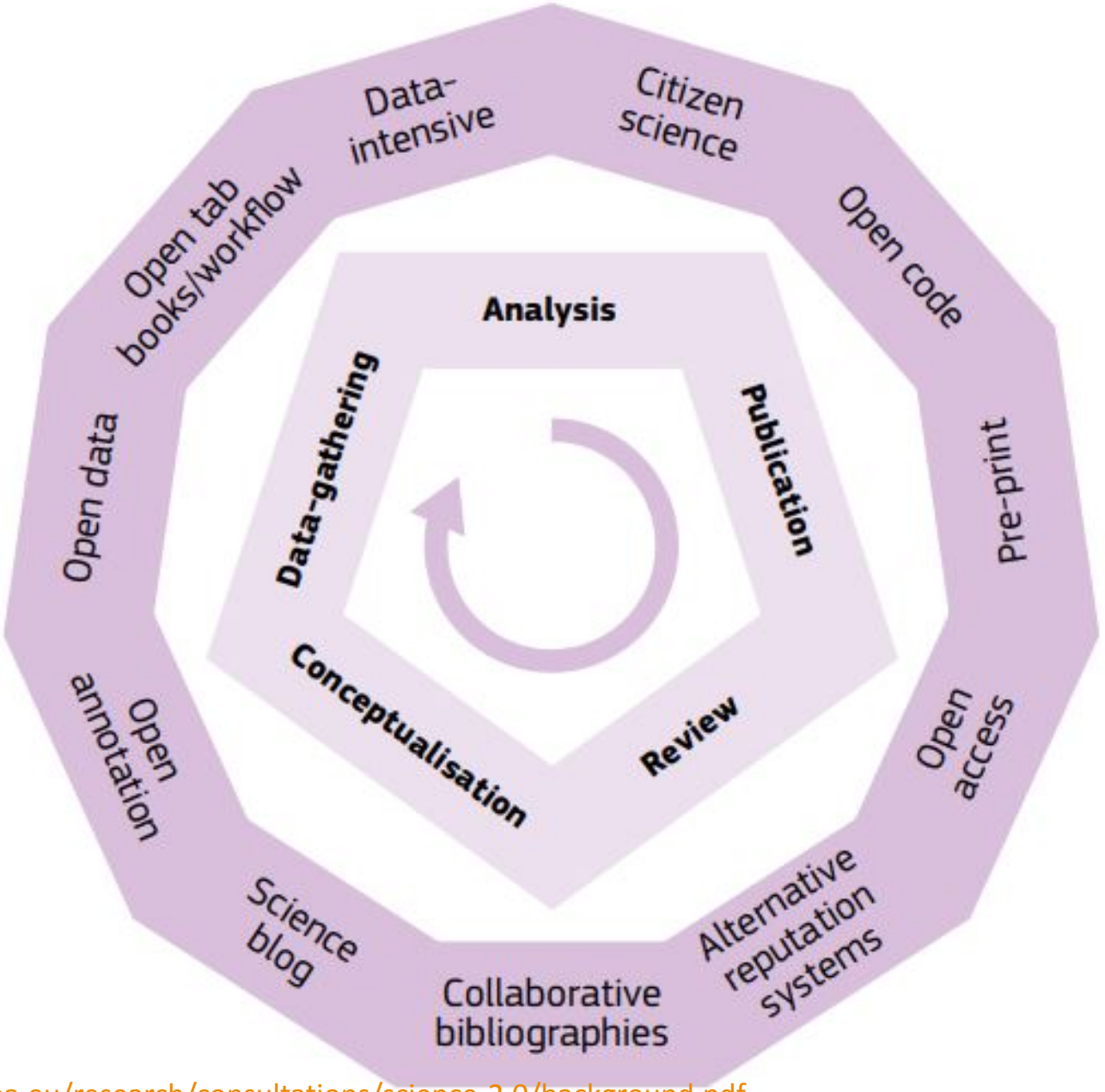
Open Science – umbrella term for several movements



Open Science practices

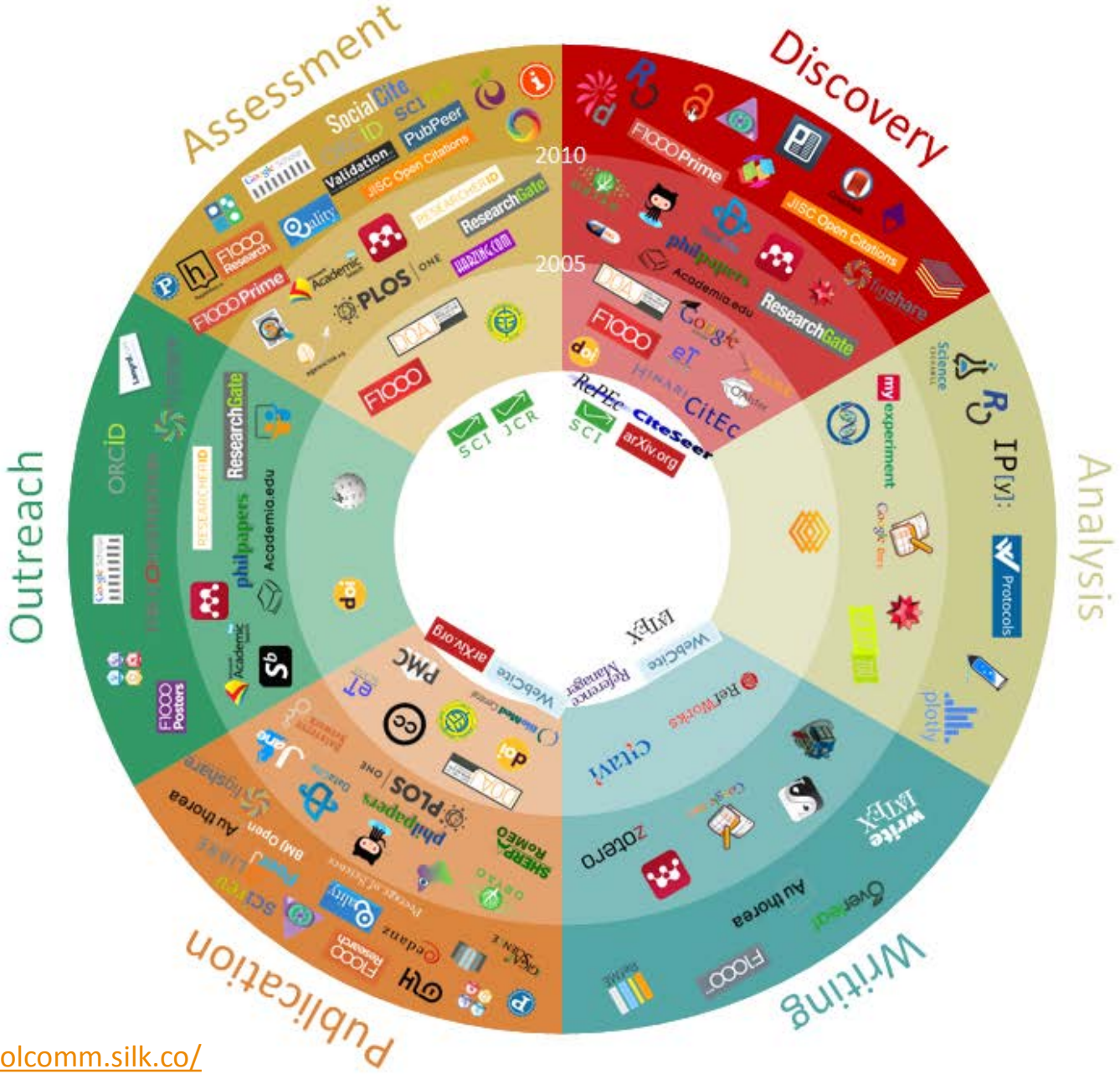


Open Science – opening up the research process



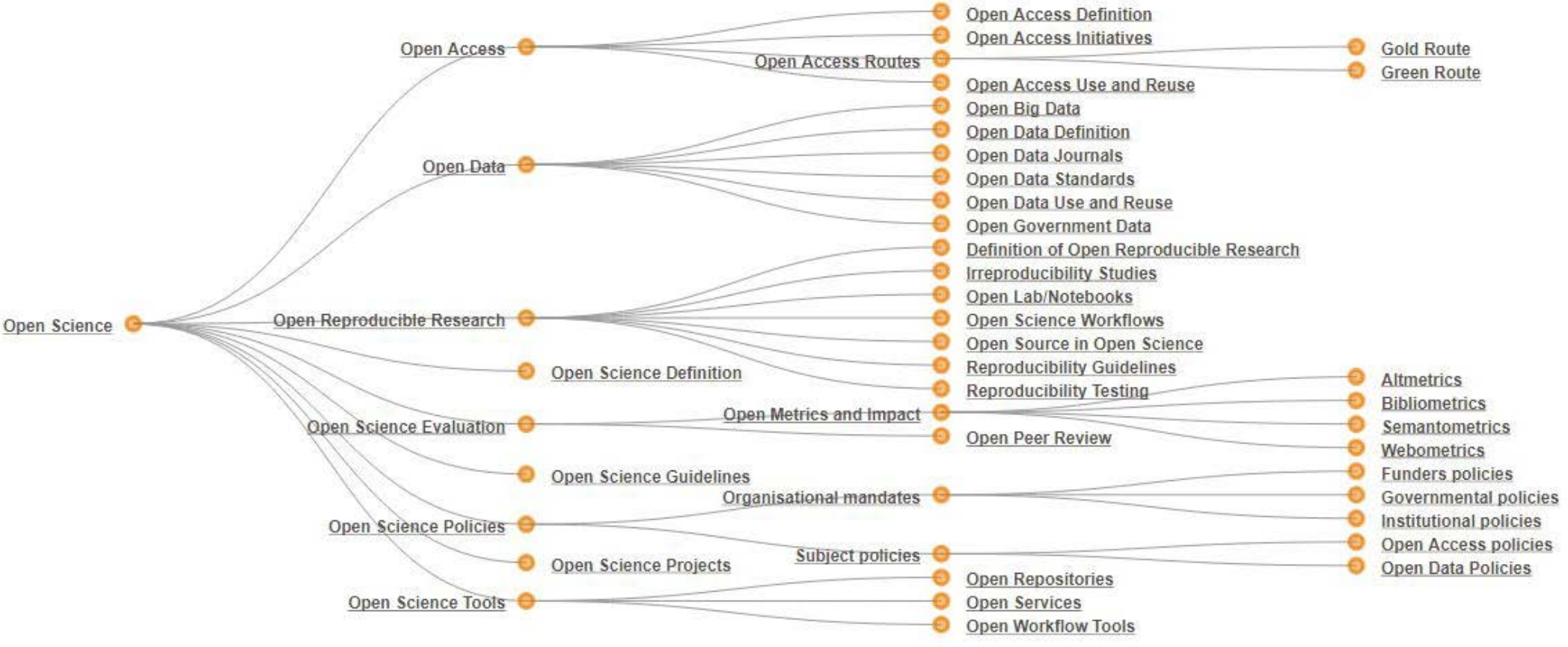
Source: http://ec.europa.eu/research/consultations/science-2.0/background.pdf

Open Science – a new ecosystem



Source: https://innoscholcomm.silk.co/

Știința deschisă – taxonomy



Source: https://www.fosteropenscience.eu/foster#taxonomy

Open Science – benefits

- ✓ Increases research efficiency
- ✓ Promotes scholarly rigour and enhances research quality (including research reproducibility)
- ✓ Enhances visibility and engagement
- ✓ Enables the creation of new researcg questions
- ✓ Enhances collaboration and community building
- ✓ Makes research networked and interconnected
- ✓ Speeds up innovation & discovery
- ✓ Takes ideas to the market & solutions to societal challenges

Major initiatives at EU level

- **Open Science is one of the 3 strategic priorities of the European Commission,** as stated by the Commissioner Moedas, staring in 2015.

- **Conclusion of EU Council in 2016**:

- *mainstreaming and further promotion of open science policies*
- *establishing Open Science Policy Platform and adopting the **European Open Science Agenda***
- *removal of barriers and the fostering of incentives for open science policy*
- *open access to scientific publications and optimal re-use of research data*

- **"Amsterdam Call for Action on Open Science"** (2016), 2 major goals at the European level for 2020:

- *Full open access for all scientific publications*
- *A fundamentally new approach towards optimal reuse of research data*

+

complementary actions:

- *New assessment, reward and evaluation systems*
- *Alignment of policies and exchange of best practices*

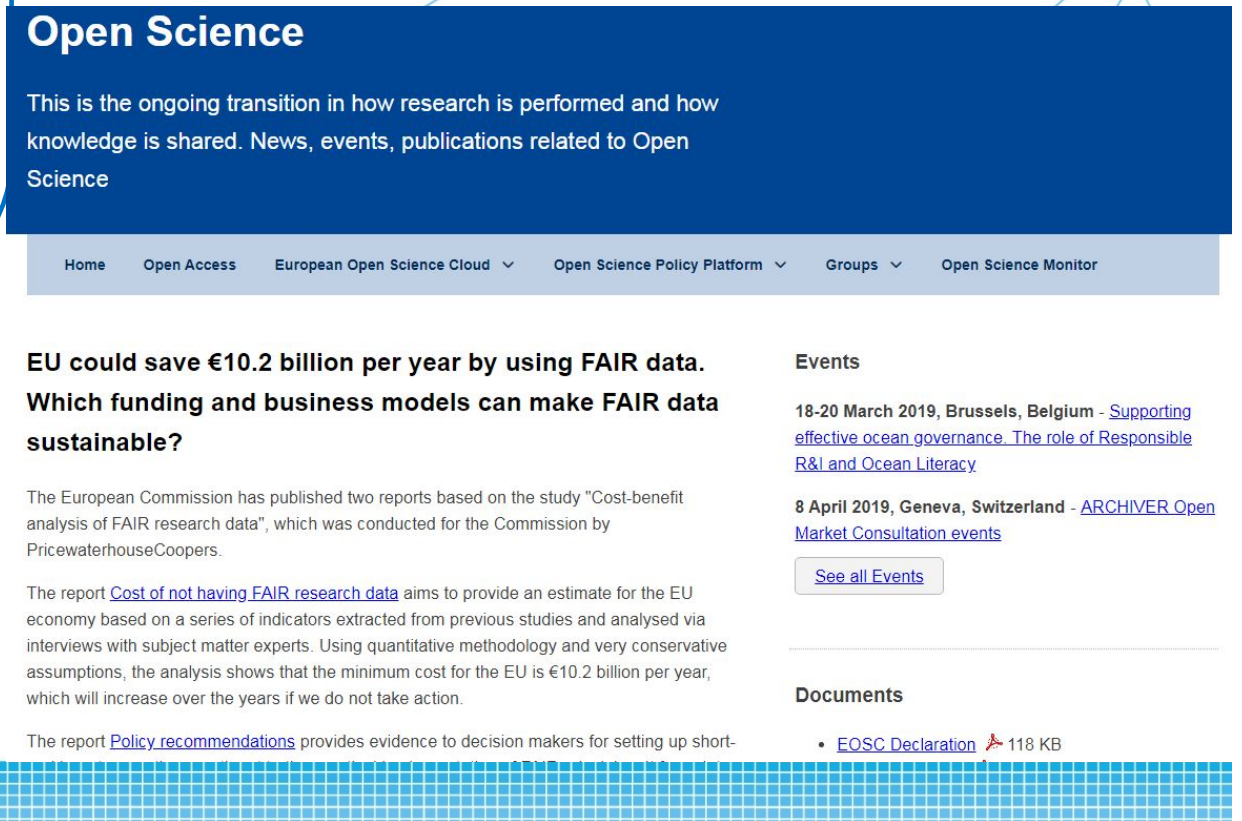
European Open Science Agenda

European Open Science Agenda

1. Rewards and Incentives
2. Research Indicators and Next-Generation Metrics
3. Future of Scholarly Communication
4. European Open Science Cloud
5. FAIR Data
6. Research Integrity
7. Skills and Education
8. Citizen Science

Agenda is strongly anchored to the EU Digital Single Market strategy

Open Science Policy Platform



Open Science is now a requirement


EUROPEAN COMMISSION
Directorate-General for Research & Innovation

Guidelines on Open Access
to Scientific Publications and Research Data
in Horizon 2020

Version 2.1
15 February 2016

Research results: "each beneficiary must ensure open access to all peerreviewed scientific publications" (page 4)

Research data: "A new feature of Horizon 2020 is the Open Research Data Pilot (ORD Pilot), designed to improve and maximise access to and reuse of research data generated by projects… The Pilot on Open Research Data will be monitored throughout Horizon 2020 with a view to further developing Commission policy on open research." (page 7)

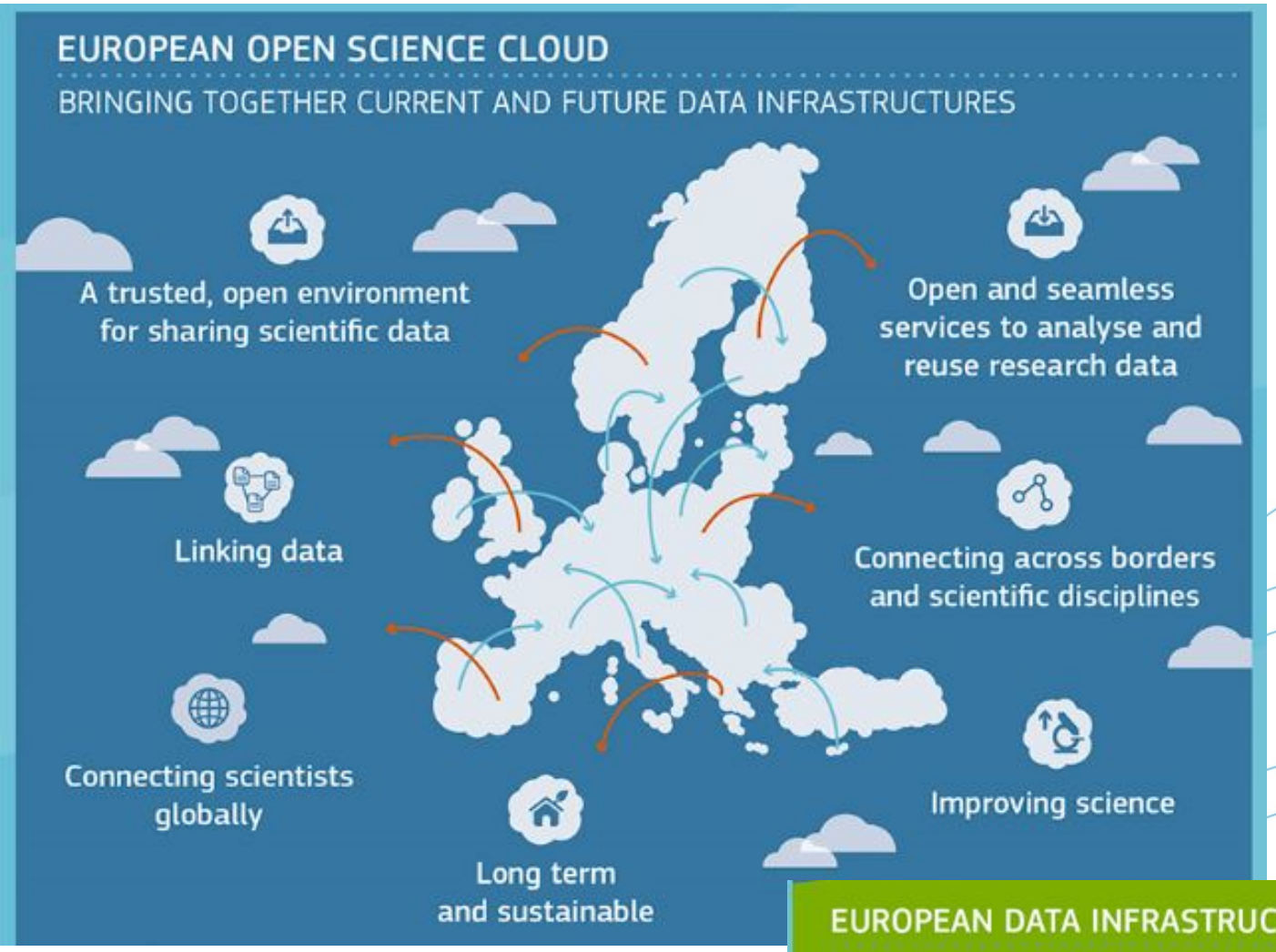
Report URL: https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf

European Open Science Cloud

European Open Science Cloud (EOSC) – EU ambition from 2016 to enable the transition to Open Science

5 key areas of EOSC implementation, based on specific input papers.

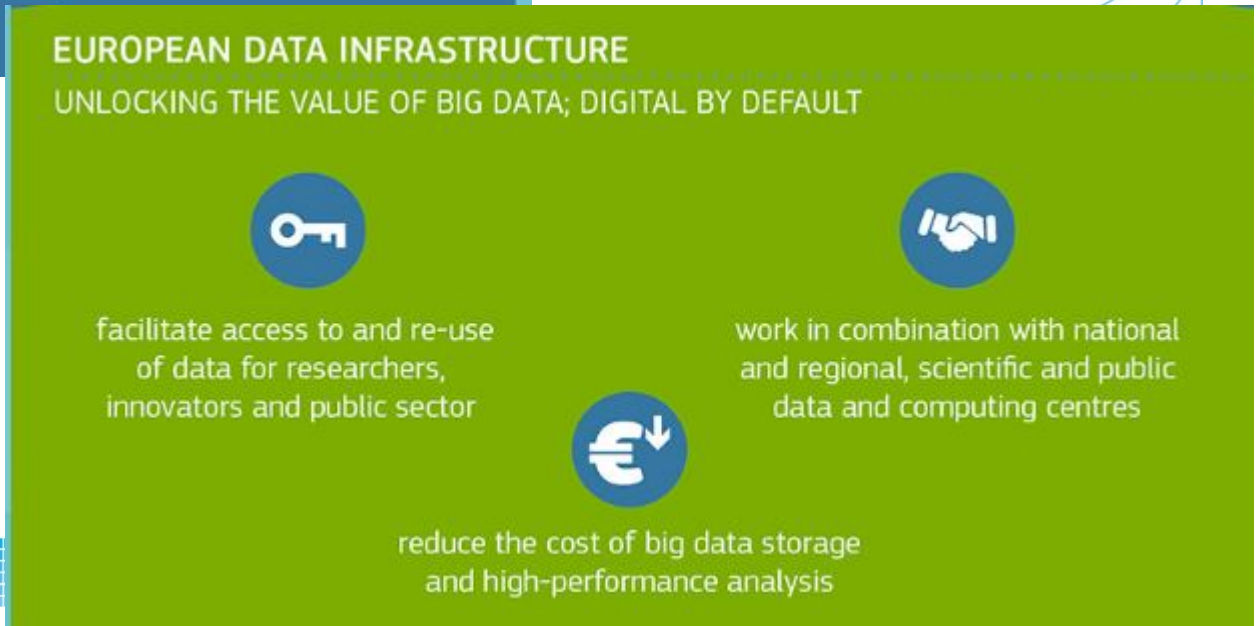
- data culture, data stewardship: practical and policy tools;
- adoption and implementation of FAIR data principles;
- research data infrastructures and services;
- sustainable funding & governance;
- high-performance computing, big data and super connectivity.



[Report "Prompting an EOSC in Practice„ (Nov 2018) -] covers on a number of crucial elements of the EOSC, from defining the Minimum Viable Research Data Ecosystem, to establishing the main Rules of Participation; also paying attention to issues as Governance and possible Business Models.

[Implementation Roadmap for the European Open Science Cloud] - adopted by the EC in March 2018

[EOSC Declaration] in 2017 - available to all scientific stakeholders, for their endorsement and commitments to the realisation of the EOSC by 2020.



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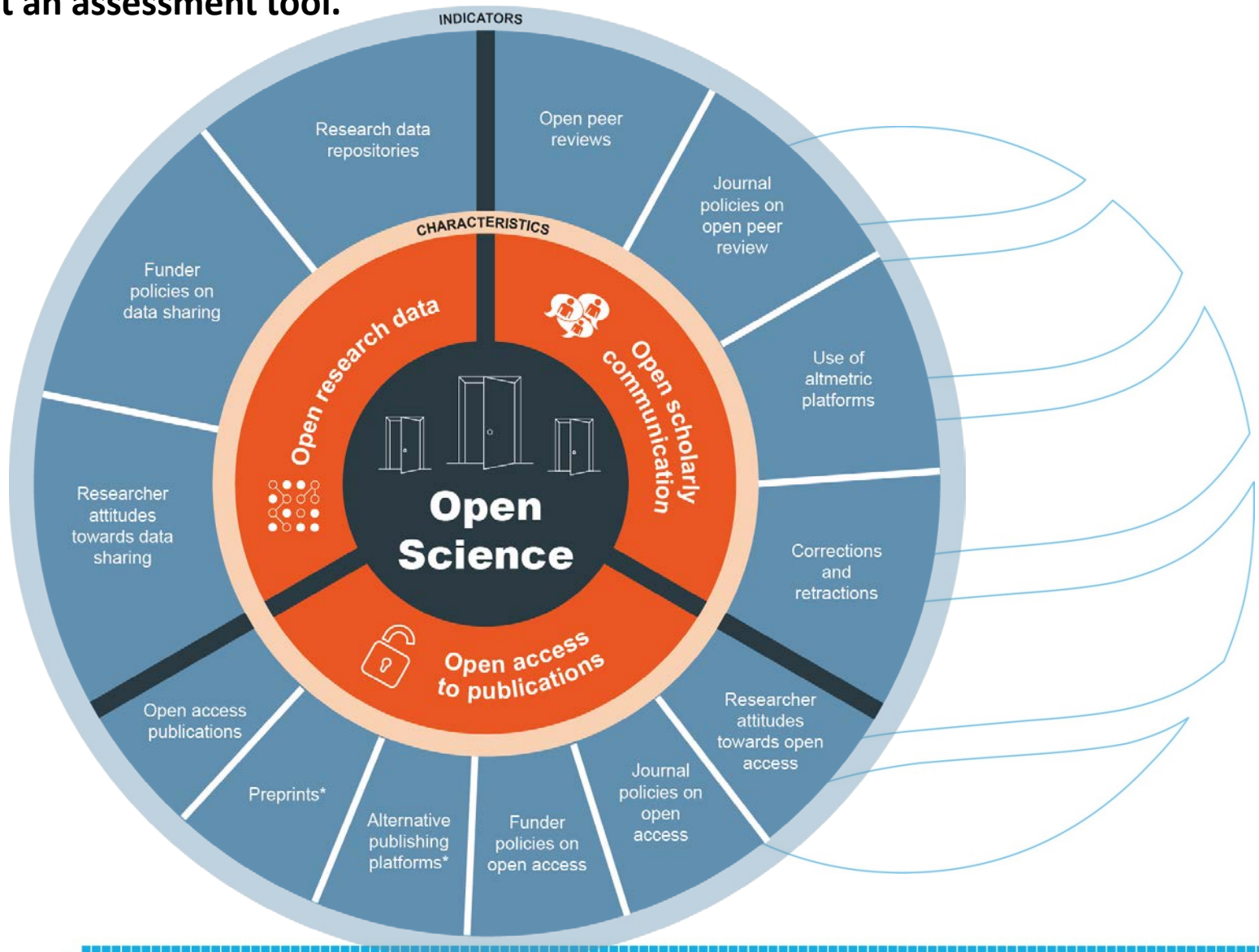
Open Science Monitor

Open Science Monitor - has been created to get some quantitative and qualitative insights on the ongoing development of open science practices. **The policy is to foster Open Science**. The Open Science Monitor **is not an assessment tool.**



Source: http://ec.europa.eu/research/openscience/index.cfm?pg=home&section=monitor

Recent developments

Recommendation on access to and preservation to scientific information

- ✓ Report produced in 2012 now updated to be brought in line with the Commission's own policy for Horizon 2020
- ✓ reflects developments in practices and policies in open science and in view of the preparation of the next Framework Programme for Research and Innovation (Horizon Europe)
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- ✓ REPORT available in all EU languages, including Romanian

Report "Turning FAIR into reality" (Nov 2018) - describes the broad range of changes required for the implementation of the FAIR data principles, offers a survey and analysis of what is needed to implement FAIR and it provides a set of concrete recommendations and actions for stakeholders in Europe and beyond.

Major project at EU level

FOSTER project "Facilitate Open Science training for European research"

EGI Engage "Open Science Commons" - accelerate the implementation of the Open Science Commons by expanding the capabilities of a European backbone of federated services for compute, storage, data, communication, knowledge and expertise, complementing community-specific capabilities

OpenAIRE - to provide unlimited, barrier free, open access to research outputs financed by public funding in Europe

EOSC Pilot - facilitating access of researchers across all scientific disciplines to data & establishing a governance and business model that sets the rules for the use of EOSC

Open Science resources

EXPLORE OUR TRAINING MATERIALS:

Open Science

- Open Access
- Open Data
- Open Science Policies
- Open Science Tools
- Open Reproducible Research
- Open Science Evaluation
- Open Science Definition
- Open Science Projects
- Open Science Guidelines

Text and Data Mining

- TDM In Information Retrieval
- Knowledge Acquisition
- Text Categorisation/document
- Classification
- Summarisation
- Sentiment Analysis/opinion Mining
- Question/answering
- Computational Argumentation

Research Data Management

- Research Data Management Plans
- Research Data Management Tools
- Research Data Management Policies
- Research Data Management Standards
- Research Data Management Services

Responsible Research and Innovation

- Ethics
- Public Engagement
- Governance
- Science Education
- Gender

Source: https://www.fosteropenscience.eu/

Thank you for attention!