Introduction to the European Open Science Cloud & OpenAIRE
Towards implementation of EOSC
Access – Collaboration – Innovation – Participation

… practice science in such a way that others can **collaborate and contribute**, where research data, lab notes and other research processes are **freely available**, under terms that enable **reuse, redistribution and reproduction** of the research and its underlying data and methods.

Open research beyond academia

**Innovation + Citizen science**
What it entails

Open

publications
research data / FAIR data
software / lab books
methodologies / protocols
educational resources
processes (open peer review)
annotations

linked Open Science (provenance & context)
access to resources for analytics
How - Scholarly Communication transition to Open Science

Research Infrastructures

Research literature
Articles, docs, white papers

Research data
01101010
01100001
11010010

e-infra Tools & Services

Research data
01101010
01100001
11010010

Research Software

Research process

Scholarly Communication Infrastructure

Publishing all kinds of products

Bridging RIs and OS publishing practices

Enabling Reproducibility (R*)

Enabling Monitoring

Fully-fledged assessment of science

Fully-fledged scientific reward

Final OpenRiskNet Workshop | October 24, 2019
Open Science in the EU

2007
OA pilot for publications

2013
OA to all publications
OA data pilot

2017
OA data by default

2018
Zooming on Open Science

2021
Open Science the modus operandi

Horizon Europe
What we have now: fragmentation

- Research Infrastructure services
  - Digital Labs
  - Performing Science

- Scholarly Communication services
  - Sharing, evaluating, monitoring science

- E-Infrastructures, e-science
  - Enabling digital services for science
Towards implementation
“1.7 million European researchers and 70 million professionals in science and technology a virtual environment with free at the point of use, open and seamless services for storage, management, analysis and re-use of research data, across borders and scientific disciplines”

A. The EOSC will allow for universal access to data and a new level playing field for EU researchers

- Easy access through a universal access point for ALL European researchers
- Cross-disciplinary access to data unleashes potential of interdisciplinary research
- Services and data are interoperable (FAIR data)
- Data funded with public money is in principle open (as open as possible, as closed as necessary)
- EOSC will help increase recognition of data intensive research and data science

Seamless environment, enabling interdisciplinary research

Source: RTD

Slide from «EOSC Strategic implementation roadmap in short», RTD.A2. May 2018
EOSC key features

• Open, trusted, collaborative «Research Commons»
  - Where information can be found and transformed into knowledge
• De-centralised approach
  - A system of systems
• Adaptively user-oriented and inclusive
  - across borders and disciplines
• Research in context to support
  - Transparency
  - Reproducibility
  - Monitoring
• Governed by a minimal set of Rules of Participation
• Steered by an inclusive governance structure
Governance structure involving all stakeholders

Three layer structure

**EOSC Board** of member states to ensure effective supervision of EOSC implementation

**Executive Board** of stakeholder representatives to help ensure proper EOSC implementation and accountability

**Stakeholder Forum** to provide input from a wide range of actors

**Working Groups (one per strategic priority)**

- Architecture
- FAIR
- Rules of Participation
- Landscape
- Sustainability
- Training/skills
Five strategic priorities:

- **Architecture**
- **FAIR**
- **Rules of Participation**
- **Landscape**
- **Sustainability**
### Annex 2  Timeline of EOSC projects funded by Horizon 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>EOSC Pilot</th>
<th>infraCentral</th>
<th>EOSC Hub</th>
<th>OpenAIRE-Adva</th>
<th>RDA Europe 4.0</th>
<th>FAIRFIRE</th>
<th>INFRA-FAIR</th>
<th>SSHOC</th>
<th>EOSC-Life</th>
<th>ESCAPE</th>
<th>INFRAEOC-5a</th>
<th>INFRAEOC-5b</th>
<th>INFRAEOC-5c</th>
<th>INFRAEOC-7-2020</th>
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<td>Increasing the service offer of the EOSC Portal 6 areas, one proposal per area to be funded</td>
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</tbody>
</table>

### Annex 3  Projects supported via 2018-2019 INFRAEOC calls

<table>
<thead>
<tr>
<th>Name of the call</th>
<th>Resulting project(s)</th>
<th>Link</th>
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<tbody>
<tr>
<td>INFRAEOC-5a</td>
<td>EOSCsecretariat</td>
<td><a href="https://www.eoscsecretariat.eu">https://www.eoscsecretariat.eu</a></td>
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<tr>
<td>INFRAEOC-5c</td>
<td>FAIRsFAIR</td>
<td><a href="https://www.fairsfair.eu">https://www.fairsfair.eu</a></td>
</tr>
</tbody>
</table>

**INFRAEOC-3-2020:** portal consolidation 1 proposal to be funded

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**Future calls**

**INFRAEOC-7-2020:** increasing the service offer of the EOSC Portal 6 areas, one proposal per area to be funded

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Figures from: EOSC Strategic Implementation Plan – EOSC Executive Board, June 2019
Useful Information

- EOSC site: https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud

- EOSC Working groups: https://www.eoscsecretariat.eu/eosc-working-groups

- EOSC-hub and OpenAIRE-Advance joint activity plan: https://wiki.eosc-hub.eu/display/EOSC/EOSC-hub+and+OpenAIRE
The OpenAIRE Initiative

European (and beyond) infrastructure for Open Science

Networking infrastructure: Open Access/Science advocacy and support, interoperability, global alignment on Open Science, National Open Access Desks, FAIRness of research data, citizen science, etc.

Technical infrastructure: services for monitoring of Open Science, research impact for funders, sharing and reporting for research communities, tools supporting Open Science publishing practices
Open Science in the EU and OpenAIRE

- 2007: OA pilot for publications
- 2013: OA to all publications, OA data pilot
- 2017: OA data by default
- 2018: Zooming on Open Science
- 2021: Open Science the modus operandi

Legal Entity

Horizon Europe
Who is OpenAIRE

50 partners from all Europe

34 National Open Access Desks
Organizations experts in OA

Regional / Topical Experts
4 regional coordinators
3 topical coordinators

Citizen Science
Schools
Citizen science groups

Open Innovation
Industrial cluster facilitators
Innovation management coordinators

e-Infrastructure / e-Science Service Providers
Infrastructure experts
Metadata experts
Big data technologists
Text & data analytics experts

Legal Experts
IPR
Data privacy

Data Communities
EU Research Infrastructures
3 Pillars of Action

Services for Scholarly Communication

Policy Alignment

Training for OS/FAIR

Connecting via a Distributed Infrastructure

All types of research outcomes

Aligning Supporting Governance

Empowering and Knowledge Building
Services for **all** stakeholders

**Funders, institutions, RIs, initiatives, 3rd parties**

- Research Analytics
- Funder Monitoring
- APIs

**Content providers, Research Infras**

- ScholeExplorer
- Interoperability Guidelines
- Usage Analytics
- OA Broker

**Researchers, scientists**

- Training
- Zenodo
-imaginaria
- ARGOS
The Open Research Graph - A „Public Good“

101 mil publications, 8 mi research data, 8 mi other research products, 202 K software from 9,900 content providers and 28 funders linked together for an integrated discovery of research outcomes.
OpenAIRE for EOSC

• The OpenAIRE Research Graph as core EOSC resource to support research transparency, assessment, and monitoring

• Technical Services
  - Implementation of the EOSC portal and catalogue
  - Implementing/enhancing OpenAIRE services for EOSC (some available on the catalogue, soon on the marketplace)
  - OpenAIRE guidelines for the exchange of metadata about data, software and other types of research products
  - Collaborating with EOSC-hub, eInfraCentral, and EOSCpilot

• Training & Support
  - Empowering NOAD network
  - Foster the culture of FAIR data, data management

• Policies
  - Open Science at national level
  - Elevate NOADs into permanent national structures
Thank you!

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