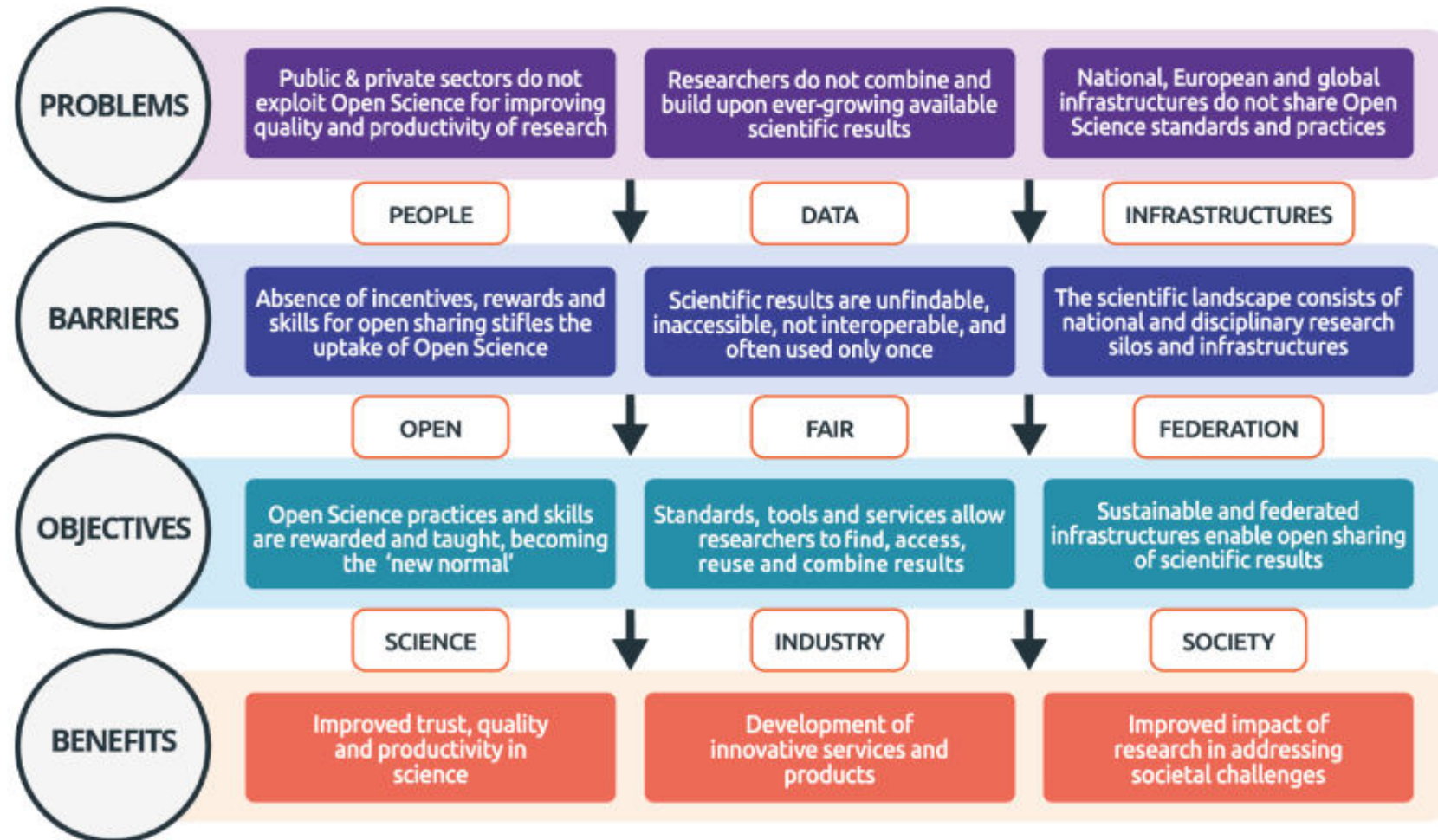# National Initiatives for Open Science in Europe

NI4OS
Europe

Open Science Cloud Initiatives in the region and EOSC developments

Eleni Toli
ATHENA RC
NI4OS-Europe Project Director

European Open Science Cloud: why?

PROBLEMS
- Public & private sectors do not exploit Open Science for improving quality and productivity of research
- Researchers do not combine and build upon ever-growing available scientific results
- National, European and global infrastructures do not share Open Science standards and practices

PEOPLE → DATA → INFRASTRUCTURES

BARRIERS
- Absence of incentives, rewards and skills for open sharing stifles the uptake of Open Science
- Scientific results are unfindable, inaccessible, not interoperable, and often used only once
- The scientific landscape consists of national and disciplinary research silos and infrastructures

OPEN → FAIR → FEDERATION

OBJECTIVES
- Open Science practices and skills are rewarded and taught, becoming the 'new normal'
- Standards, tools and services allow researchers to find, access, reuse and combine results
- Sustainable and federated infrastructures enable open sharing of scientific results

SCIENCE → INDUSTRY → SOCIETY

BENEFITS
- Improved trust, quality and productivity in science
- Development of innovative services and products
- Improved impact of research in addressing societal challenges

EOSC SRIA Version 1.0, 15 February 2021

EOSC Guiding Principles

- **Research-community centred:** EOSC will place research at the centre of the initiative and will thus prioritise engagement with research communities to understand their requirements, helping them and ensuring academic sovereignty of research data.

- **Multi-stakeholderism:** EOSC will succeed if and only if it follows a multi-stakeholder approach;

- **Openness:** EOSC will ensure that research artefacts are 'as open as possible, as closed as necessary';

- **FAIR principles:** EOSC will assemble research artefacts that are findable, accessible, interoperable and reusable;

- **Federation of infrastructures:** EOSC will federate existing and upcoming research infrastructures;

- **Machine-actionable:** EOSC will strike the right balance between machines and people in delivering the services that will serve the needs of European scientists.

EOSC SRIA Version 1.0, 15 February 2021

Strategic Research & Innovation Agenda (SRIA)

EOSC Strategic Research and Innovation Agenda (SRIA)

- Defines the general framework for future research, development and innovation activities in relation to the EOSC
- For individuals and organisations interested / involved / impacted in/by EOSC: research-performing organisations, research-funding organisations, service providers, governmental organisations, companies/businesses, citizens, the European Commission
- Important guidance document: historical and forward-looking, high level and detailed, aspirational and practical, can be read either in its entirety or in part
- To be further developed in the context of the EOSC Partnership proposed under the Horizon Europe programme. Updates are envisaged in 2022 and beyond to set the strategic priorities for 2023 onwards

Strategic Research and Innovation Agenda (SRIA) of the European Open Science Cloud (EOSC)

Version 1.0
21 June 2021

Independent Expert Report

EOSC Executive Board

SRIA: https://www.eosc.eu/sites/default/files/SRIA_2022_01.pdf

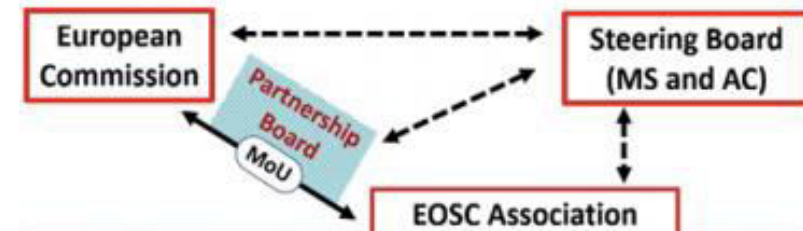# EOSC Governance

Current EOSC Governance 2021 and beyond

Governance of the Partnership

EOSC Association

- Aims to serve the EOSC community, promote EOSC, and enable EU Open Science
- The Association membership is jointly responsible for delivering the objectives agreed in the MoU signed by the EU and EOSC-A to form the official EOSC Partnership
- EOSC-A plays an important role in helping to coordinate and steer EOSC investments via its Task Forces
- SRIA sets out the elements needed to implement Partnership
- Members, Observers, Mandated organisations

General Assembly (GA)	Board of Directors	Secretary General	Advisory Groups
• Is the supreme authority of the Association.	• The President is the Chair of the Board • The Board is appointed by Delegates of the GA	• The Secretary General is entrusted with the day-to-day management of the Association, leads the Secretariat.	• Task forces to address issues or concerns relating to the mission and operations of the EOSC-A.

EOSC Association is counting more than 200 members and 20 Mandated Organizations. Info for joining here

Advisory Groups & Task Forces

Current EOSC Governance 2021 and beyond eosc

Implementation of EOSC	Metadata and data quality	Research careers and curricula	Technical challenges on EOSC	•Sustaining EOSC
•PID policy and implementation (charter)	•FAIR metrics and data quality (charter)	•Data stewardship curricula & career paths (charter)	•AAI Architecture (charter)	•Defining funding models for EOSC (charter)
•Researcher engagement and adoption (charter)	•Semantic interoperability (charter)	•Research careers, recognition and credit (charter)	•Infrastructure for quality research software (charter)	•Long-term data preservation (charter)
•RoPcompliance monitoring (charter)		•Upskilling countries to engage in EOSC (charter)	•Technical interoperability of data and services (charter)	

Charters
Deliverables

EOSC Association - participation (overview)

MEMBERS
- Bulgaria
- Cyprus
- Greece
- Moldova
- N. Macedonia
- Romania
- Serbia
- Slovenia

EOSC ASSOCIATION

MANDATED ORGANIZATIONS
- Albania
- Croatia
- Hungary
- Moldova
- Romania
- Slovenia

OBSERVERS
- Armenia
- Greece
- Montenegro
- Bosnia Herzegovina
- Slovenia

*NI4OS-Europe Partner Countries
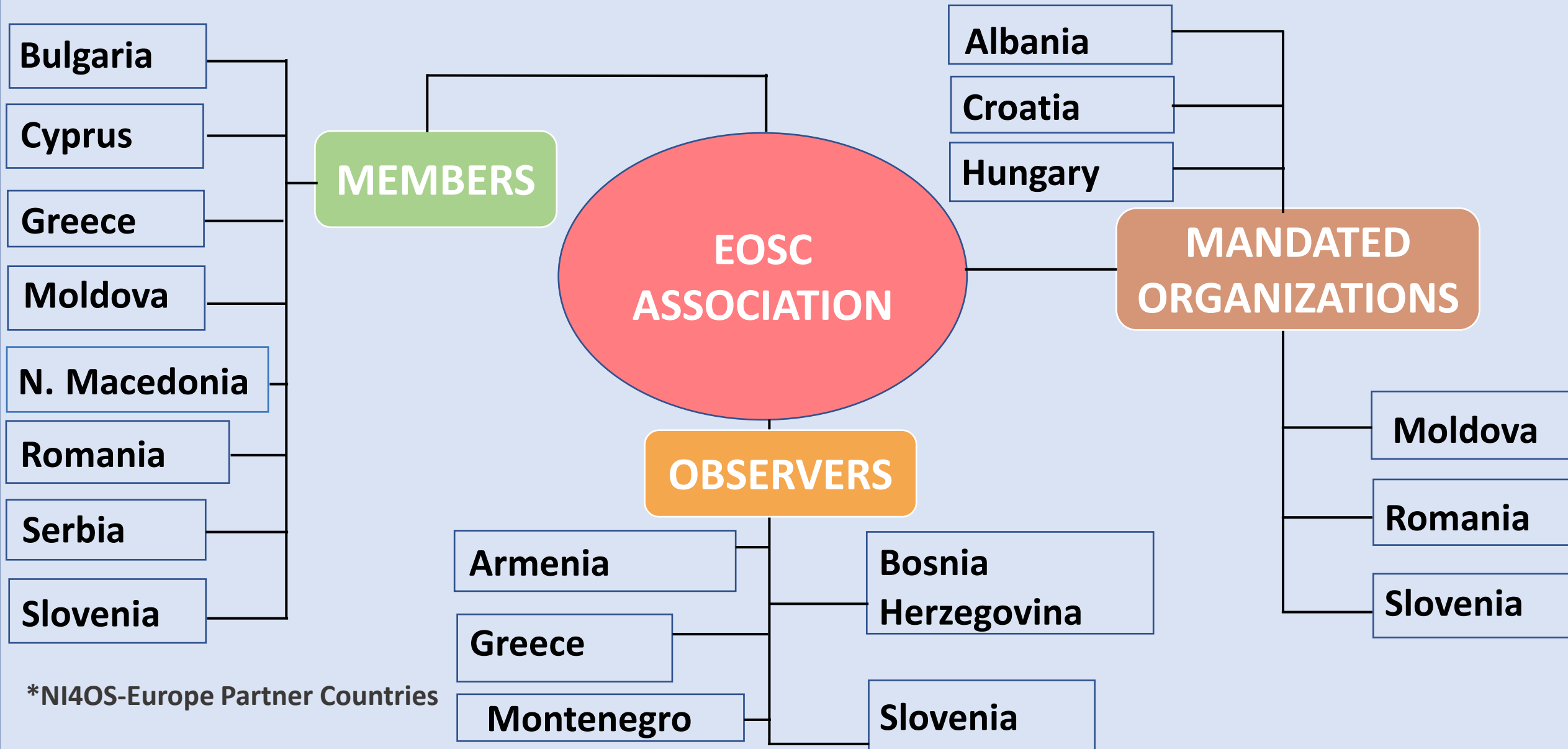
NI4OS-Europe participation in the Advisory Groups

Implementation of EOSC	srce · ICI (National Institute for Research & Development in Informatics, ICI Bucharest) · University of Belgrade · grnet · ATHENA (Research & Innovation Information Technologies) · Ss. Cyril and Methodius University in Skopje
Metadata and data quality	srce · ATHENA (Research & Innovation Information Technologies)
Research careers and curricula	University of Debrecen · University of Maribor (University of Maribor Library) · Ss. Cyril and Methodius University in Skopje · uefiscdi (Executive Agency for Higher Education, Research, Development and Innovation Funding)
Technical challenges on EOSC	IP8 (Institute of Physics Belgrade) · grnet · srce · KIFÜ · IICT
Sustaining EOSC	srce · GRENA (Georgian Research and Educational Networking Association)

NOSCIs: tangible outcomes & EOSC-A representation

Set-up approach

Top-down

Cyprus
Slovenia

Bottom-up

Armenia, Georgia,
Montenegro

Hybrid

Albania, Bosnia-Herzegovina,
Bulgaria, Croatia, Greece, Hungary,
Moldova, North Macedonia,
Romania, Serbia

Governance model
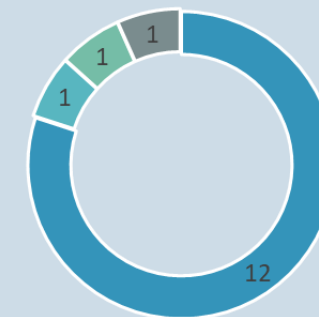
■ Consortium   ■ Single organisation   ■ Other   ■ N/A

> 150 official members (organisations)

> 2100 attendees in national events

MoU status

11 MoUs signed

3 MoUs under preparation

1 no MoU – official announcement

NI4OS-Europe region in EOSC-A

6   Mandated organisations

8   Members

5   Observers

EOSC implementation: Regional projects

Partnering for Open Science in SEE

Operators of services for research & technology

NI4OS

Open Science communities & infrastructures

Policies | Governance | Inclusion

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

Training | Research Communities Engagement | Awareness

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

Service Development |Technical Support

Provide technical and policy support in on-boarding of the existing and future service providers into EOSC, develop services supporting ORDM and FAIR

Supporting FAIR & OS across research communities

Tools

Addressing principles; focus on legal aspects and EOSC

- LCT- License Clearance Tool

  ↗ https://lct.ni4os.eu/

- RoLECT - EOSC RoP Legal & Ethics Compliance

  ↗ https://rolect.ni4os.eu

- RePol – Repository Policy Generator

  ↗ https://repol.ni4os.eu

Training

Promoting practices and skills – uptake

- Network of trainers

- Resources on Open and FAIR RDM

  FAIR Maturity Model, FAIRify, ORDM training, ...

- Supporting material

  Translations, guidelines, incentives

Onboarding

Applying principles in practice – implementation

- Pre-production environment

  AGORA, ARGO, AAI

- On-boarding support

  generic & thematic services and repositories

- Demonstrators

  4 scientific communities

- Service Catalogue

  ↗ https://catalogue.ni4os.eu

Community

Creating awareness; building capacity

- NOSCIs

  OS stakeholders in each country supporting EOSC governance

- Network of EOSC promoters

  EOSC ambassadors highlighting on the ground FAIR & OS

- Network of translation officers

  Speaking FAIR and OS in national languages

National Open Science Cloud Initiatives (NOSCIs)

- Living national OS ecosystems that support the EOSC Governance

- Embrace diversity and OS maturity of countries and are inclusive in terms of participation of OS stakeholders

- Keep national stakeholders up to date with EOSC developments and spread awareness
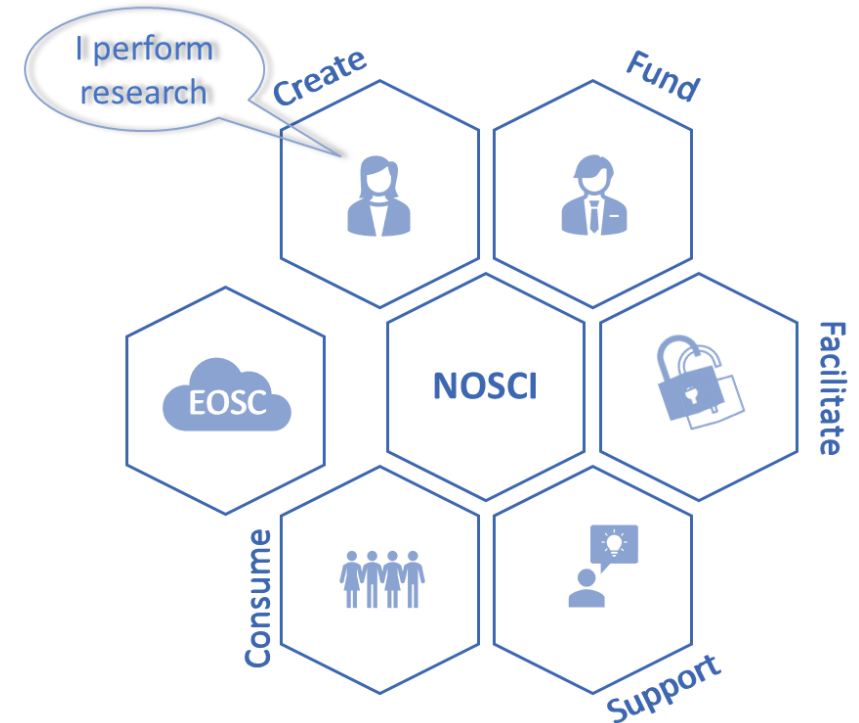
NOSCIs: the process

Landscaping

Modelling

Setting up

Training, liaison, collaboration

Monitoring and assessment

NOSCIs

National level

International level

EOSC

NOSCIs establishment Toolbox

Modular methodologies and workflows

- Blueprint (NI4OS-Europe D2.2)

- Checklist - Workflows for setting up NOSCI

- Checklist - Indicators for the NOSCI's establishment

- Operational aspects and sustainability (NI4OS-Europe D2.5)

- Workflow examples

- Training material & events

D2.2 National OSC initiatives model

Incentives & Rewards for supporting Open Research Data Management and FAIR

How to support EOSC – Incentives List
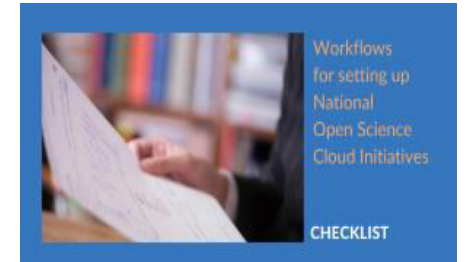
Workflows for setting up NOSCI
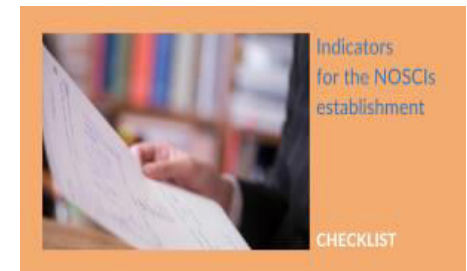
Indicators for the NOSCIs establishment

ORDM & FAIR: Guidelines and Incentives
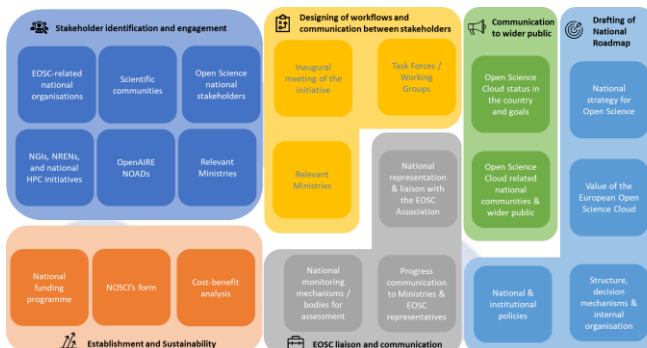
NOSCIs: tangible outcomes

Already Established: 12 NOSCIs

- 2022
- Bosnia & Herzegovina NOSCI
- Workflow: Hybrid

Bosnia-Herzegovina

- 2021
- National Initiative for Open Data and Cloud Computing (BgI-ODCC)
- Workflow: Hybrid

Bulgaria

- 2021
- Croatian Open Science Cloud Initiative (locally HR-OOZ initiative)
- Workflow: Hybrid

Croatia

- 2022
- Cyprus Open Science Initiative
- Workflow: Top-down

Cyprus

- 2021
- Georgian Open Science Cloud Initiative (GOSCI)
- Workflow: Bottom-up

Georgia

- 2022
- Hellenic Open Science Initiative (EPAE-HOSI)
- Workflow: Hybrid

Greece

- 2021
- Nyílt Tudományos Fórum (Open Science Forum)
- Workflow: Hybrid

Hungary

- 2020
- National Open Science Cloud Initiative in Montenegro (NIOON)
- Workflow: Bottom up

Montenegro

- 2021
- National Open Science Cloud Initiative in North Macedonia (NOSCI.MK)
- Workflow: Hybrid

North Macedonia

- 2021
- Romanian Open Science Cloud Initiative (RO-NOSCI)
- Workflow: Hybrid

Romania

- 2020
- Team for Open Science in Serbia (TONus)
- Workflow: Hybrid

Serbia

- 2021
- Slovenian Open Science Community
- Workflow: Top-down

Slovenia

NOSCIs: tangible outcomes

In progress of establishing: 3 NOSCIs

- Set-up in progress
- Workflow: Hybrid
- Foreseen: 2022

Albania

- Set-up in progress
- Workflow: Bottom-up
- Foreseen: 2022

Armenia

- Set-up in progress
- Workflow: Hybrid
- Foreseen: 2022

Moldova

https://ni4os.eu/15-national-osc-initiatives/

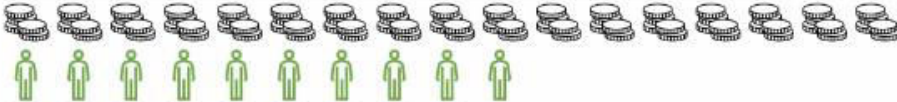| Country	OS Policy/Plan	EOSC-A	NOSCI
Albania	In progress Open Access Policy Regulation document Database for Archiving and Publication of Research Funds and Programs in Albania	Mandated Member RASH	In progress
Armenia	In progress Strengthening Research Management and Open Science Capacities of HEIs in Moldova and Armenia	Observer IIAP NAS RA	In progress
Bosnia-Herzegovina	In progress Action plan of the council of ministers of Bosnia and Herzegovina for the implementation of the initiative "Open Government Partnership"	Observer UNIBL	✓
Bulgaria	✓ National Open Science Plan for Bulgaria (2021)	Mandated Member NACID	✓
Croatia	✓ Croatian Open Access Declaration (2012) Croatian Act on Scientific Activity (to be adopted)	Mandated Member SRCE	✓
Cyprus	✓ OA/OS policy (2016) National Policy of the Republic of Cyprus for Open Science Practices (May 2022)	Member European University Cyprus	✓
Georgia	In progress Policy to define clear steps for the dissemination of and open access to scientific publications	No	✓
Greece	✓ National Open Science Plan – 2020 Digital Transformation Strategy - 2021	Member GRNET-ATHENA-OpenAIRE Observer NCSRD-JNP-FORTH	✓

Credit: Ilias Papastamatiou
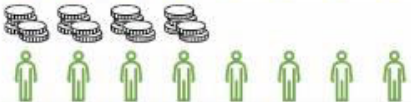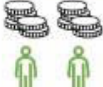
Country	OS Policy/Plan	EOSC-A	NOSCI
Hungary	✓ Open Science /FAIR data policy	**Mandated Member** **KIFU**	✓
Moldova	✓ Code on Science and Innovation (2004 and amendments in 2018) Declaration on Open Science (2018) National Strategy for the Development of the Digital Moldova Information Society (2020)	**Mandated Member** **IDSI** **Member** **NARD**	**In progress**
Montenegro	✓ Programme of Implementation of Open Science Principles in Montenegro with the Action Plan (2020–2022) - 2020	No	✓
North Macedonia	In progress OS/OA policies upcoming to the ESFRI and other related roadmaps	**Member** **FCSE, UKIM**	✓
Romania	✓ National Action Plan 2018-2020 for Open Government Partnership (NAP 2018-2020)	**Mandated Member** **ICI Bucharest** **Member** **UEFISCDI**	✓
Serbia	✓ OA/OS policy in place, adopted in 2018 Open Science Platform and the inclusion of Open Science in the Law on Science and Research (2019)	**Member** **IPB**	✓
Slovenia	✓ OA/OS policy in place adopted in 2015 The new Resolution on Research and Innovation Strategy of Slovenia 2021–2030 and its related Action Plan – in progress (in progress)	**Mandated Member** **ARNES** **Member** **NIB University of Maribor**	✓

Impact of NOSCIs

- Strong collaboration at regional level
- Exchange of best practices related to OS
- Training of a respectable number of individuals on OS / FAIR / EOSC
- Development or update of official OS Policies in majority of SEE countries
- National OS plans in several countries
- Alignment of national policies at EU level
- Support to be at the same pace across the region, while respecting national frames
- Harmonisation and consolidation within the national OS ecosystems
- Encourage broader use of EOSC available resources

Towards sustainability: Additional Activities Plan

Total= 312 M€, 1468 FTEs

Category	M€	FTEs
Category 1. Support to additional R&I	132.1 M€	311 FTEs
Category 3. Demonstrators	63.9 M€	105 FTEs
Category 7. Supporting ecosystem development	33.8 M€	328 FTEs
Category 6. Contribution to the development of new standards, regulations, and policies	30.6 M€	305 FTEs
Category 5. Training & skills development	25.8 M€	254 FTEs
Category 9. Other	16.8 M€	88 FTEs
Category 8. Communication, dissemination, awareness raising, citizen engagement	5.5 M€	55 FTEs
Category 2. Scale-up of technologies	2.8 M€	17 FTEs
Category 4. Creating new business opportunites	0.7 M€	5 FTEs

- Survey among the EOSC-A members
- Total value of Additional Activities Plan 2022: €312 million
- In-kind and financial contributions of the EOSC-A Members foreseen in the Additional Activities Plan 2022

https://eosc.eu/sites/default/files/2022-05/AAP_2022_EOSC_A.pdf

The way forward

- Effort still need needed to persuade stakeholders to embrace OS – significant contribution thus far by regional projects

- Regional initiatives (NI4OS-Europe) and national engagement are important for alignment with EU efforts and EOSC capacity building

- Tangible results achieved thus far, a solid basis for future activities

- Inclusiveness at national and regional level: paradigm change and driver of change

Thanks!

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Join NI4OS-Europe Community:
https://ni4os.eu/contact-us