EOSC – where are you?

Current EOSC environment, opportunities and implications for us

Jan Meijer
– international strategy advisor
- co-chair EOSC Association TF Financial Sustainability

€95.5 billion 2021-2027

€100+ billion 2021

1M researchers – 5000 organisations – 40+ countries

research data

Findable, Accessible, Interoperable, Reusable

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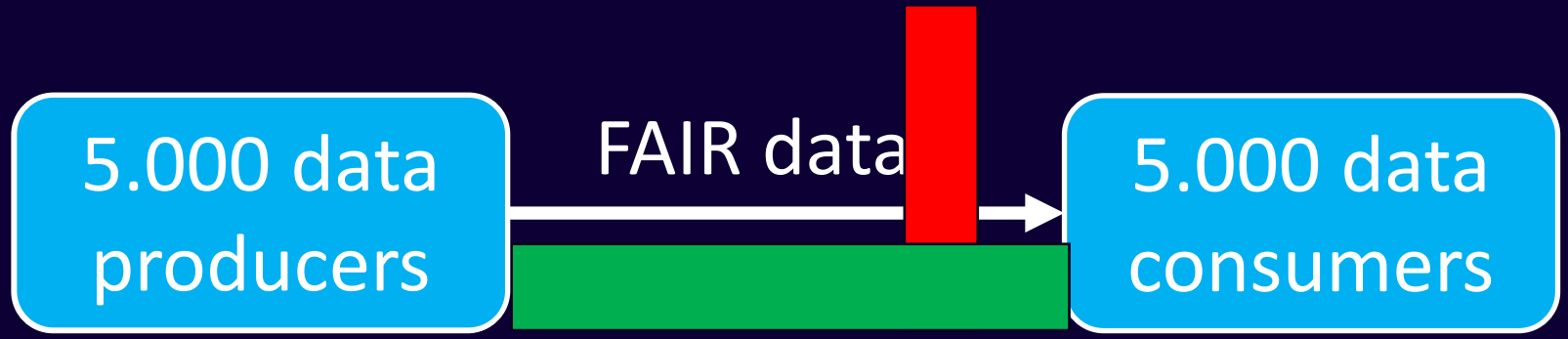
EOSC
Data Federation



1M researchers – 5.000 organisations - 40 countries
Many research disciplines

business operational technical legal
governance services

Data Governance Act
Data Act
Open Science policy

commercial research

data space X

data space Y

Health data space

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European Open Science Cloud

sharing FAIR data without friction, at scale
+ services + skills

because research = data

> €100.000.000.000 / year

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public sector?

1 million researchers
5000+ institutions
40+ countries

+ associated countries

delivery channels to researchers

institutions, research infrastructures, eInfrastructures, NRENs

EOSC Data Federation

public sector?

EOSC Exchange

european “marketplace”
digital research services

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Some words on financial sustainability

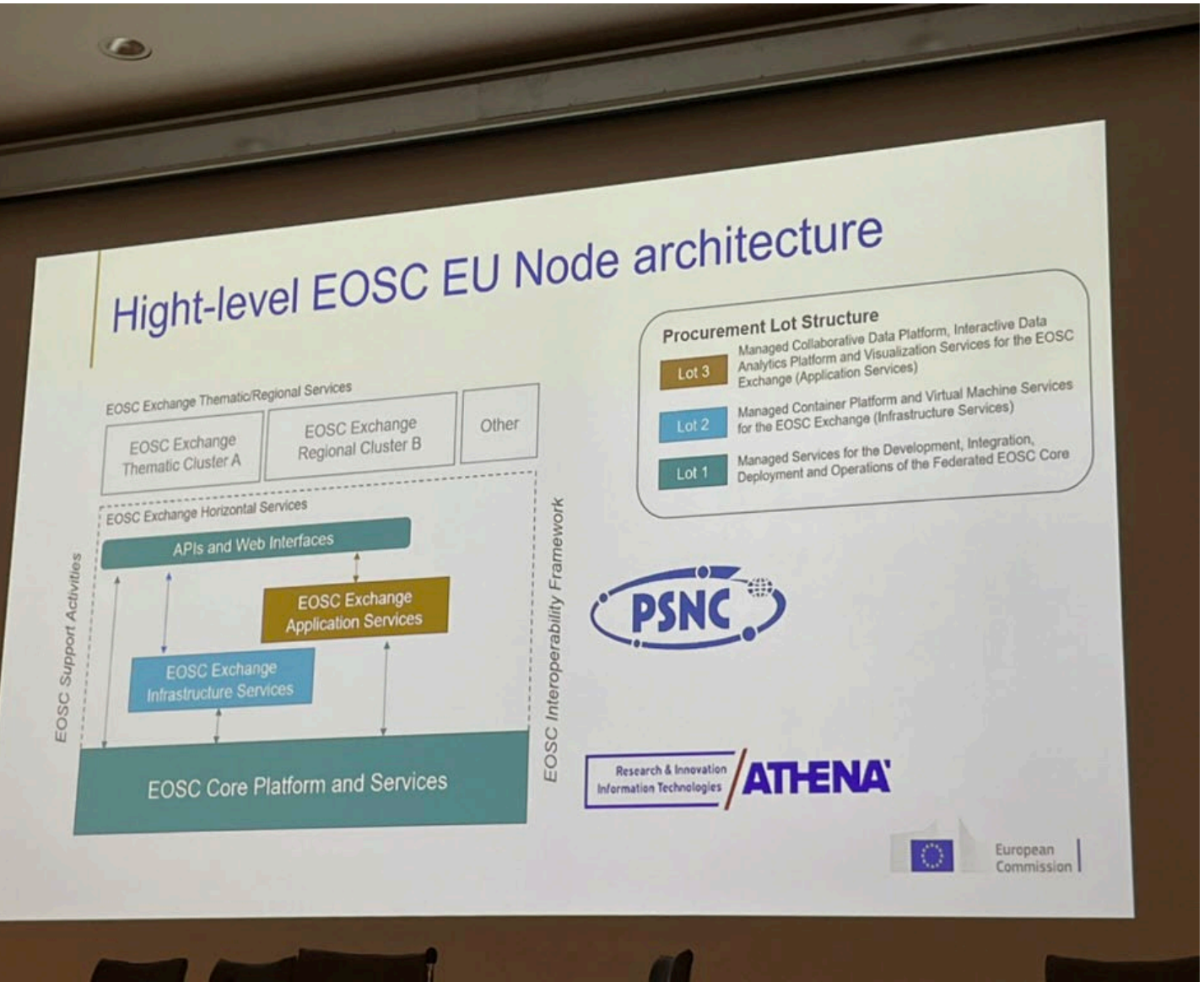
1. Cost of shared (EU-level) components to be carried by EC+MS/AC
2. Exchange: 3 categories
    a. Centrally financed consumption of services –> purpose?
    b. Jointly procured agreements with commercial service
    c. Self-financed use of brokered community not-for-profit services
        i. Findability, transaction support

- Cost estimate shared components: €10 – 50 million
- Dwarfed by cost for making and keeping data FAIR (10-fold)
    - Is a cost for MS/AC, as RIs are financed by them
- Remember, €100 billion EU 27 + HE!

Where is EOSC?

- 2021-2027: €500M INFRA-EOSC European Commission projects (EC DG-RTD)
- 2021: EOSC-Association – channel “voice of community”
  - regular members + one mandated organisation/country. Norwegian Research Council
- 2021: 3-partite co-programmed partnership agreement EC + Member States (“steering board”) + EOSC-A
- 2023: EOSC-EU Node procured: “federating core”, compute, sync ‘n share storage + filesender (EC DG-CNECT)
  - “Available” October 2024 but for whom?
- Consensus: data space for research data
  - Public sector? Private sector?
  - Federated!
- No consensus: architecture, researcher point of access
  - Does it need central components, one EOSC end-user portal, support model?
  - E.g. role of EOSC portal (https://eosc-portal.eu)
- No consensus: governance, financing, operational model, role EOSC-A?
- Governance, financing: post-2027 process expected to conclude in 2024, adoption by council of ministers 2025.
  - EU Commission, Member States (Steering Board), EOSC-Association
  - In Norway: KD (Ola Berge), Research Council (Nenitha Dagslott, Olja Toljagic)

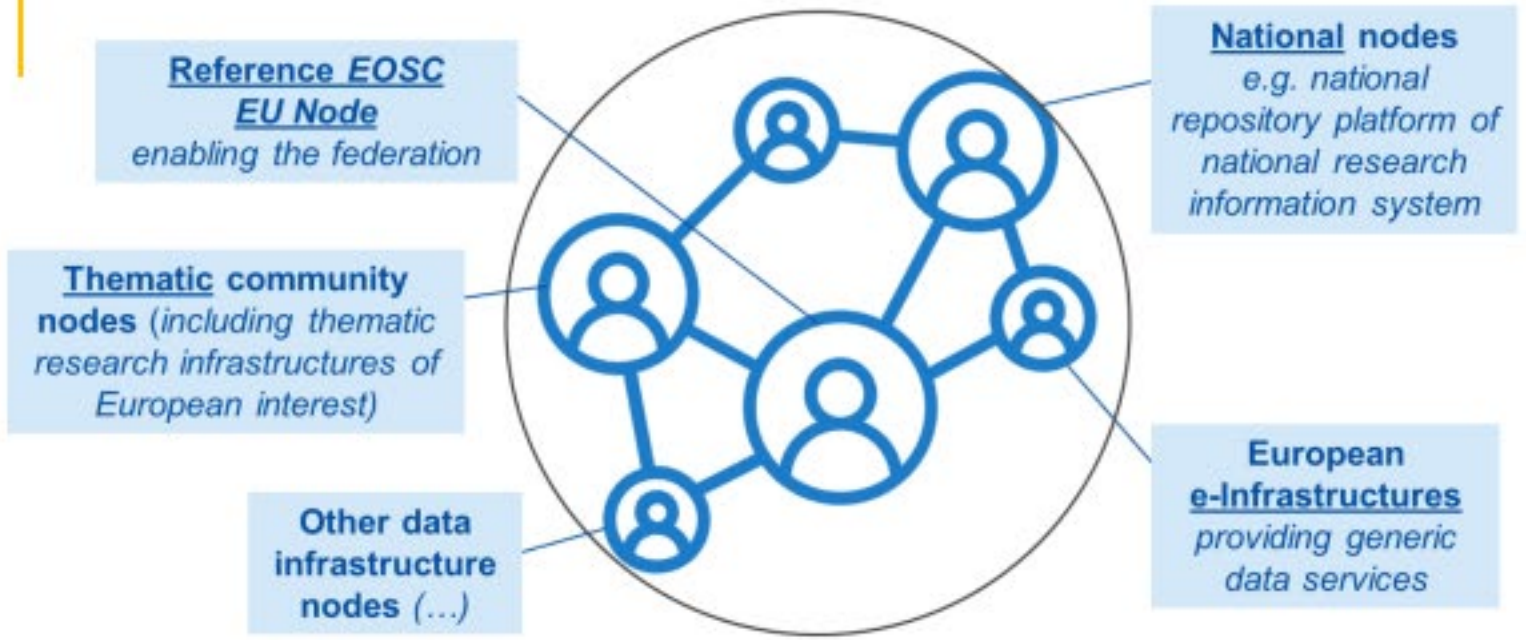
Procurement result EOSC EU Node



Procurement is a reset - current EOSC-Future platform and portal expected to be abandoned!

About the EOSC Federation and EOSC Nodes

Peter Szegedi (DG-CNECT)

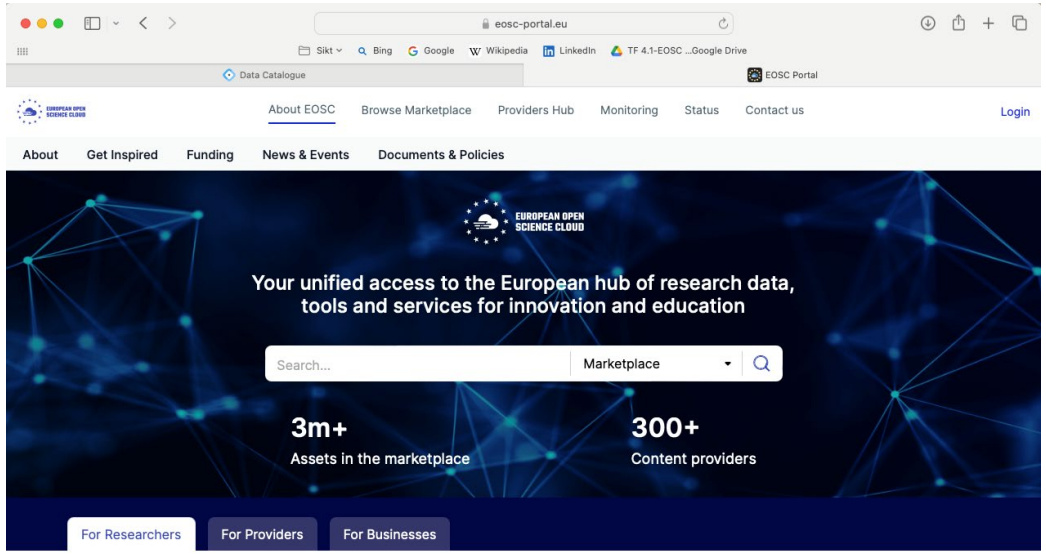


EOSC policies and standards**:
A baseline should be defined to ensure that each node can have a minimum working set of features and supports a minimum set of policies. It is important to mandate compliance with protocols and standards, but to give freedom to each node on how to support them.

EOSC Federation*: Open and trusted federation of collaborative, autonomous infrastructures applying agreed, consensus-based EOSC policies and rules of participation, combined into a system of systems to enable European researchers to store, share, process, analyse, and reuse research digital objects (e.g. data, publications and software)

EOSC Node*: Data infrastructure system of variable nature (national, regional, institutional or thematic) with consensus-based policies, transparent ownership and clear responsibility, connected to the EOSC Federation to share information and resources within the EOSC community and to leverage common services

* Source: "*EOSC operations and evolution post-2027*" supporting document by the EOSC-SB Policy subgroup (November 2023)
** Source: GEANT and NREN's position on EOSC Nodes (October 2023)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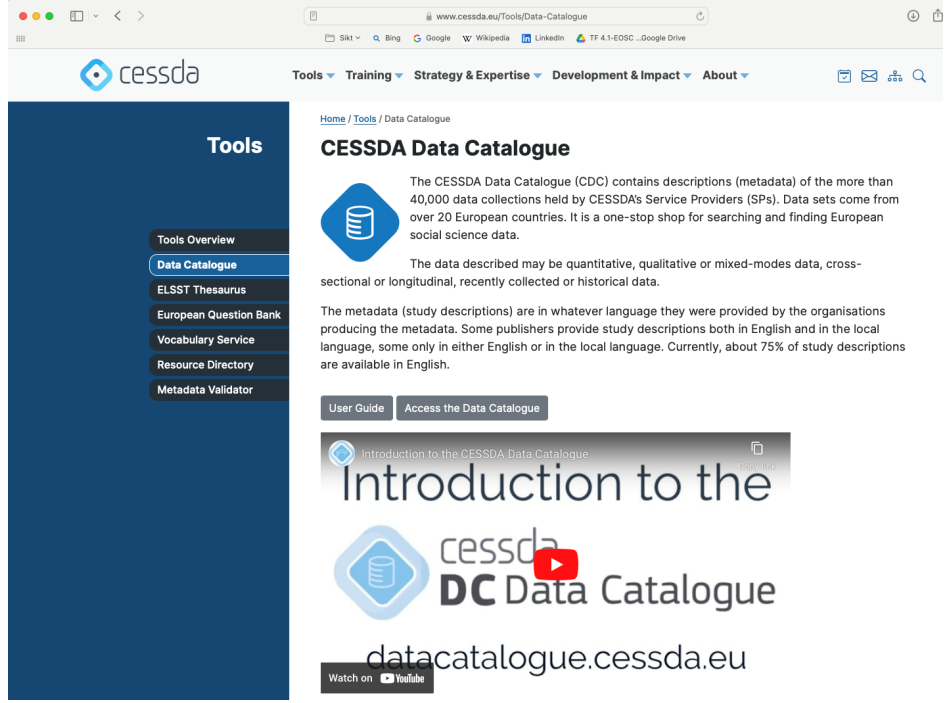
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The data described may be quantitative, qualitative or mixed-modes data, cross-sectional or longitudinal, recently collected or historical data.
The metadata (study descriptions) are in whatever language they were provided by the organisations producing the metadata. Some publishers provide study descriptions both in English and in the local language, some only in either English or in the local language. Currently, about 75% of study descriptions are available in English.
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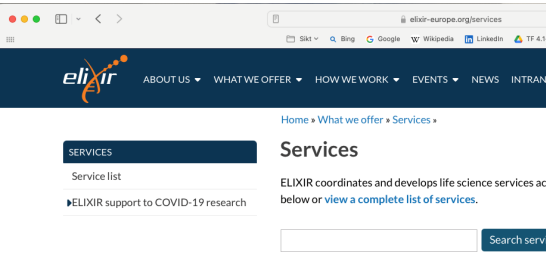
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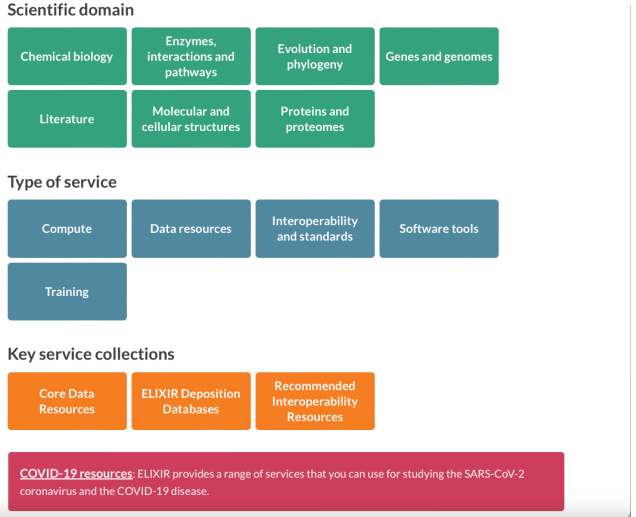
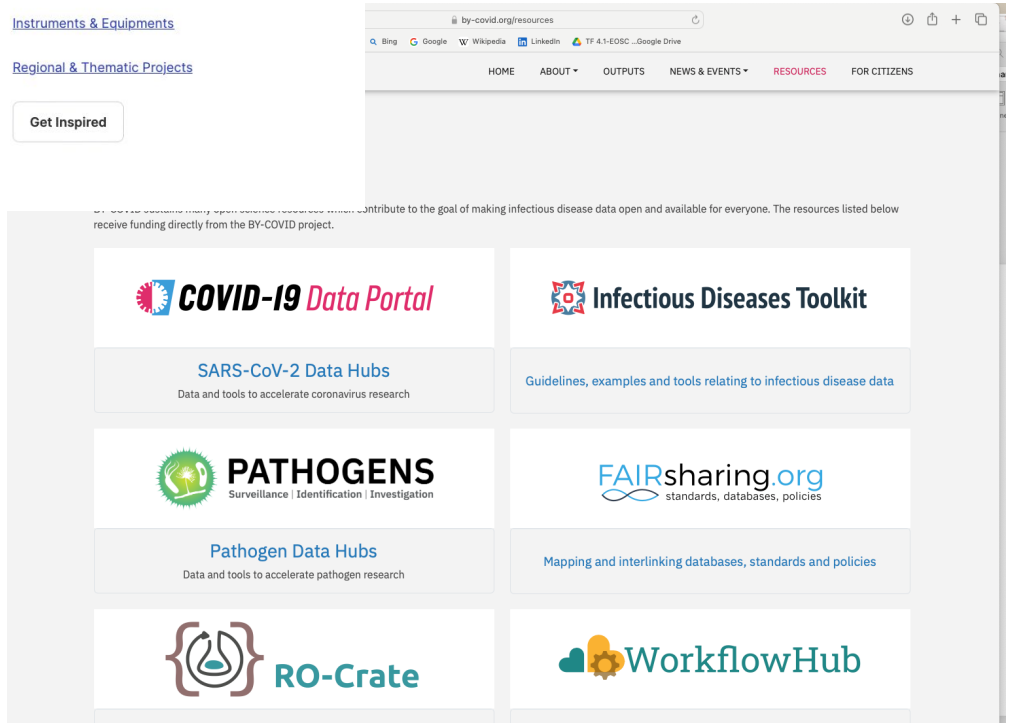

Scientific domain
Chemical biology
Enzymes, interactions and pathways
Evolution and phylogeny
Genes and genomes
Literature
Molecular and cellular structures
Proteins and proteomes
Type of service
Compute
Data resources
Interoperability and standards
Software tools
Training
Key service collections
Core Data Resources
ELIXIR Deposition Databases
Recommended Interoperability Resources
COVID-19 resources: ELIXIR provides a range of services that you can use for studying the SARS-CoV-2 coronavirus and the COVID-19 disease.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Pathogen Data Hubs
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FAIRsharing.org
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Mapping and interlinking databases, standards and policies
RO-Crate
WorkflowHub

EOSC ecosystem – what is EOSC, what not?

ERA Policy Agenda: 20 actions along four priority areas

DEEPENING A TRULY FUNCTIONING INTERNAL MARKET FOR KNOWLEDGE

1. Open sharing of knowledge, incl. EOSC
2. Data legislation fit for research
3. Reform of research assessment
4. Strengthen research careers
5. Gender equality and inclusiveness
6. Protect academic freedom
7. Better knowledge valorisation
8. Research infrastructures
9. International cooperation, reciprocity

TOGETHER FOR TWIN GREEN AND DIGITAL TRANSITION, AND INCREASING SOCIETY'S PARTICIPATION IN THE ERA

10. R&I Missions and Partnerships for ERA
11. Green energy transformation
12. Transition of industrial ecosystems
13. Empower higher education institutions
14. Bring science closer to society

AMPLIFYING ACCESS TO RESEARCH AND INNOVATION EXCELLENCE ACROSS THE UNION

15. Regional and national R&I ecosystems
16. EU-wide access to excellence
17. Strategic capacity of public RPOs

ADVANCING CONCERTED R&I INVESTMENTS AND REFORMS

18. Coordination national support for ERA
19. ERA monitoring mechanism
20. Prioritisation and coordination of R&I investments and reforms

European Commission

Source of image: Presentation of DG Research and Innovation at the Meeting of the Steering

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€500M later…so, what's in it for researchers?

- Short term:
  - Potentially bunch of free resources or data visitation access outside of discipline
    - EU-Node procurement, various INFRAEOSC projects with cascading grants, new INFRAEOSC projects
  - Catalyst for things you probably already want to do
    - cross-disciplinary data sharing, FAIRification of data
    - Software reusability
    - Further consolidation of RI landscape
  - Capability building for the above
- Longer term:
  - Steadily easier data sharing – also across disciplines
  - Quick access to others' research services with well-understood cost recovery
  - Practical data visitation – compliant
  - Recognition in an open science era
  - More coherent research support landscape across Europe
  - Automation and AI
- Consensus-building is expensive

Czech, German, Flanders programmes

- Czech national-level EOSC implementation project (Sept 2023)
  - 450M czk (€18M)
  - building the basis for better management, sharing, and searching of scientific data
  - “national metadata directory that will allow scientists to easily find and use the scientific data already produced for their work”
- Germany: NFDI (national research data infra)
- Flanders (Belgium):
  - Flemish Open Science board: €5M/year, new 5 year program in planning (2025-2030, €30M-€50M)
  - Networking, Flemish EOSC node

Reflections on implementation

- Policy-driven platform for data sharing across disiciplines
  - Value proposition and willingness to pay
  - Easier in 1 discipline (e.g. Health dataspace)
  - Design by committee, governance, deployed and used infrastructure not so much
- Min. 2 very different EOSCs: data sharing vs. composable services
- €500M EC funding – consensus building is expensive, ecosystem building is expensive
- €500M in-kind national EOSC contributions. Really?
- Complicated context: Institutions, national and European Ris, national service delivery etc etc.
- Value proposition EOSC complicated – easier for 1 discipline (e.g. Health data space)
- Marketplace realities ignored
- Culture change required – at scale. Marketplace
- Federating data -> Data visitation incurs cost -> centrally financed services – technical tool for funding problem?
- Bigger data sets, good for AI
- Project financing vs. “willing to rely on x”
- Role of SIMPL dataspace middleware?
- EOSC interoperability framework -> interop board @ EOSC Association

Suggestions for actions in Norway

- 2024 EOSC Nodes discussion defines EOSC architecture. What do we want? What do institutions want Sikt to do (and don’t)?
- Governance defines context. KD + NFR the official Norwegian voice.
- Participate in new wave of EOSC-A advisory bodies and shape the future infrastructure for YOUR research data and services
- National or institutional EOSC programme?
  - Be smart: use it to create a nationally usefull open science / data- and service sharing programme but do prepare to hook it up to the emerging EOSC infra
-

Summary and conclusion

- EOSC is a policy initiative to stimulate secondary use of research data – cross-discipline – to contribute to solving society's big problems
- EOSC is a pan-European platform for sharing data and services
  - And a policy tool to direct funding
  - That fits in a wider "data economy" and "AI" agenda
- EOSC is in a transition – and it is a bit messy
  - Architecture, target groups, what's the job to be done, governance
  - Services Exchange currently does not exist, perhaps in October 2024
- Eye on the prize – but create shorter term national and institutional value
- Engage - Create bottom-up compensation for top down policy architecting