Proiectul NI4OS-Europe: obiective și activități

Evenimentul Național de Diseminare
NI4OS-Europe în Moldova
22 aprilie 2021, online

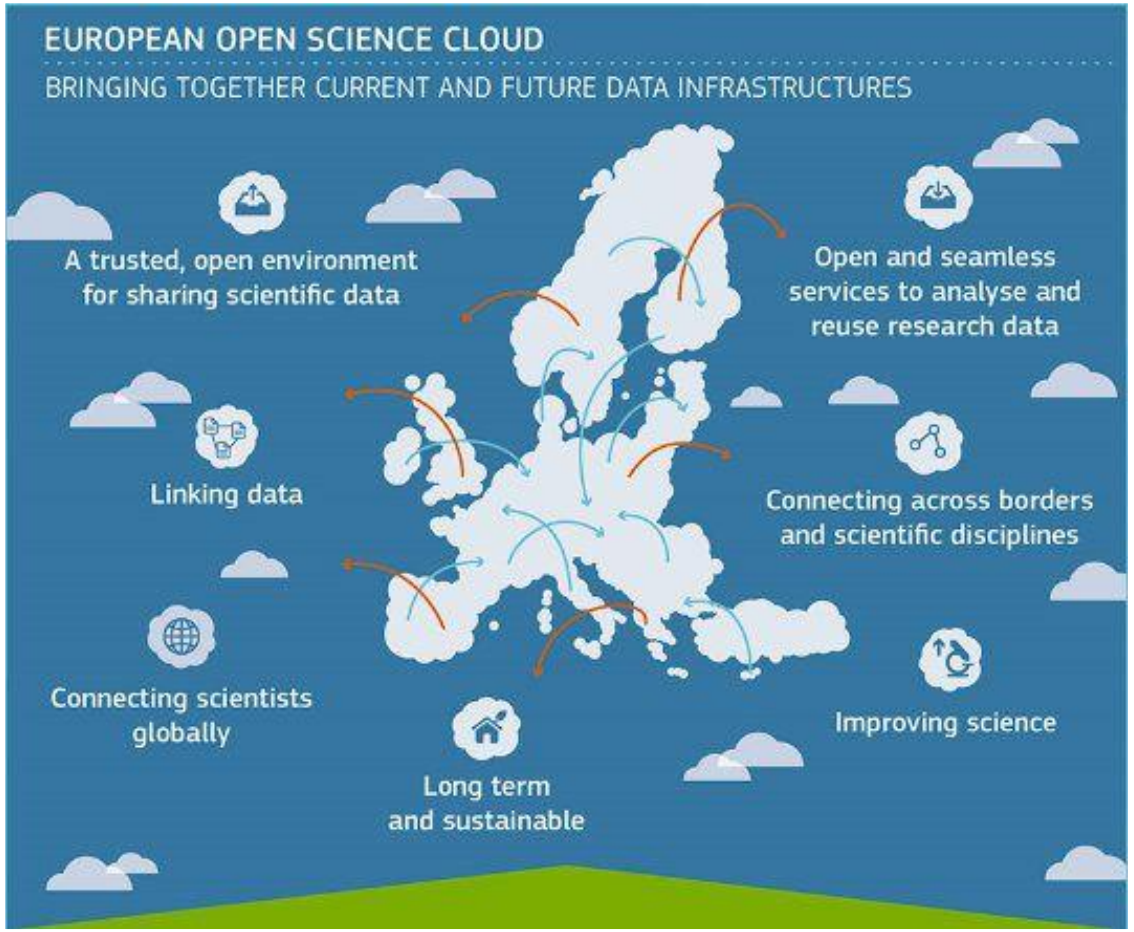
Dr. Petru Bogatencov, Asociația RENAM

European Open Science Cloud

Vision

To ensure that European scientists reap the full benefits of data-driven science, by offering “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”

2016 Communication on the “European Cloud Initiative”



NI4OS-Europe

15 Member States and Associated Countries | 22 Partners

NI4OS Europe

Participating countries

Greece	Hungary	Albania	Republic of Moldova
Cyprus	Romania	Bosnia-Herzegovina	Armenia
Bulgaria	Slovenia	North Macedonia	Georgia
Croatia	Serbia	Montenegro	

Partnership building blocks

Operators of services for research & technology

Open Science communities & infrastructures

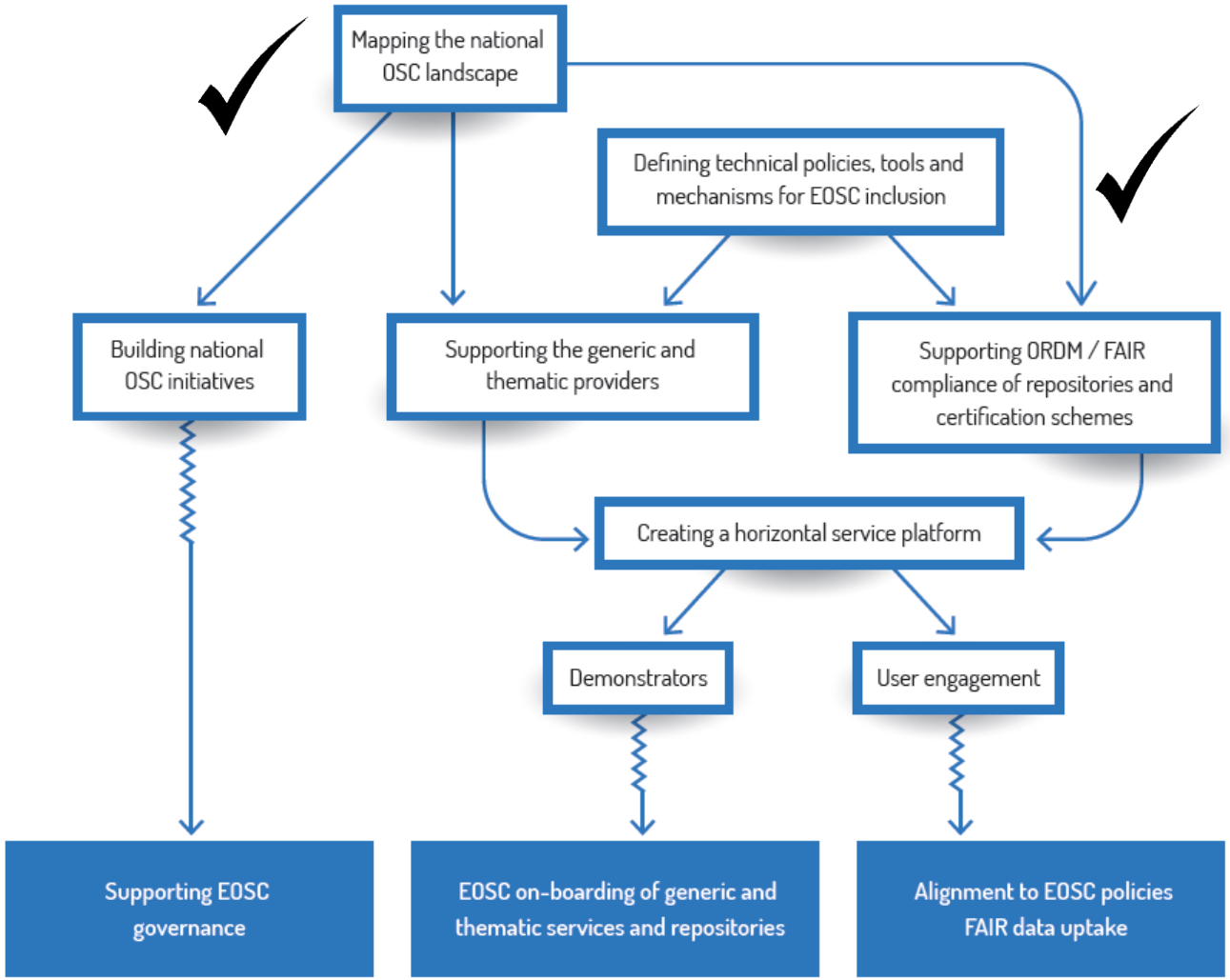
Mission

Support the development and inclusion of the national Open Science Cloud (OSC) initiatives in 15 Member States and Associated Countries in the overall scheme of EOSC governance

Spread the EOSC and FAIR principles in the community and train it

Provide technical and policy support in on-boarding of the existing and future service providers into EOSC

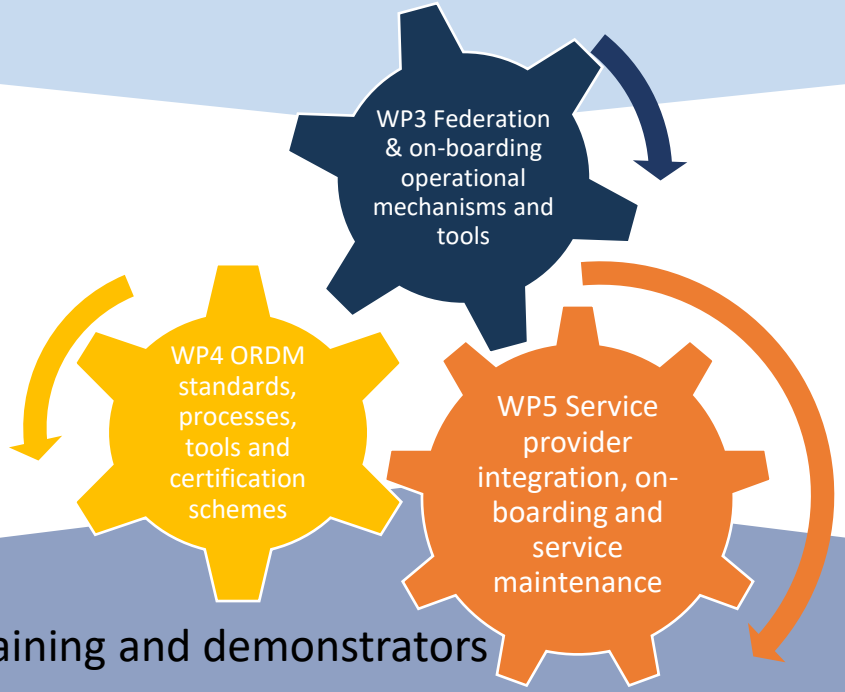
Methodology



Organization

WP1 Management

WP2 EOSC national initiatives and policy support



WP6 User engagement, training and demonstrators

WP7 Communication, marketing, sustainability and innovation

Lines of action

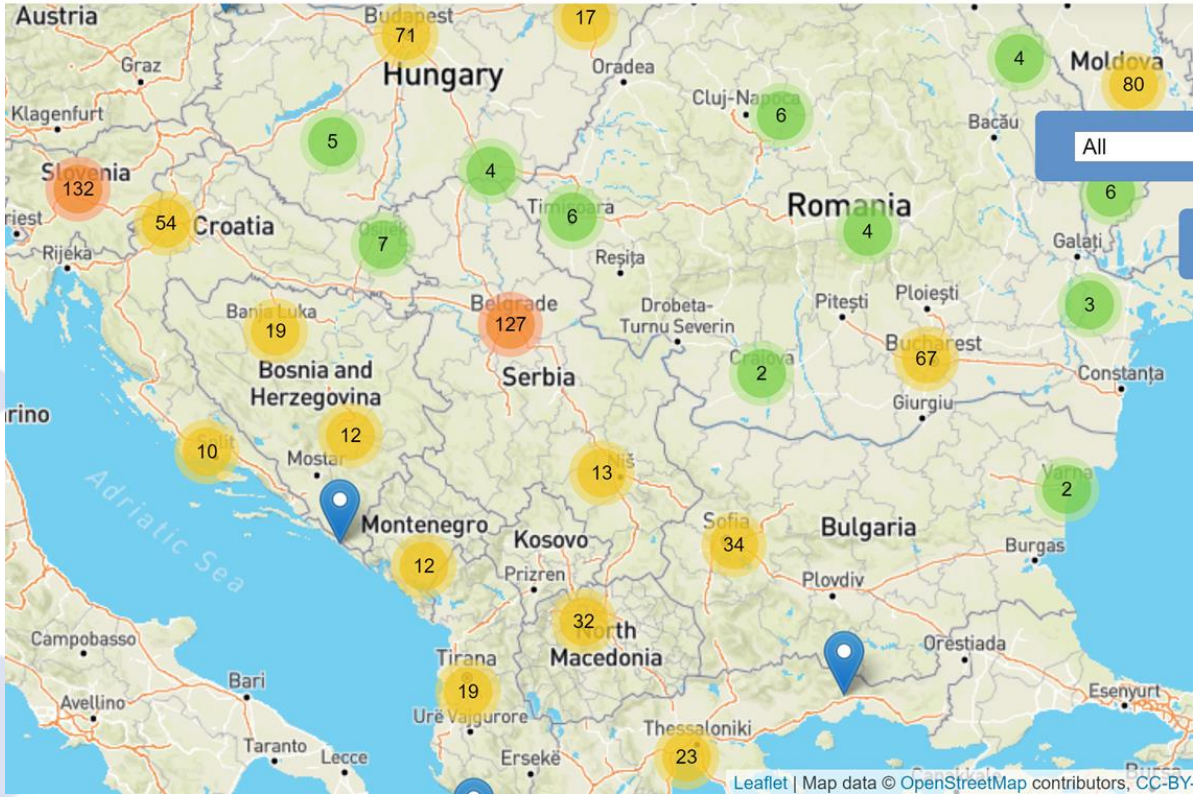
Support the development and inclusion of the National Open Science Cloud Initiatives in 15 Member States and Associated Countries in the overall scheme of EOSC governance

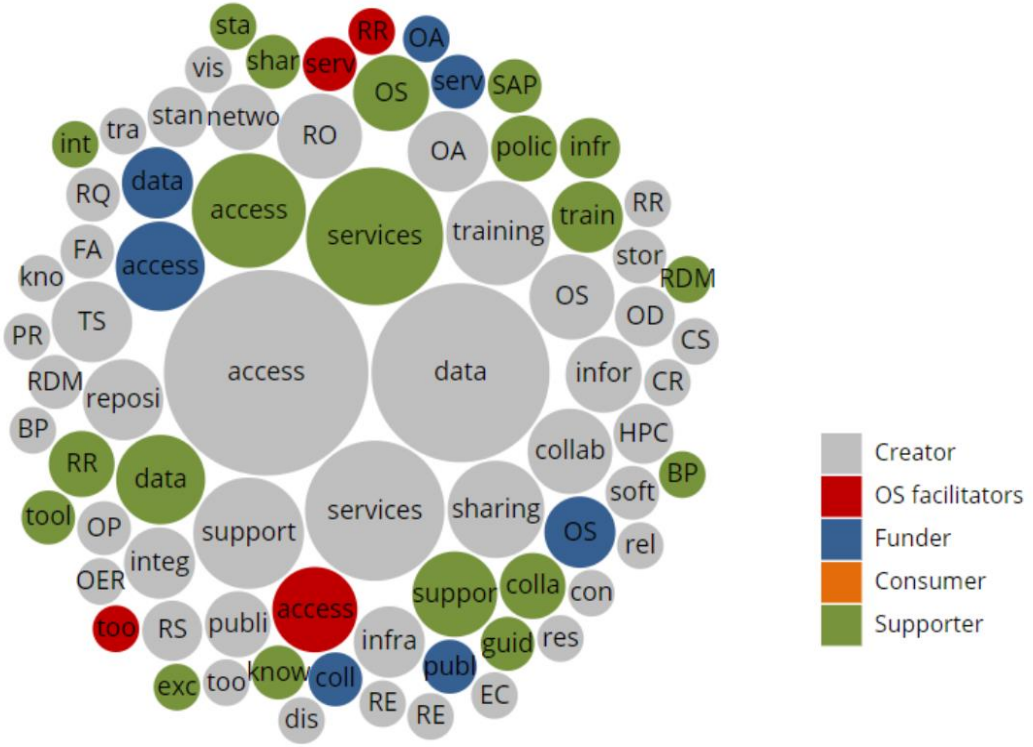
EOSC national initiatives & policy support

- Support the EOSC Governance structure by forming in partner countries
- Support the building of sustainable governance by engaging the national initiatives
- Provide **support and interface** to other EOSC-relevant bodies
- Reduce **fragmentation** and promote federation on national level
- Prepare the ground for EOSC **on-boarding**

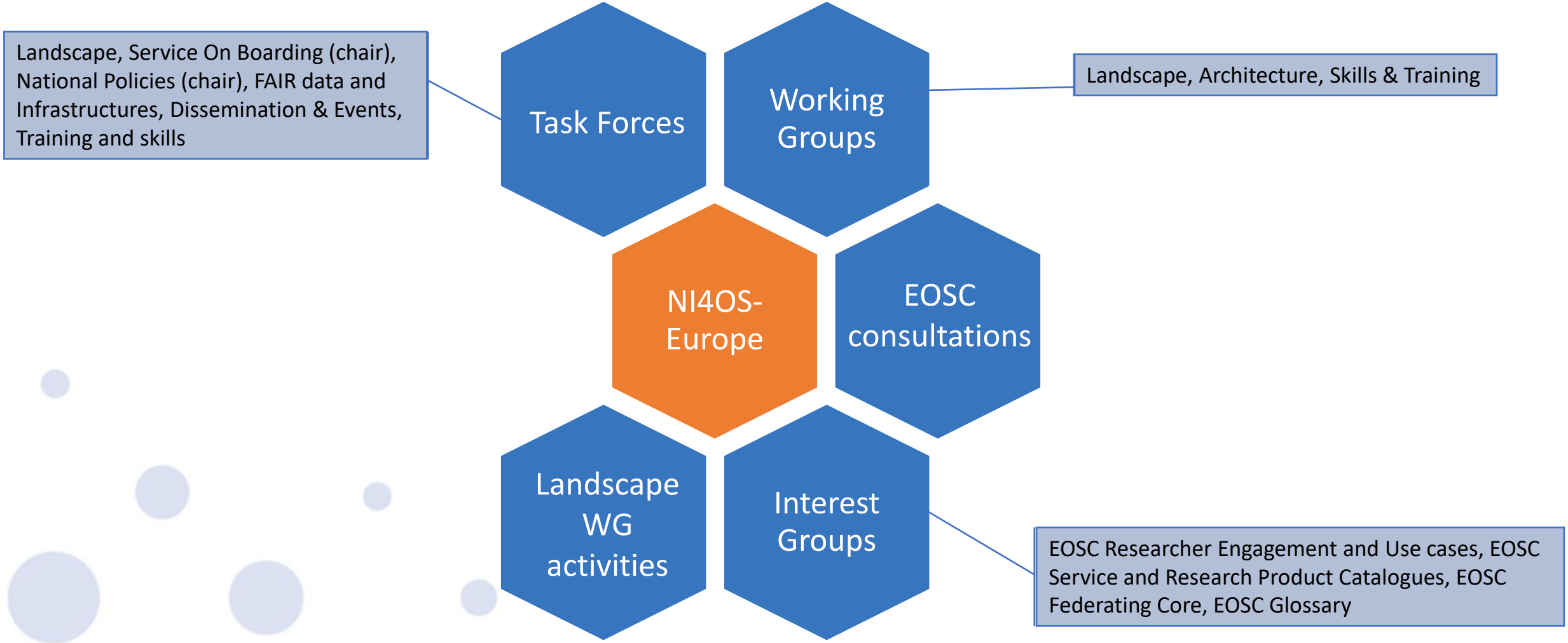
Open Science survey:
Capturing the state of OS in the region

- Visualization of results
- Creation of stakeholder map for SEE
- First set of data deposited in Zenodo under an open





Liaison with EOSC

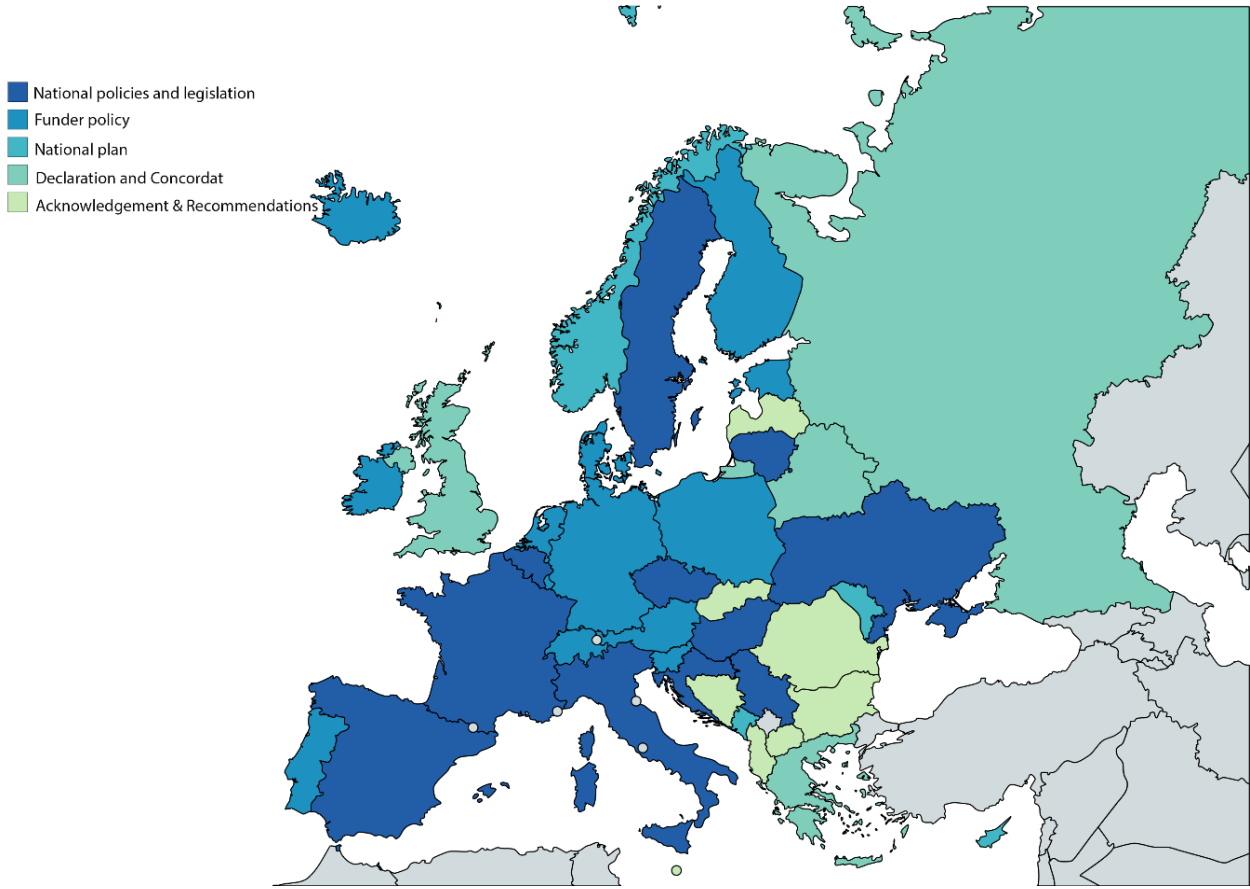


National Open Science Cloud Initiatives

- NOSCIs are living national OS ecosystems that support with the EOSC Governance
- NOSCIs recognize diversity and OS maturity of countries, and their modelling can be adjusted to fit the needs of each country
- NOSCIs keep national stakeholders up to date with EOSC developments and spread awareness

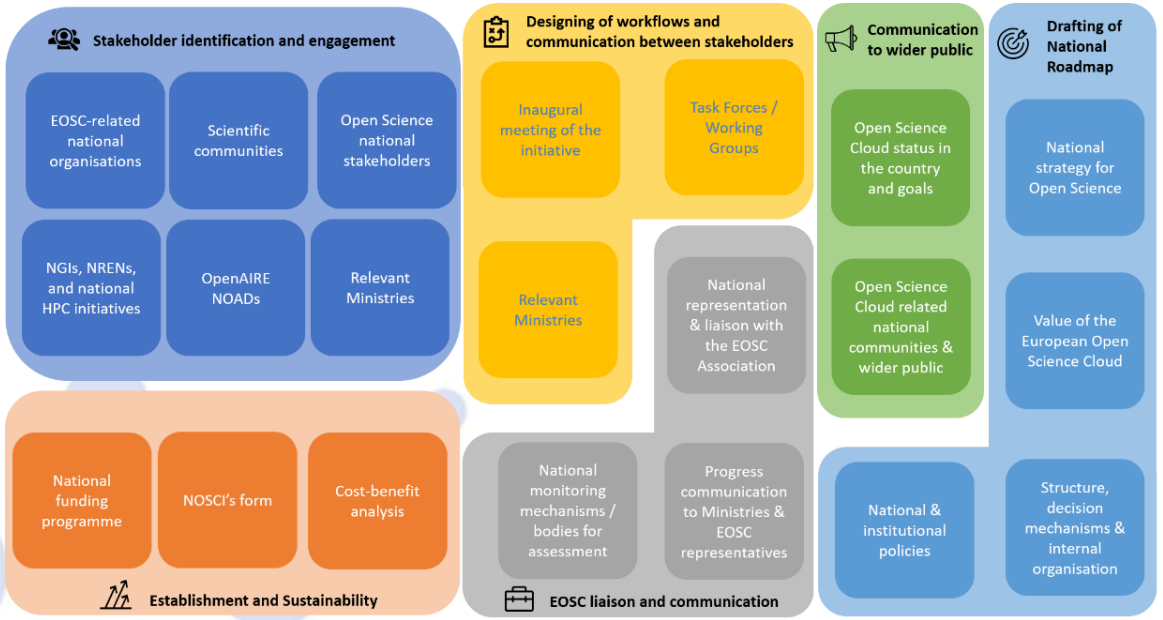
Establishing a NOSCI: all-round support

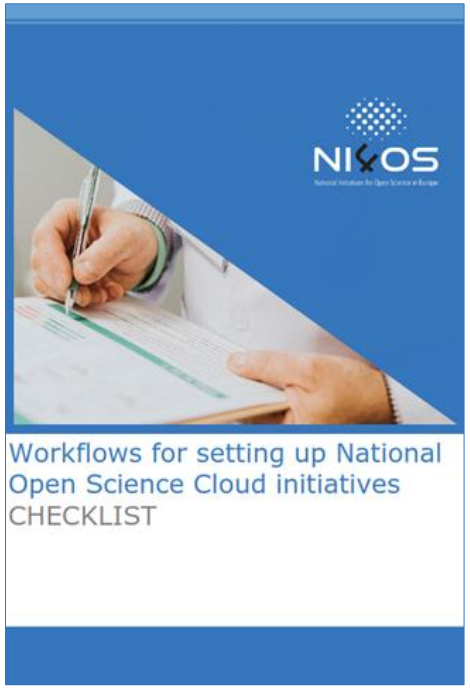
- Collection of current OS policies and models in Europe with focus on SEE area
- Clustering and visualization of OS policies across Europe
- Classification of major OSC building blocks.
- Blueprint for setting up NOSCIs
- 2 checklists facilitating the establishment and operation of the NOSCIs
- Explanatory video guiding through the different setup options
- Training webinar supporting the set-up of NOSCIs
- Workshop bringing together NI4OS-Europe partners with the EOSC Governance Board country delegates



Blueprint for NOSCIs: workflows and checklists

- Set of indicators for assessing establishment progress
- Modular workflow for setting up NOSCIs
- Operational aspects for their day-to-day operation



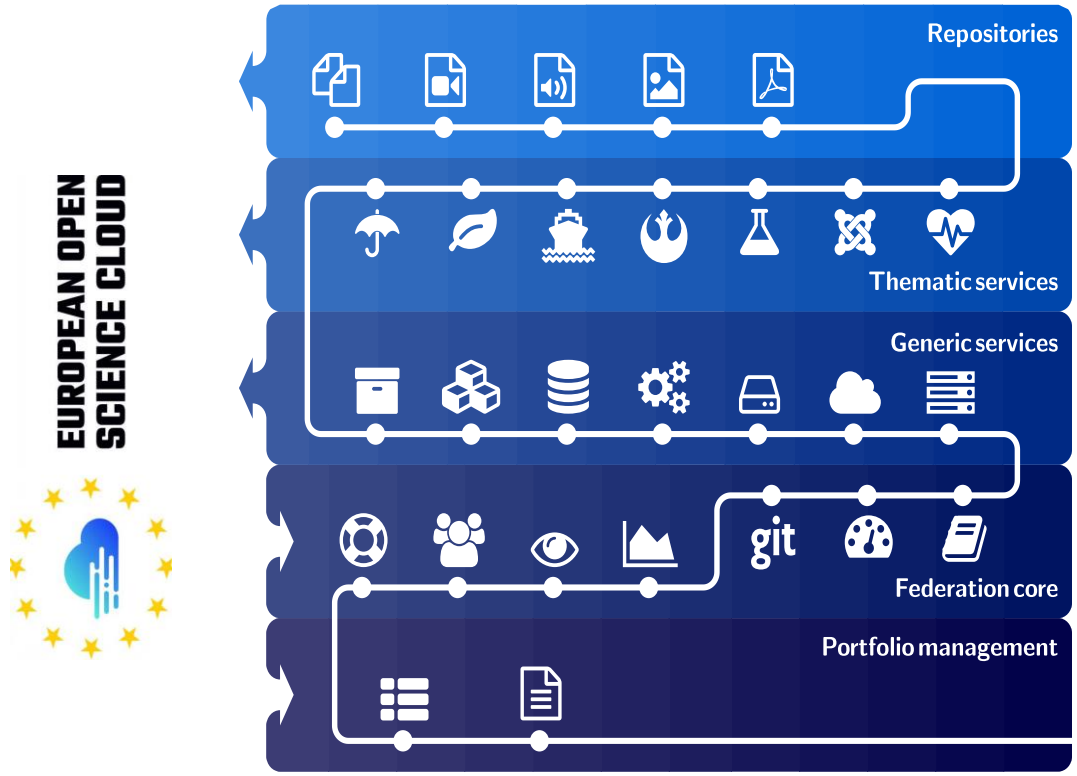


Lines of action

Provide technical and policy support in on-boarding of the existing and future service providers into EOSC

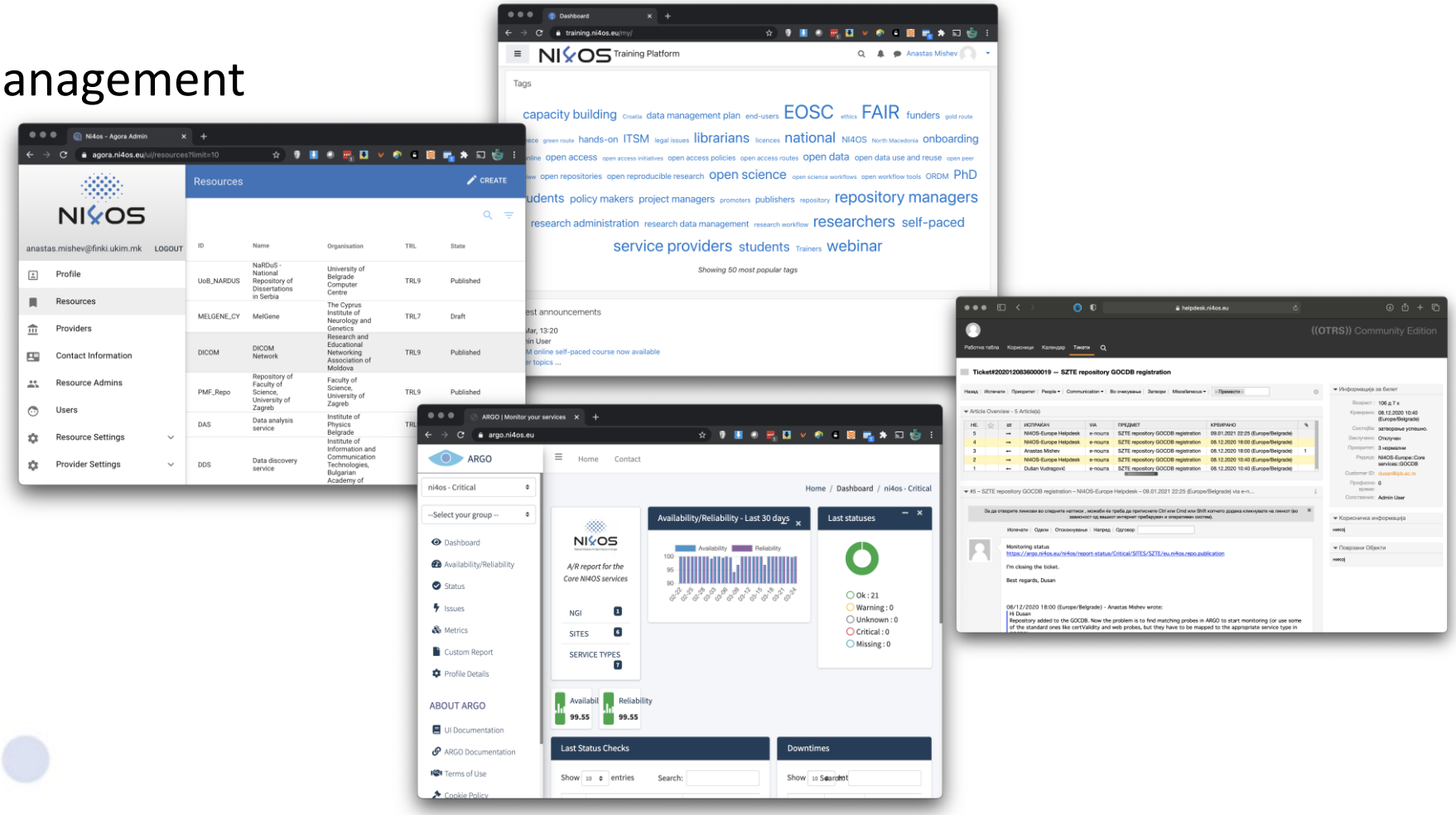
Service integration and onboarding

- Pre-production environment – validate readiness and maturity level for EOSC onboarding
- Service portfolio management system based on the EOSC provider and service profile
- Integration with federation core services
- Service categorization
- Onboarding of
  - generic services
  - thematic services
  - repositories



NI4OS-Europe pre-production environment

- Federating core
  - Service catalogue management system (AGORA)
  - AAI
  - Helpdesk
  - Monitoring
  - Accounting



NI4OS-Europe: Registered Services for Moldova

The following resources have been registered with the AGORA Service catalogue management system:

Generic:

- RENAM Scientific Cloud;
- RENAM Storage Service.

Thematic:

- DICOM Network;
- CSIA.

Repositories:

- IREK – ASEM, Institutional Repository of Economic Knowledge

Registered Generic Services

- ***Generic services:***
  - NI4OS-Europe-SDT-Cloud-RENAM-MD-Openstack
  - NI4OS-Europe-SDT-Storage-MD-RENAM-FreeNAS

Basic Information					
Entry name	Entry type	Required	Public	Your answer	Guidance
Storage specification	Single Line	X	X	R740XD Server	
Total storage [TB]	Single Line	X	X	56Tb	
Storage technology	Single selection li	X	X	SAS	SSD, SAS,
Storage performance	Single Line		X	140	IOPS
Software details					
Entry name	Entry type	Required	Public	Your answer	Guidance
Supported interfaces	Single Line	X	X	FTP, NFS, WebD	List of protocols
Supported storage types	Multiselect list		X		Available

Basic Information					
Entry name	Entry type	Required	Public	Your answer	Guidance
Server specification	Single Line	X	X	Dell R430	This might be
Number of servers	Single Line	X	X	2	Number of
CPU details					
Entry name	Entry type	Required	Public	Your answer	Guidance
CPU specification	Single Line	X	X	Intel(R) Xeon(R) I	
CPUs per server	Single Line	X	X	2	
Cores per CPU	Single Line	X	X	16	
RAM per server [GB]	Single Line	X	X	128	
RAM per core [GB]	Single Line	X	X	8	
Total number of CPU-cores	Single Line	X	X	32	
Filesystem details					
Entry name	Entry type	Required	Public	Your answer	Guidance
Total storage [TB]	Single Line	X	X	2.7	
Virtual Machine specification					
Entry name	Entry type	Required	Public	Your answer	Guidance
Minimum number of CPU cores per VM	Single Line	X	X	1	
Minimum amount of RAM per VM [GB]	Single Line	X	X	2	
Maximum number of CPU cores per VM	Single Line	X	X	4	
Maximum amount of RAM per VM [GB]	Single Line	X	X	16	
Maximum amount of storage per VM [GB]	Single Line	X	X	250	
Software details					

RENAM continued negotiation of services on-boarding prioritization, timing, categorization and preparing own resources for on-boarding and verification according to the developed documents, templates and rules.

Registered Thematic Services and Repositories

- Thematic services:
  - DICOM Network
  - CSIA

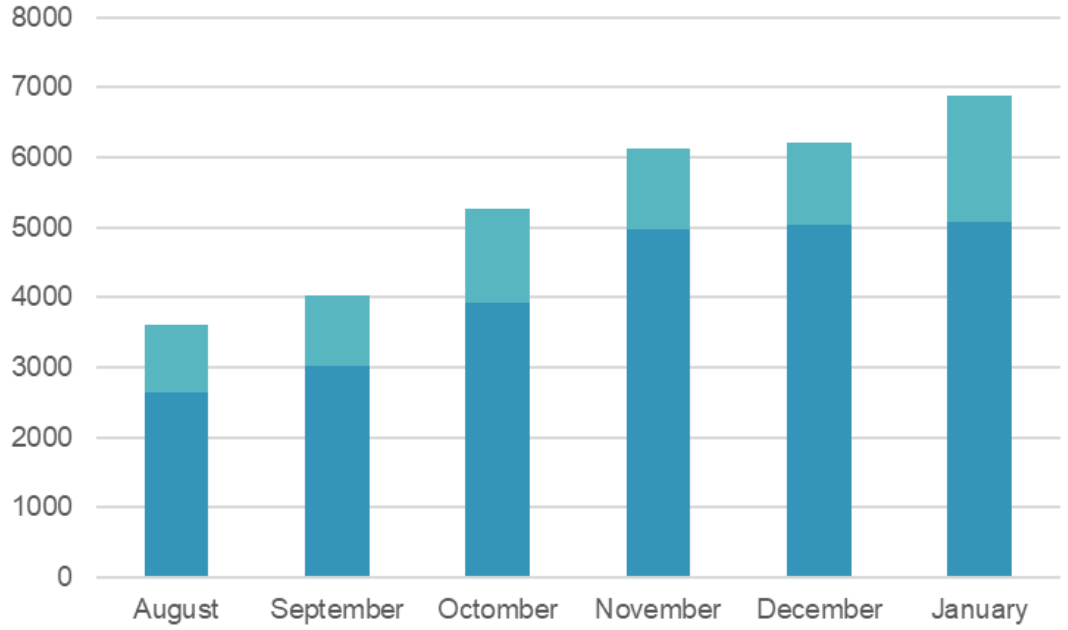
- Repositories:

- IREK – ASEM, Institutional Repository of Economic Knowledge.

  - Support of integration of national repositories;
  - Preparing repositories for integration, analysis of problems and regulatory documents

DICOM Network Service Development:

- DICOM Viewer optimizations. Added one more Image View for impersonated Data
- Connecting new members to DICOM Network
- Connecting new equipment to DICOM Network
- Added special reporting tools for COVID-19 patients

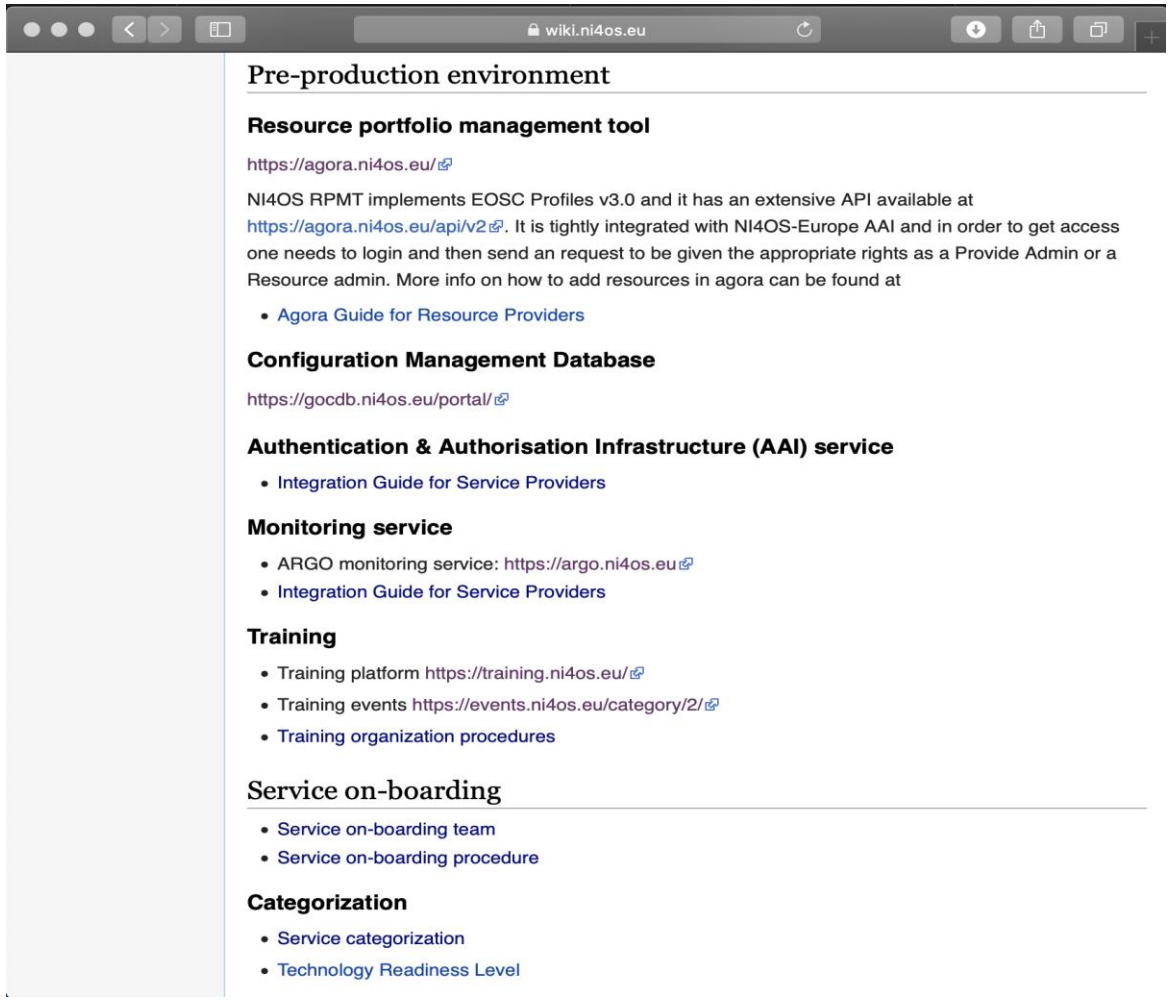


Percentage of COVID-19 patients in the DICOM NETWORK system. Blue is non COVID-19 investigations and teal are COVID-19 investigations.

Procedures and policies

- NI4OS-Europe wiki page
  - Policies
  - Policy templates
  - Procedures for service integration with the pre-production environment

Role: to support service providers towards uniform and seamless EOSC integration



ORDM / FAIR tools and certification schemes

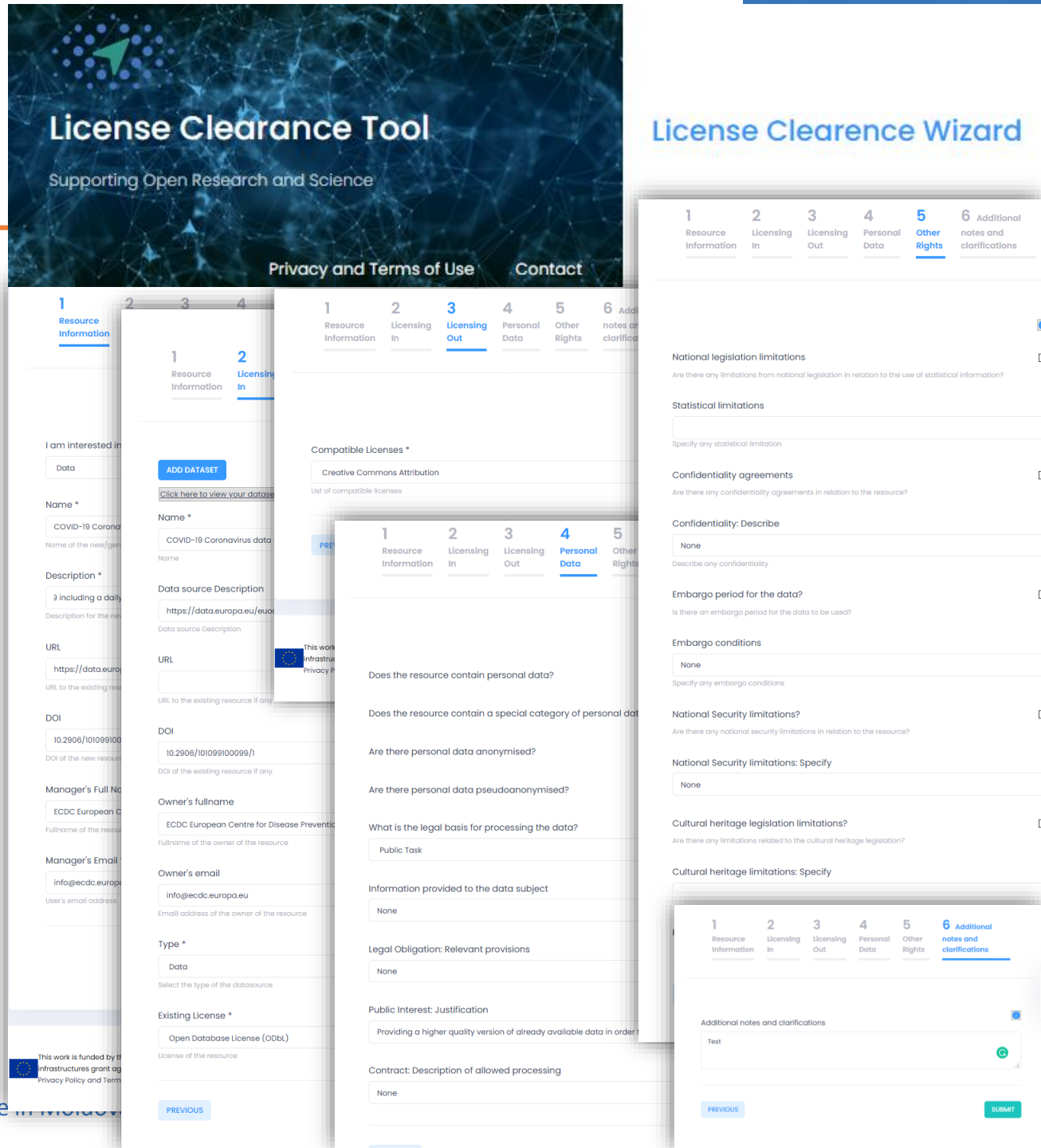
- Implementation and adoption of tools, standards and guidelines
- Selection and delivery of tools
- Harmonization and interoperability within and across communities and with core initiatives
- Development and application of certification schemes
- Elaboration of incentives to support ORDM and FAIR
- Analysis of the incentives and rewards that can be employed to improve the uptake of ORDM and FAIR
- Analysis of guidelines for OS by approaching ORDM and FAIR
- Analysis and categorization of contemporary existing tools supporting FAIR and ORDM

ORDM/FAIR documents with their elements

Incentives for supporting ORDM and FAIR - Support mechanisms, country-tailored rewards	Analysis of survey data and detailed status in 4 NI4OS-Europe countries	4 levels of rationales/benefits	10 categories of instruments	5 exemplary best practices
Data repository integration and ORDM/FAIR compliance guidelines	Overall methodology, means and approach elements	Selected most relevant sources, guidelines, models and tools	All instruments classified in 10 areas	Each area is explained and detailed
Mapping of legal, technical and procedural tools - Tools Catalogue	Detailed analysis of landscaping survey data	Categorization Types: guidelines & policies, models, tools Uses: certification, decision making, support	Mapping on stakeholders	Catalogue 139 items 14 descriptors for each

Tools for data and service managers

- License Clearance Tool
  - Help in resolving IPR issues when dealing with various
    - input licenses
    - output licenses
    - personal data
    - special limitations
- Repository Policy Generator (in dev)
  - Creation of repository policy documents using
    - Few mandatory inputs
    - Explained choices
    - Related options
    - Carefully redacted templates



Lines of action

Spread the EOSC and FAIR principles in the community and train it

User engagement, training and demonstrators

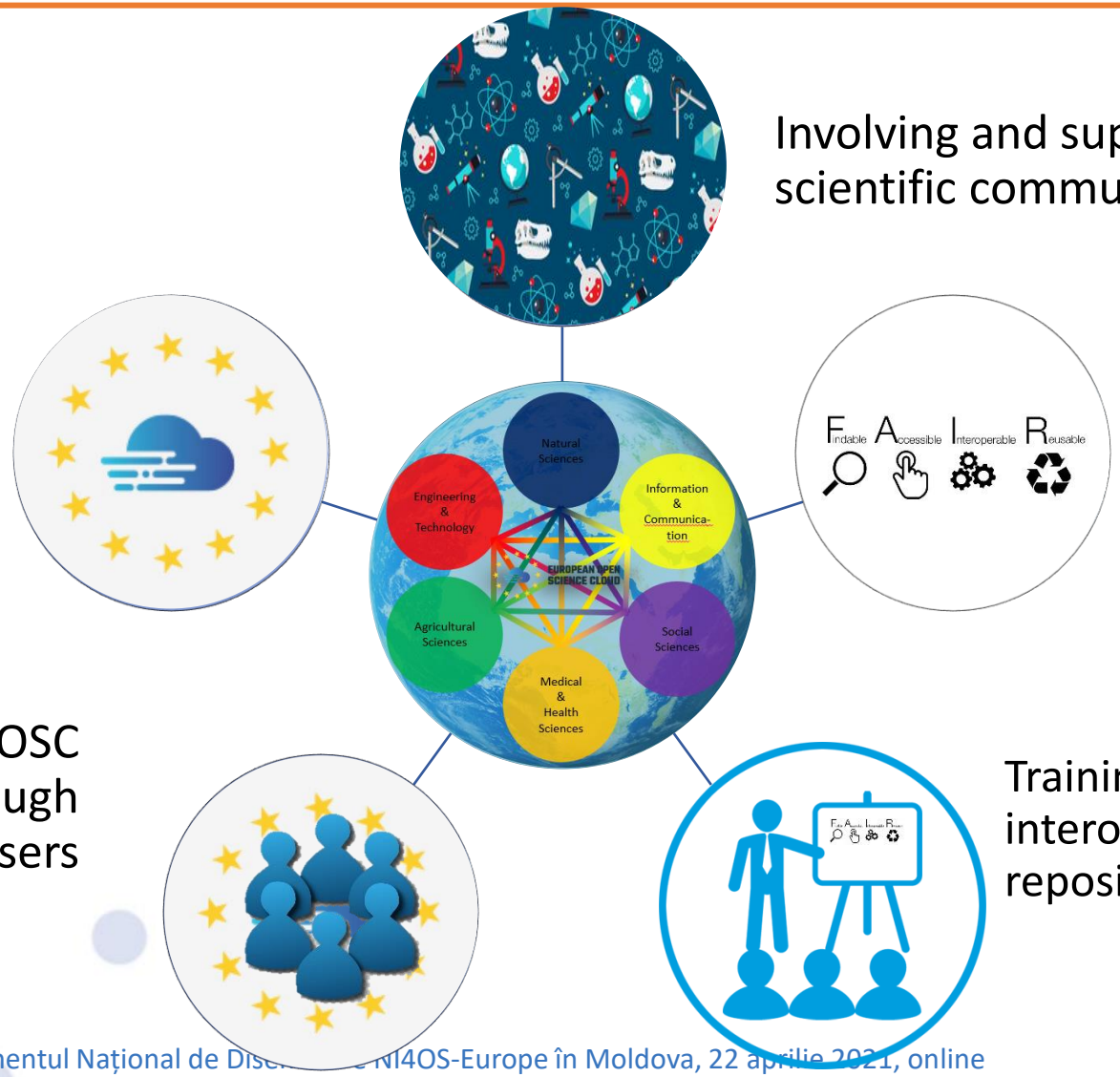
Involving and supporting scientific communities

Ensuring take-up of core EOSC services in the community

Promoting uptake of FAIR among research communities

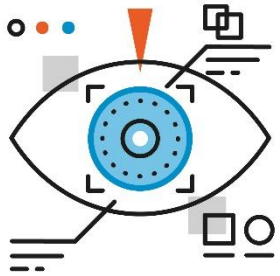
Promoting and ensuring EOSC research outcomes through concrete support to users

Training for federated services, interoperability, ORDM principles, repository certification, FAIR

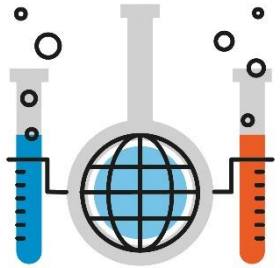


User engagement, training and demonstrators

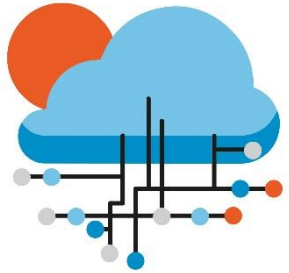
- Training materials available
- Definition of use cases in various scientific fields:



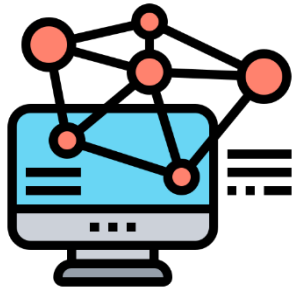
Digital Cultural Heritage



Life Sciences



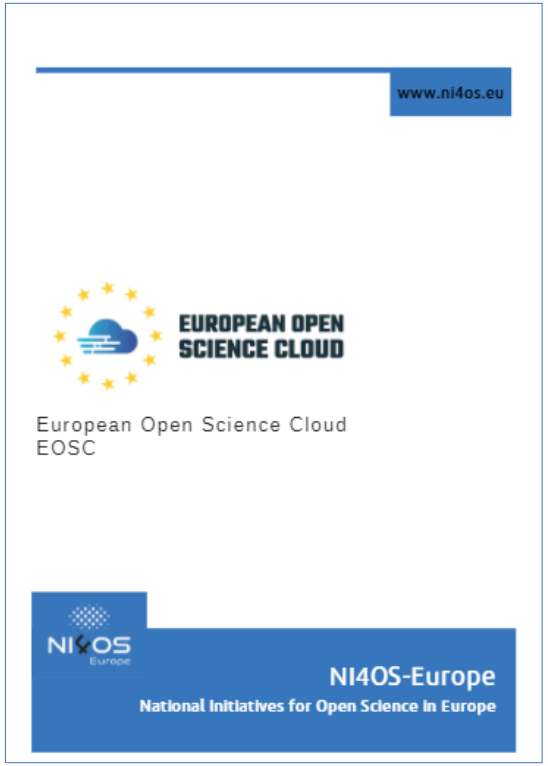
Climate Science



Computational Physics

Support to EOSC service & FAIR uptake in communities

- Ambassadors from each country assigned as EOSC promoters
- Training and dissemination material for FAIR and EOSC service uptake is available in all different languages of the NI4OS-Europe area
- Webinars for disseminating EOSC and FAIR principles in each country



NI4OS-Europe training

- NI4OS-Europe training platform
- Training platform has been populated with training material
- 5 train-the-trainers events held on:
  - FAIR
  - National EOSC promotion
  - ORDM
  - Onboarding
  - IT Service Management
- Each country participating in NI4OS-Europe has scheduled 2 training events – total of 30 training events

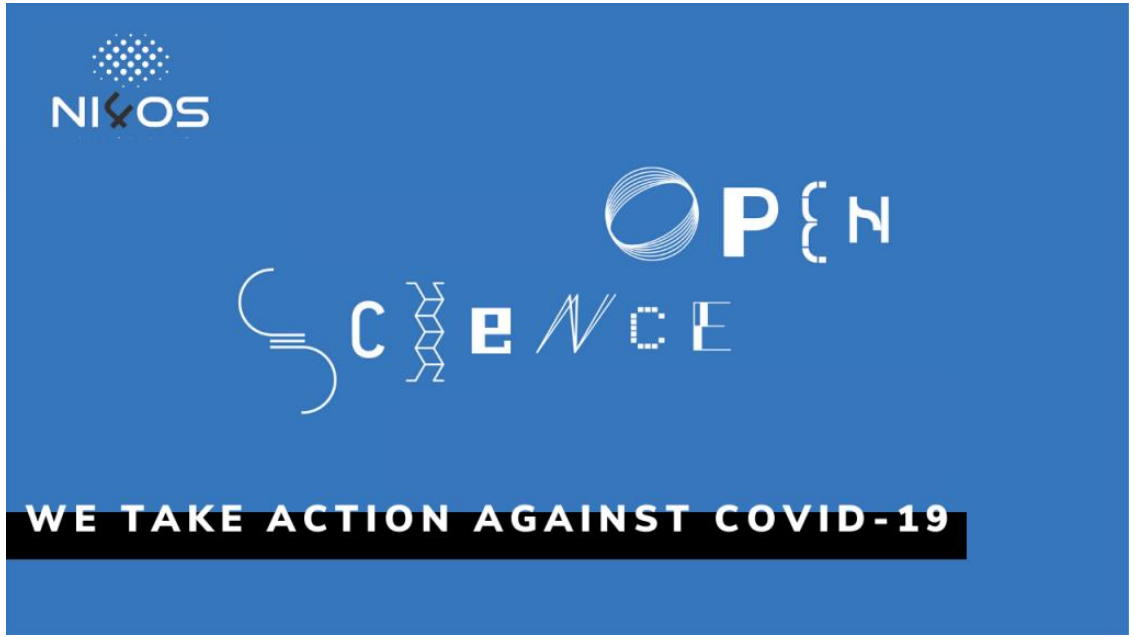
Communication, marketing, sustainability, innovation

- Strong digital presence
  - Website
  - Calendar
  - Agenda tool
- Events and networking
  - Webinars
  - Workshops
  - Dissemination events
- Collaboration with the EOSC-5b projects
- Support the global efforts on COVID-19

- Sustainability and innovation
  - Find solutions for sustainable and long-term impact of project results
  - Manage knowledge and results so as to create added value for different stakeholders

Support the global efforts on COVID-19

- COVID-19 social media campaign
- NI4OS-Europe vs COVID-19: providing fast track access to services, tools and software for the Scientific communities that perform extensive research to tackle COVID-19
- NI4OS-Europe Covid19 Wiki : Collection of joint resources in open science related to COVID-19 in SEE

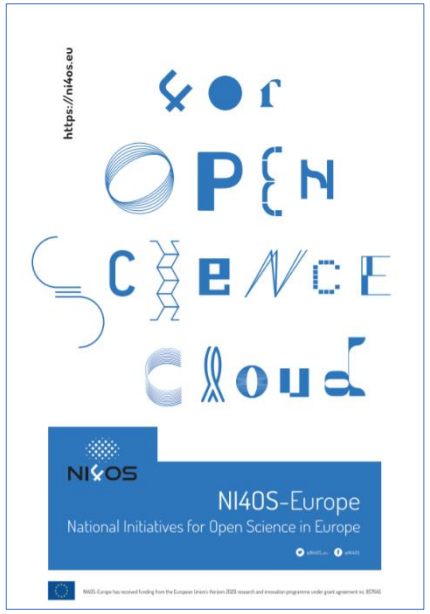


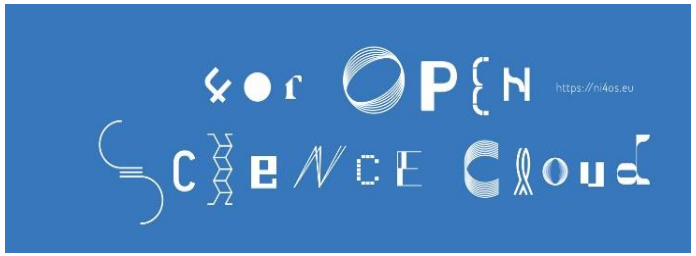
Scientific results:

"Multi-omics data integration and network-based analysis drives a multiplex drug repurposing approach to a shortlist of candidate drugs against COVID-19"

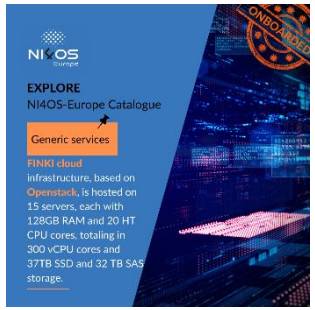
NI4OS-Europe brand & promotional package

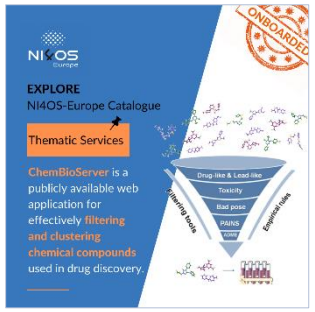
- Logo
- Video
- Brochures
- Presentations
- Newsletters
- Posters and Infographics
- Roll-up banners





NI4OS-catalogue on-boarding campaign





NI4OS-Europe in numbers: Key Performance Indicators

- 15 OSC initiatives
- 20 generic service instances
- 20 thematic services
- 15 repositories
- 5 train-the-trainer events
- 3 flagship scientific fields
- 1 regional event (200 persons targeted)
- 30 national-level trainings (450 persons targeted
- 3 sets of ORDM guidelines
- 6 ORDM tools
- 1 pre-production environment

EOSC: scopul și evoluții actuale

Evenimentul Național de Diseminare
NI4OS-Europe în Moldova
22 aprilie 2021, online

Dr. Petru Bogatencov, Asociația RENAM

EOSC Vision

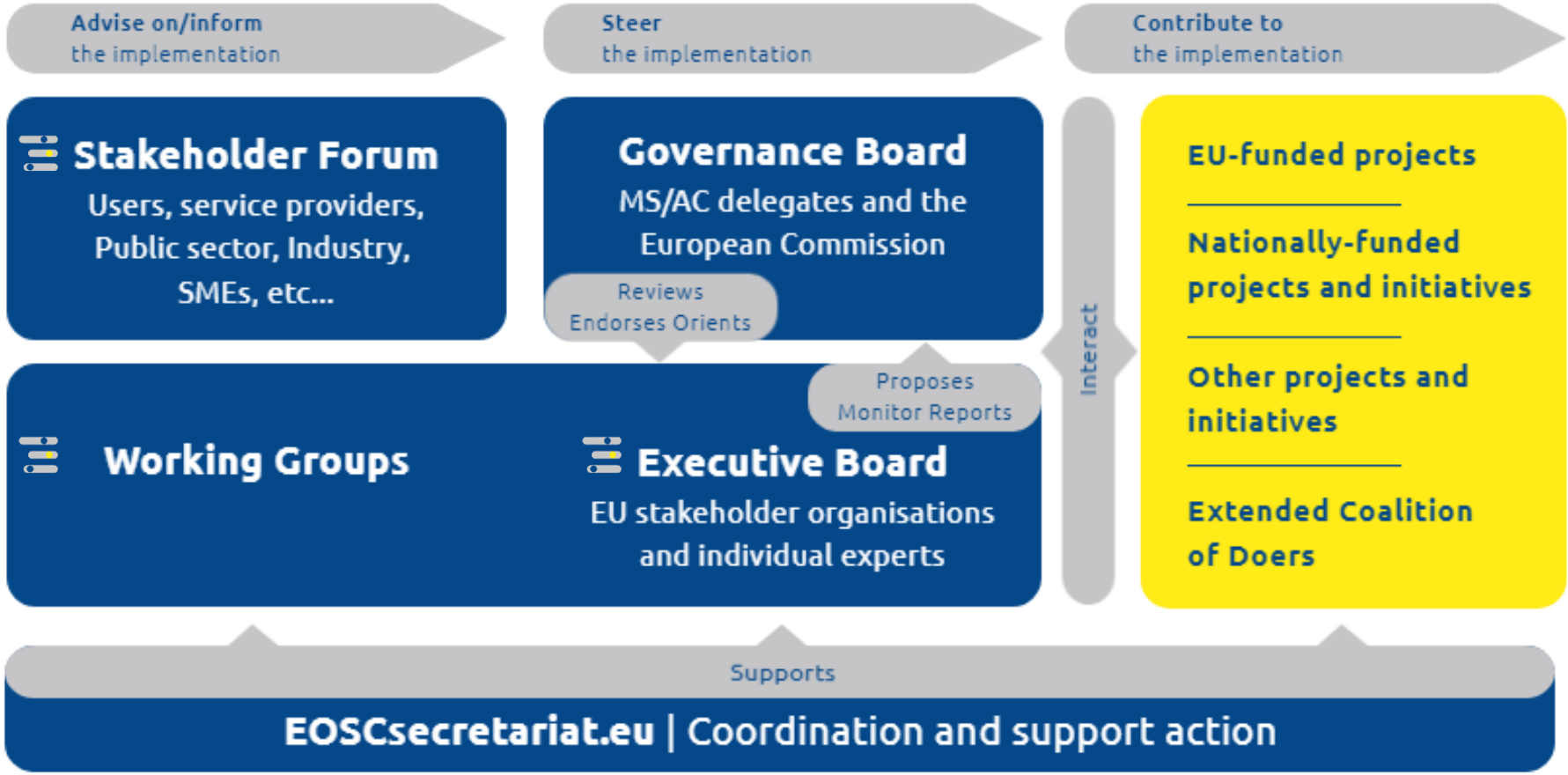
EOSC Vision

EOSC took shape in 2015 **to federate existing research data infrastructures to** support and develop open science and open innovation.

EOSC brings together national and European stakeholders, initiatives and e-infrastructures to develop an inclusive open science ecosystem in Europe.

Its aim is to develop a **trusted, virtual and federated environment** that cuts across borders to store, share, process and re-use research digital objects following FAIR principles.

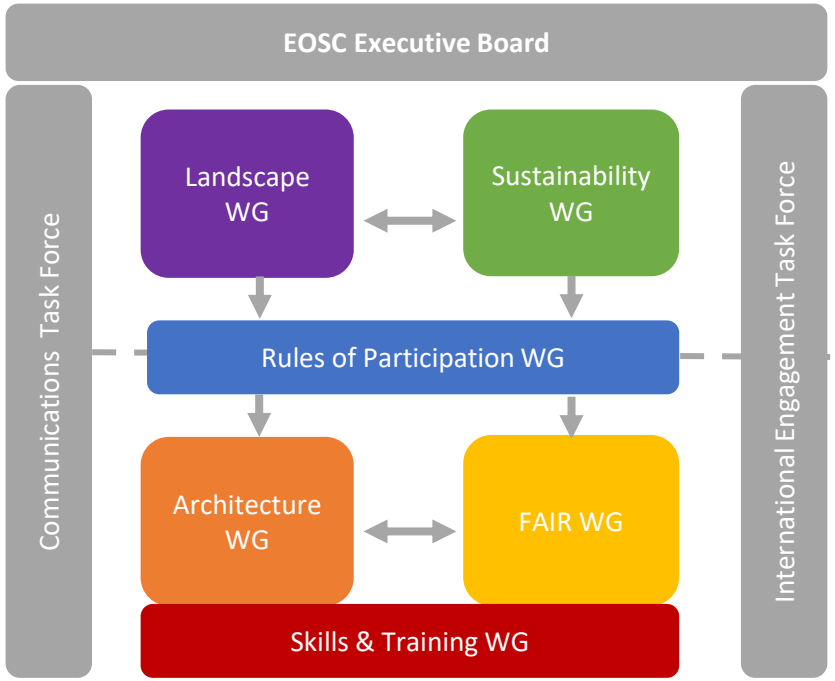
Initial EOSC Governance structure & EOSC projects



Legend:

EOSC Working Groups – until the end of 2020

6 Working Groups | **160+ WG Members** | **10 Active WG Task Forces**

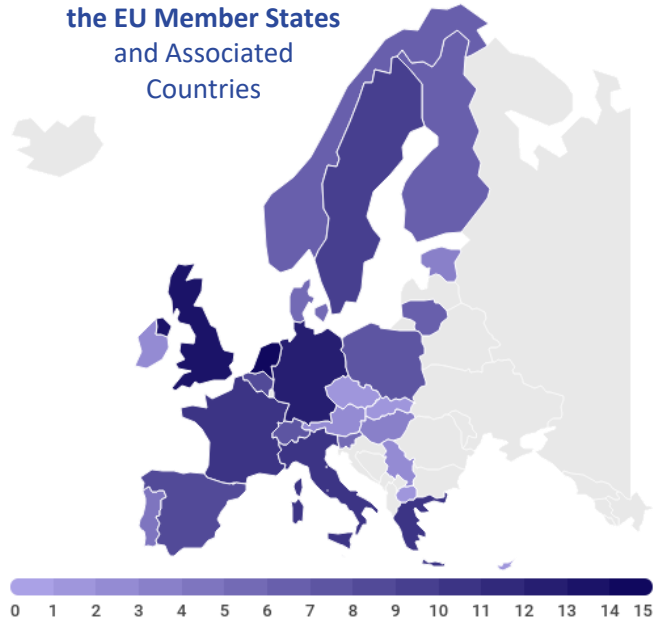


Strategic focus

Close liaison with Governance Board

Practical implementation focused WGs

Experts represent **28 of the EU Member States** and Associated Countries



Landscape 15 male 9 female	**RoP** 11 male 8 female
Architecture 39 male 3 female	**FAIR** 16 male 11 female
Sustainability 10 male 8 female	**Skills** 11 male 21 female

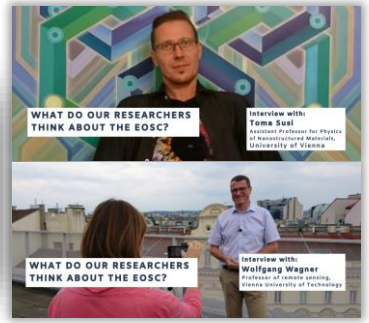
6 Strategic Priority Areas for EOSC

Contributions from different stakeholders to the EOSC

Researcher engagement

Video: EOSC - The New Frontier of Data-Driven Science

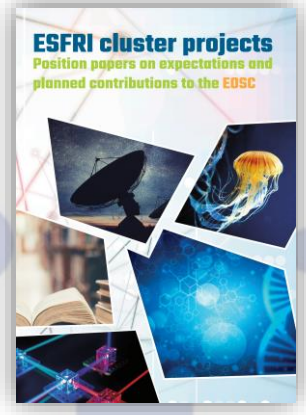
Interviews



Workshops

Engagement with International Initiatives

The international Research Data Community Contributing to EOSC



ESFRI Cluster projects – Position Papers

EOSC Symposium 2019 - Highlights

Building the European Open Science Cloud

HPC Assets and Contributions to the EOSC

EOSC Regional Projects

EOSC 5b projects (Regional)

zenodo

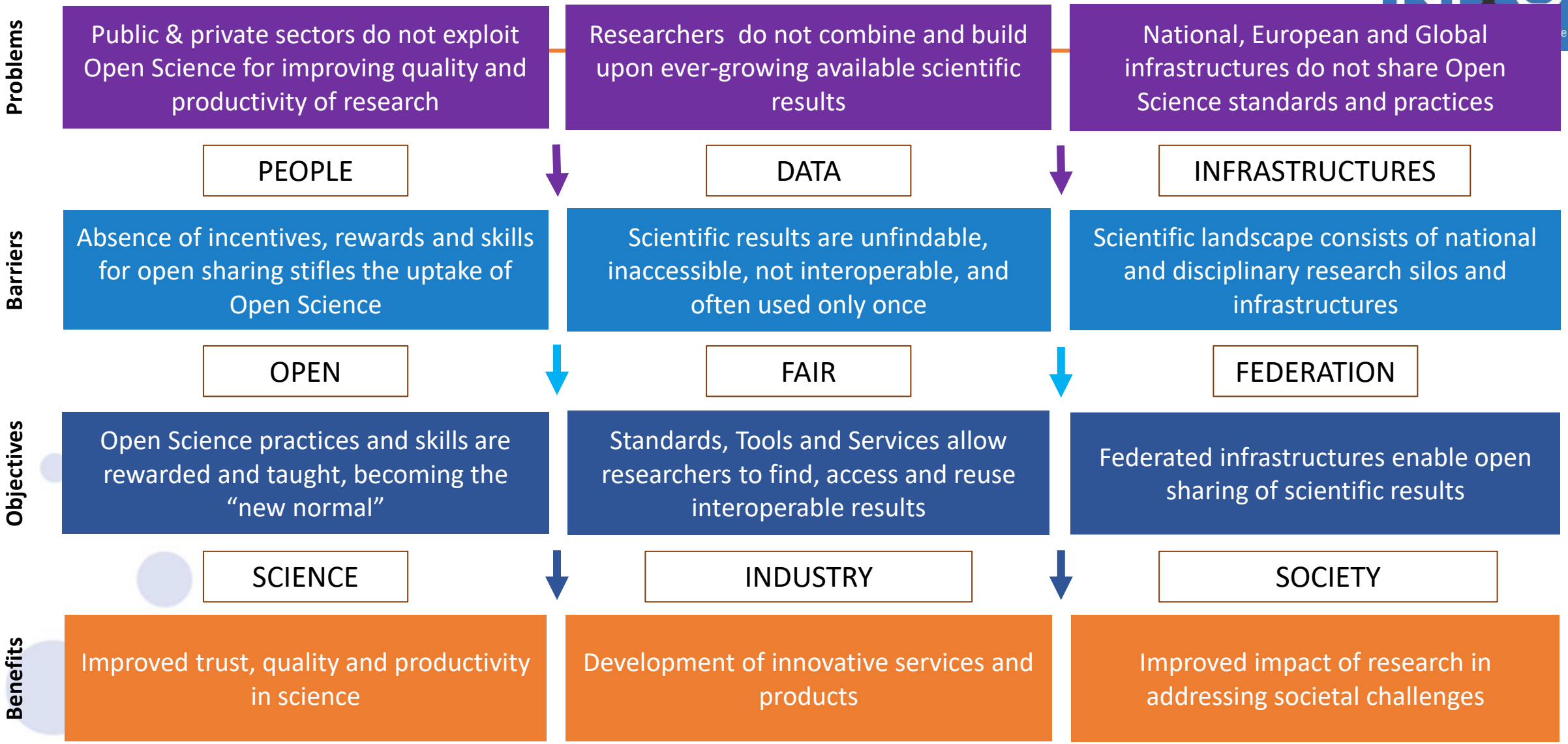
EOSC governing bodies launched it Zenodo community, where all publications are collecting, in a collaborative and curated manner.

SRIA Table of Contents:

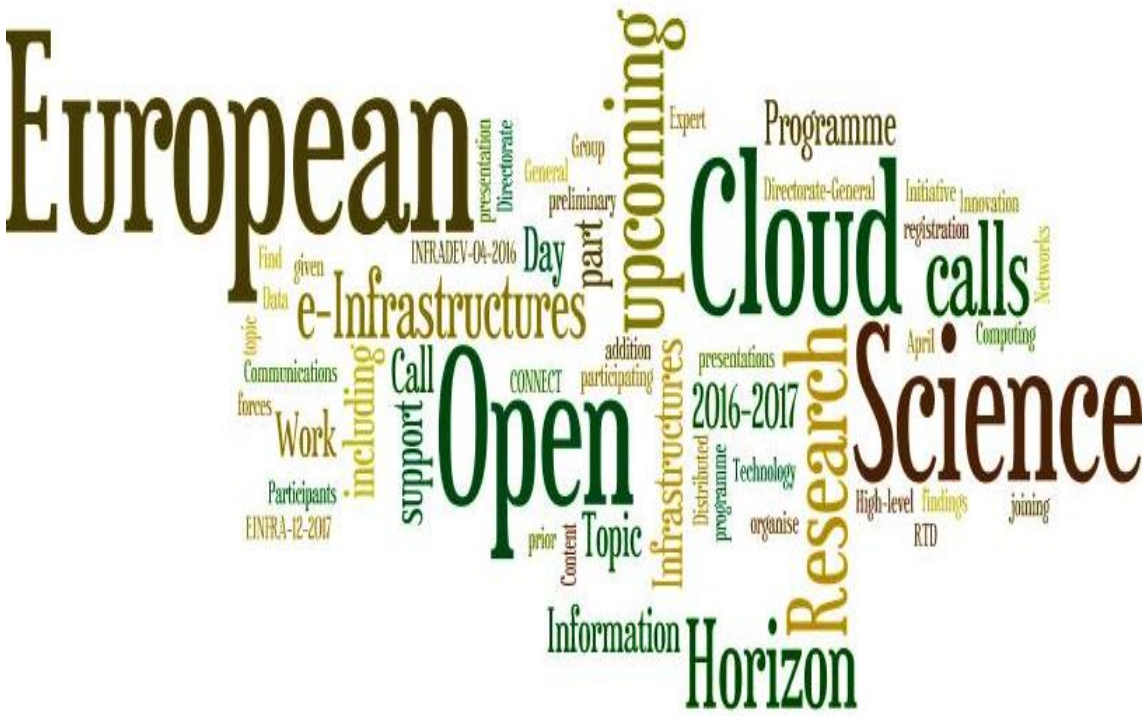
https://www.eoscsecretariat.eu/sites/default/files/eosc-sria-v09.pdf

• Part 1 New Ways of Science	Science in the Digital Age becomes Open
• Part 2 Science & Data in Europe	Science contributes to the implementation of Europe Strategy
• Part 3 EOSC in the Making	Conceived in 2015, Launched in 2018, Sustainable in 2021
• Part 4 Values & Principles	Multistakeholder, Open, FAIR, Federation
• Part 5 Technical Challenges	Status, Gaps & Priorities
• Part 6 Societal Challenges	Status, Gaps & Priorities
• Part 7 Multi Annual Roadmap	Priorities & Timeline
• Part 8 Expected Impacts	Science strengthens the implementation of Europe Strategy
• Part 9 Going Global	Europe leadership at the service of Society at Large

European Open Science Cloud Objectives Tree



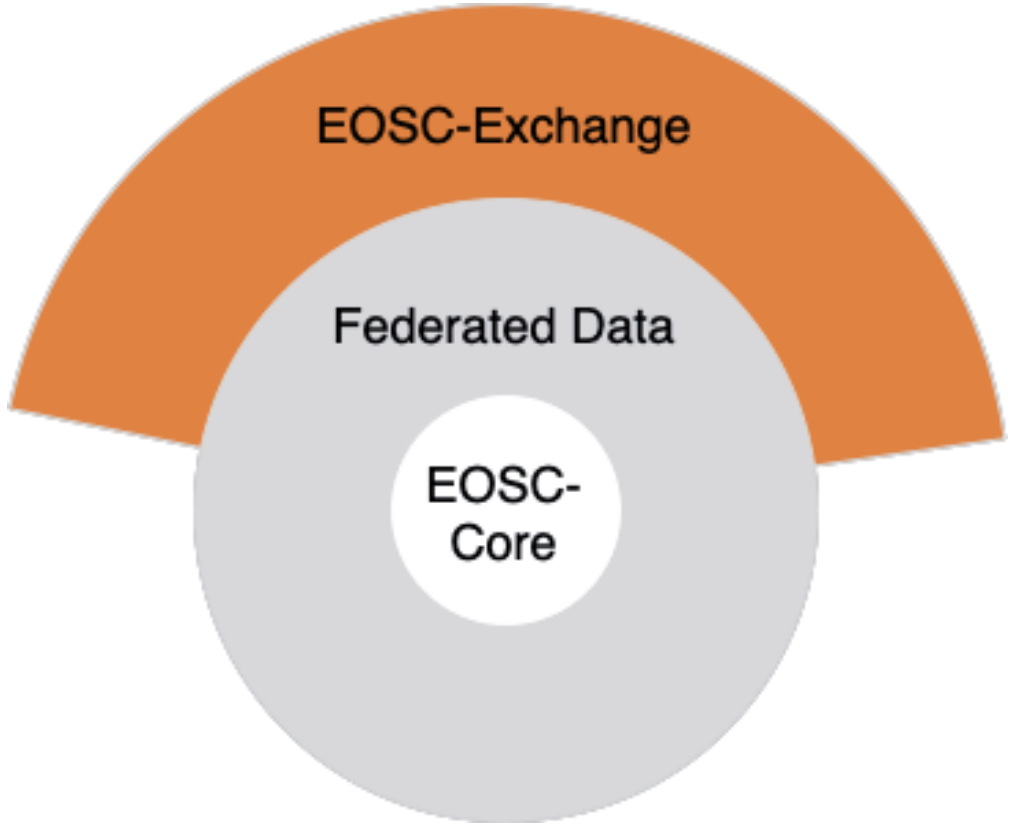
Core functions for EOSC right after 2020+



- Develop and govern federating core
- Manage compliance framework
- Manage trusted certification
- Manage the AAI
- Manage PID policies
- Develop outreach to stakeholders
- Monitor services and transactions
- Manage 'EOSC' trademark(s)
- Contribute to Horizon EU policy

First iteration - minimum viable EOSC (MVE) as in SRIA document, Part 4 Values & Principles

- The MVE includes EOSC-Core and EOSC-Exchange which work with federated FAIR datasets
- MVE must enable the federation of existing and planned research data infrastructures
- Federate the disciplinary cluster and regional projects as a critical first step
- Begin with simple use cases – open data not sensitive or closed



EOSC-Core: functions and proposed coverage

Functions

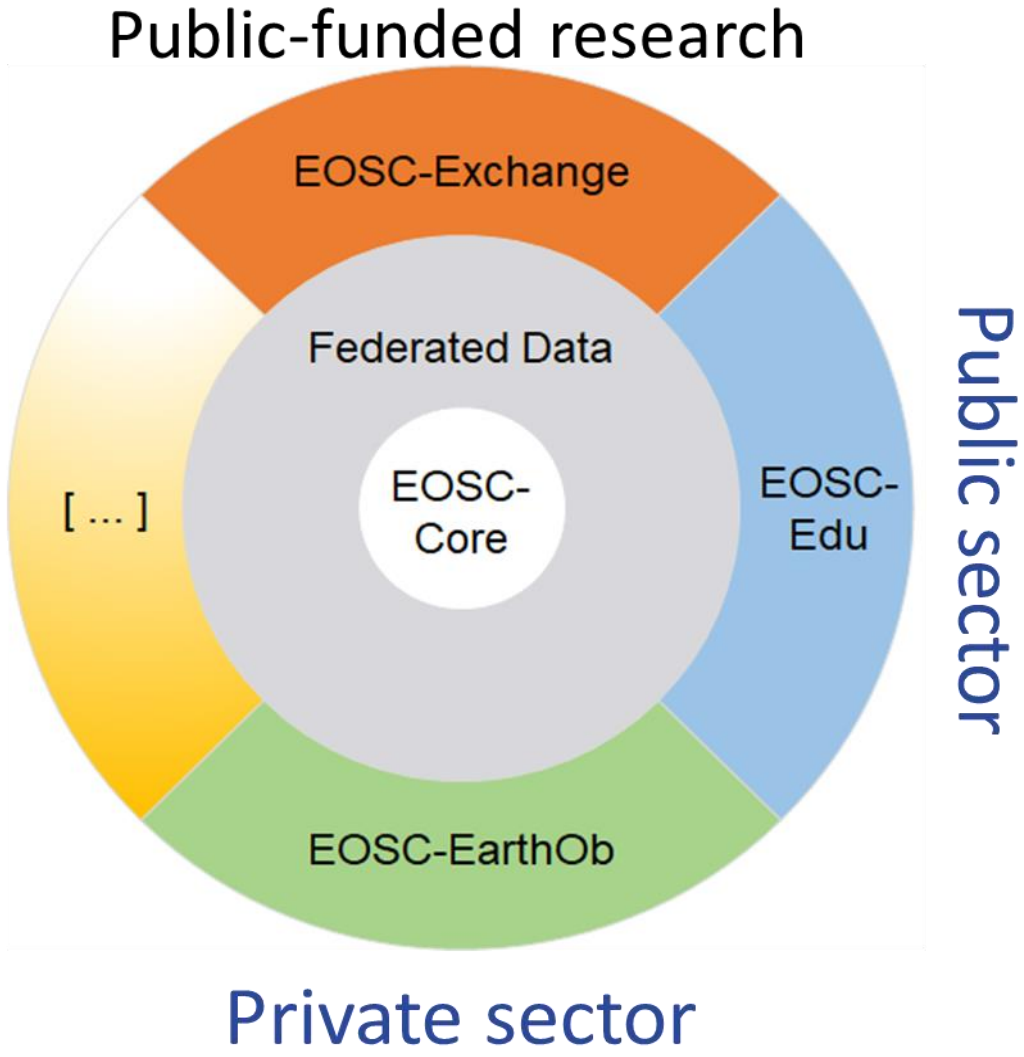
- Provides the means to discover, share, access and re-use data and initial services
- Will not store, transport or process data, at least initially
- Should be used as widely as possible → will be accessible to any authenticated user to promote open research across Europe

Proposed coverage

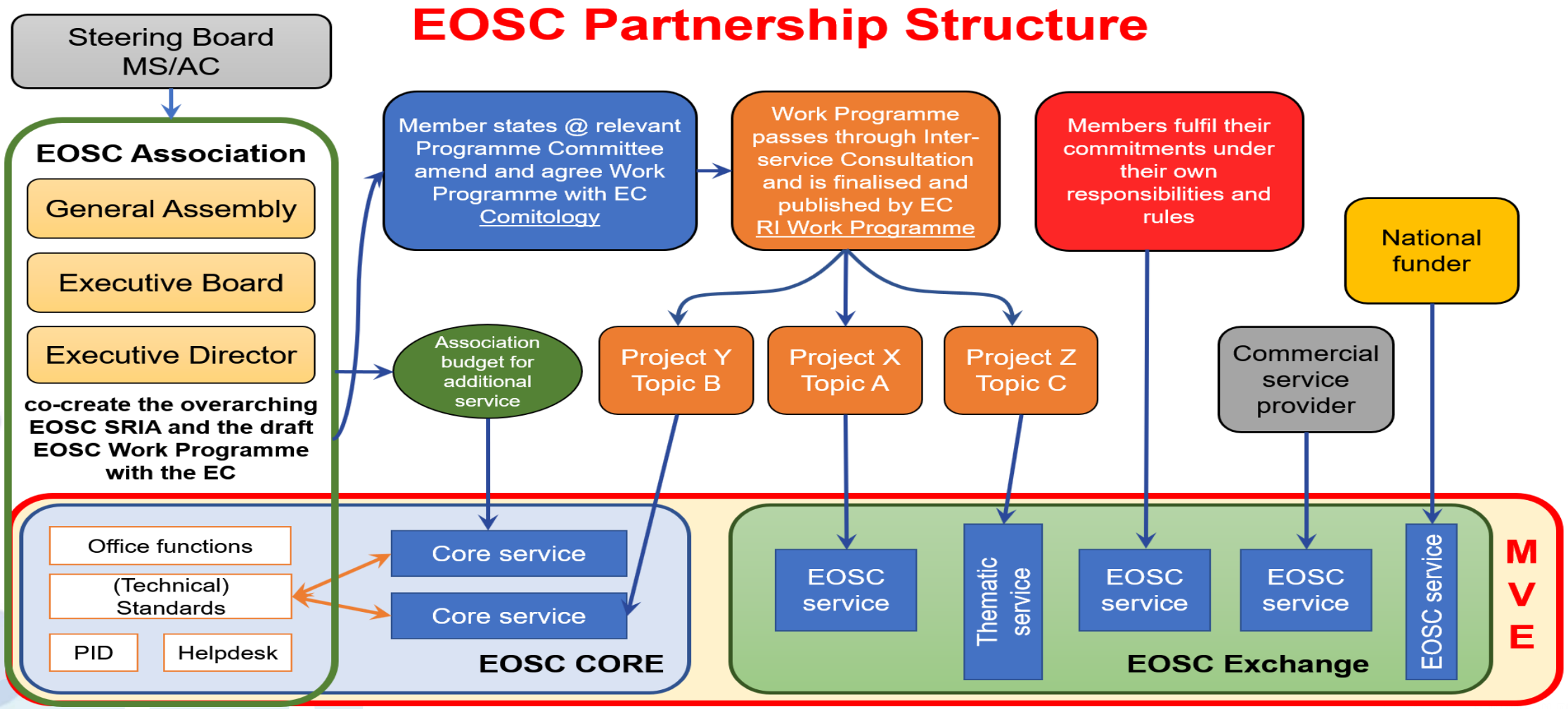
- Shared open science policy framework
- AAI framework
- Data access framework
- Service management framework
- Minimum legal metadata framework
- Open metrics framework
- PID services
- Help-desk

EOSC deployment: 2nd and 3rd iterations

- Extensions to serve public sector and industry
- These are not completely new users as some public sector and industrial partners will already use MValE
- Would ideally be one ‘marketplace’ but differing requirements and legislation may require linked but alternately governed spaces



EOSC Partnership

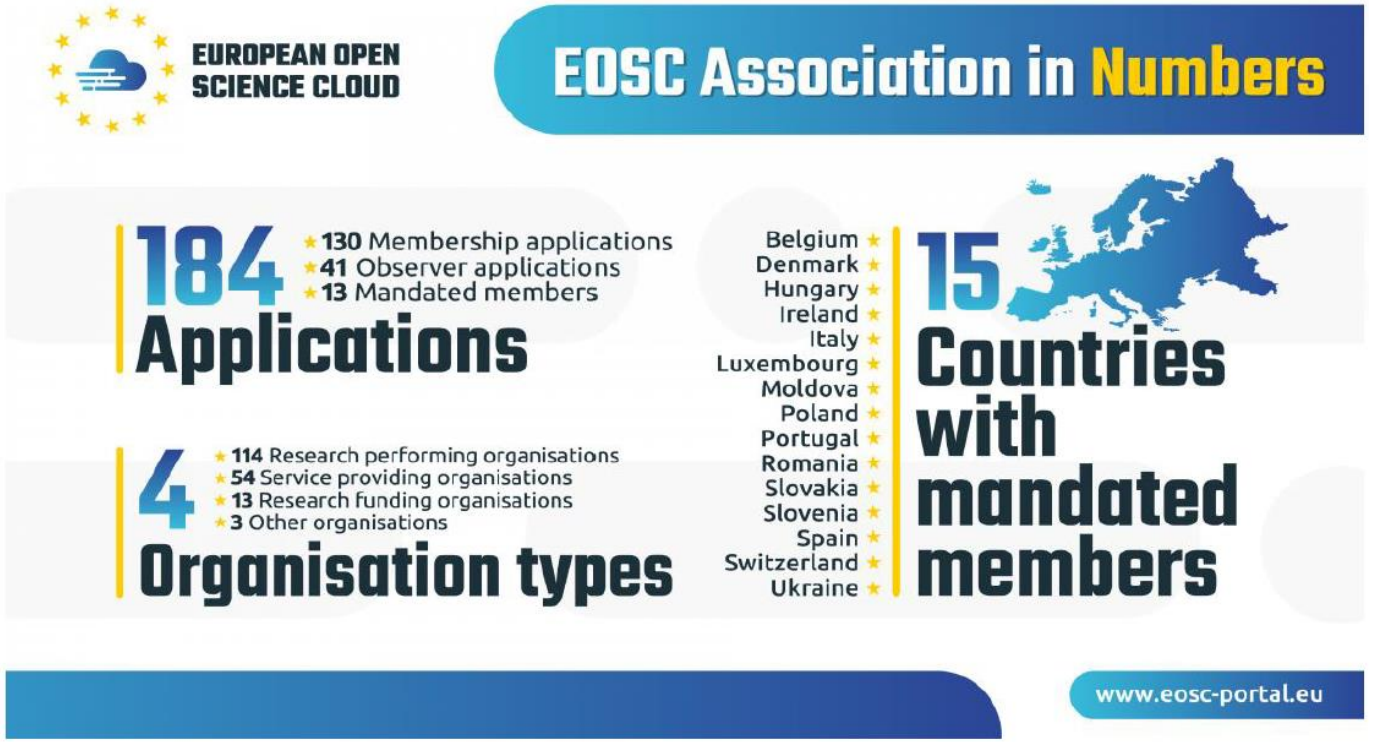


EOSC Association

On July 29th, 2020 founding members submitted the Deeds of Association of the EOSC Association to the notary public in Brussels which marks an important development towards the sustainability of the European Open Science Cloud (EOSC) initiative.

EOSC Association Membership

- Membership applications
- Observer applications
- Mandated members



Essential Reading

- EOSC Strategic Research and Innovation Agenda - version 0.8
- Six Recommendations for Implementation of FAIR Practice - official publication
- A Persistent Identifier (PID) policy for the European Open Science Cloud - official publication
- Landscape of EOSC-related Infrasructures and Initiatives - official publication
- FAIR Metrics for EOSC - 2nd Draft out for comments
- Solutions for a Sustainable EOSC - Ironlady Draft *(log in to the EOSC Liaison Platform to view or request a copy: info@eoscsecretariat.eu)*
- PID Architecture for the EOSC - Draft for consultation
- EOSC AAI Architecture - Draft for consultation
- Scholarly Infrastructures for Research Software - Draft for consultation
- EOSC Rules of Participation - Draft 0.5

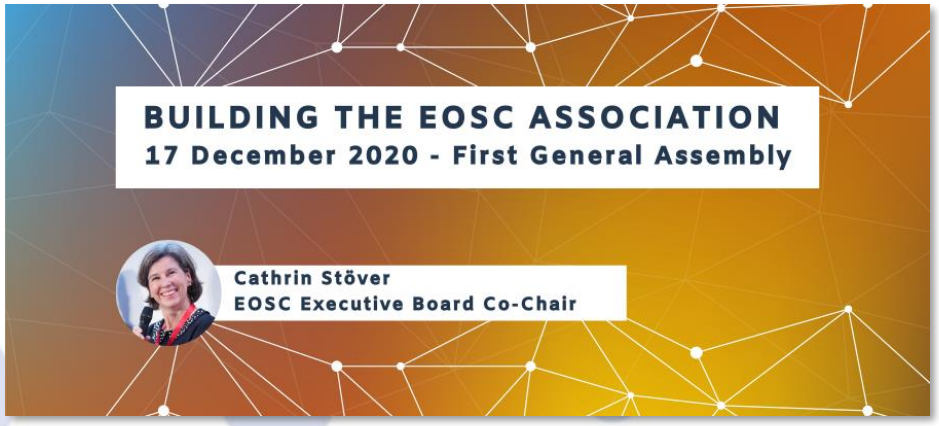
More information

Regular Blog posts:

- https://www.eoscsecretariat.eu/news-events-opinion

Regular newsletter

- https://www.eoscsecretariat.eu/newsletters-email-announcements
- https://sciencebusiness.net/framework-programmes/news/europes-open-science-cloud-project-enter-convergence-phase



Thanks!

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