EOSC: European Open Science Cloud

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Member of the EOSC Executive Board

JNSO, 19 November 2019
The opportunity

Gutenberg to Berners-Lee science
Why the EOSC?

✔ Enable Open Science and the digital transformation of science,
✔ Build an open research data commons inclusive of all disciplines and Member States,
✔ Enable multidisciplinary research to address societal challenges,
✔ Empower 1.7 million European researchers to reap the benefits of data-driven science,
✔ Give Europe a global lead in research data management.
Four years of EOSC in documents & projects

Setting the scene:
Reference documents on the EOSC

2015
Council conclusions on open, data-intensive and networked research as a driver for faster and wider innovation
ST 5364 2015 INIT

A Digital Single Market Strategy for Europe
COM(2015) 192 final

2016
Council Conclusions on the transition towards an open science system
ST 5526 2016 INIT

European Cloud Initiative
COM(2016) 178 final

2017
EP resolution on the European Cloud initiative supporting EOSC
P8_TA(2017)0052

Realising the European Open Science Cloud

OECD Declaration

OSPP – Report on the governance and financial schemes for the European Open Science Cloud

2018
Council Conclusions Accelerating knowledge circulation in the EU
ST 9291 2018 INIT

The European open science cloud governance model

Council Conclusions on EOSC
ST 9291 2018 INIT

Cost-benefit analysis for FAIR research data
Policy recommendations

Implementation roadmap for the EOSC
SWD(2018) 83 final

Council Conclusions on EOSC
ST 9291 2018 INIT

Horizon 2020 Work Programme 2018–2020 on European research infrastructures
C(2018) 7238

Set up the EB Expert Group
C(2018) 5552 final

EC Recommendation on access to and preservation of scientific information
L 134/12 2018

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Challenges in managing Data

- **Heterogeneity**
  - All disciplines
  - Levels of maturity

- **Scalability**
  - From large equipments to internet of things

- **Versioning**
  - Managing time
  - Preservation

- **Disambiguation**
  - One Identifier, Multiple Objects

- **Diffusion prevention**
  - One Object, Multiple Identifiers
Building the Web of FAIR Data

• **Findable**
  - Discovery
  - Metadata
  - Unique Identifiers

• **Accessible**
  - Licences, processes
  - Authentication & Authorization
  - Unique Identifiers

• **Interoperable**
  - Metadata
  - Ontologies
  - Application Programming Interfaces

• **Reusable**
  - Licences, processes
  - Standards
EOSC governance (2019-2020)

Advising on the implementation:
- Stakeholders Forum
  - Users, Service Providers, Public sector, Industry, SMEs, etc.
- Working Groups
  - WG

Steering the implementation:
- Governance Board
  - MS/AC delegates and the European Commission
  - Proposes, Monitors, Reports
  - Reviews, Endorses, Orient
- Executive Board
  - European stakeholder organisations and individual experts

Contribute to the implementation:
- EU-funded projects
- Nationally-funded projects and initiatives
- Other projects and initiatives
- Extended Coalition of Doers

Supports:
- EOSC Secretariat.eu
  - Coordination and Support Action
EOSC Exec Board Working Groups

https://www.eoscsecretariat.eu/eosc-working-groups
WHAT
Provide options for progressive convergence and alignment of structures and initiatives in Europe to facilitate the EOSC

HOW
1. Build on outcomes of EOSC-related H2020 projects and input from member states
2. Map EOSC-relevant national infrastructures and spending
3. Take stock of federation constraints and opportunities at the various architectural levels

WHY
Consolidate the existing landscape
- National research infrastructures, e-Infrastructures and open science policies
- ESFRI RIs, cluster projects, thematic initiatives and clouds

<table>
<thead>
<tr>
<th>WHAT</th>
<th>WHY</th>
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<td>HOW</td>
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<tr>
<td>1. Build on outcomes of EOSC-related H2020 projects and input from member states</td>
<td>4. Propose mechanisms and best practices for national and regional alignment</td>
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<td>2. Map EOSC-relevant national infrastructures and spending</td>
<td>5. Analyse member state preparedness for financial resources, political stability and infrastructural planning</td>
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Q3 2019: Initial mapping based on existing EOSC-related projects and national initiatives
Q4 2019: Final mapping with input of INFRAEOSC-5B cluster projects
Q3 2020: Final mapping with input of INFRAEOSC-5B cluster projects

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WHAT
Recommend rules of participation which define rights, obligations and accountability to govern EOSC users, providers and operators. Identify common requirements.

HOW
Identification of different rules taking into account:
1. Differing roles and services
2. Scientific disciplines
3. Preparedness of infrastructures, services and member states
4. The growing range of EOSC users and providers
5. Changing needs and practices including regulations

WHY
Guarantee open, secure and cost-effective federated EOSC with services of documented quality

Assessable Quality

Q3 2019 Objectives of the RoP
Q4 2019 Proposal for an initial set of EOSC Rules of Participation testing & iterating
Q4 2020 Revised proposal for EOSC RoP for application after 2020
WHAT

Provide recommendations on the implementation of FAIR, including corresponding requirements for services, in order to foster cross-disciplinary interoperability.

HOW

1. Data standards & sharing agreements
2. Upscale best-practice solutions
3. EOSC Interoperability Framework
4. Identify service requirements for FAIR
5. 

WHY

Connect people, data and service via standards

Be the glue

Chair: Sarah Jones
Independent Expert

Q1 2020

2019 Annual FAIR work plan

Q2 2019

PID policy defined

Q4 2019

Outline metrics for FAIR data & service certification

Q1 2020

2020 Annual FAIR work plan

Q3 2020

EOSC Interoperability Framework

Q4 2020

Updated PID policy

Updated FAIR metrics & service certification

testing & iterating

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WHAT
Propose a technical framework to enable and sustain an evolving EOSC, including an interoperability layer to build the federation of systems.

WHY
Define the interoperability layer necessary for seamless operation of the EOSC federation core.

HOW
Review current offerings and define
1. EOSC core services and their interfaces
2. EOSC OS APIs for reuse by thematic services
3. EOSC portal components and catalogues
4. EOSC data description standards
5. Other standards and best practices
6. Converge towards globally-accepted frameworks

Q4 2019
Initial EOSC federating core
Registry of data infrastructure
Updated EOSC catalogue of services and portal

Q2 2020
Preliminary connection of most EOSC infra & services
EOSC catalogue of datasets

Q3 2020
Interoperability framework (joint)

Q4 2020
PID policy (joint)

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WHAT

Provide strategic, legal and financing recommendations for an operational, scalable and sustainable EOSC federation after 2020

WHY

A clear understanding of key strategic, financial and legal aspects is essential for the second phase of the EOSC implementation

Towards a sustainable EOSC

HOW

1. Analyse business models and implications on legal entity, costs, regulations, financial strategies, supporting NDI alignment

2. Map potential legal entities, taking into account national and European legislation

3. Examine options for a governance framework to oversee EOSC operations and development

4. Analyse regulatory/policy environments and assess impact of proposed structures and funding streams at national & European level

Q1 2020

Initial analysis of alternative business model scenarios and potential future legal models

Q2 2020

Refined business model options and future legal models

Q3 2020

Recommendations on strategic and financing orientations and organisational settings for the future of the EOSC, post 2020
Engage with us!

EOSC Symposium 2019
“Where the EOSC makers & shakers meet”

An integral part of the EOSC Stakeholder Forum
26-28 November 2019, Budapest, Hungary
Organised by EOSCsecretariat.eu, EOSC-hub, GEANT, OpenAIRE and PRACE
In collaboration with: the EOSC Executive Board
Co-located with the EOSC Coordination Day (28-29 November 2019)

https://www.eoscsecretariat.eu/events/eosc-symposium-2019

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Thanks for listening!

Questions?