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povezujemo znanje

The Czech road towards the EOSC

Luděk Matyska

CESNET and Masaryk University

Czech Republic

eosc

EURO SLING

2025 mesec znanosti

SLOVENSKA SKUPNOST ODPRTE ZNANOSTI

Key players and initial steps

- Large national research e-infrastructure e-INFRA CZ
    - CESNET
    - CERIT-SC/Masaryk University
    - IT4Innovations/Technical University Ostrava

- Participated in EOSC related activities/EU projects since the beginning

- Ministry of Education, Youth and Sports (MEYS)
    - Started discussion with e-INFRA CZ in 2021 about official support for EOSC implementation in CZ
    - Agreed on an **Architecture for EOSC implementation in Czechia**

- Allocated 120 M€ for the period of 2023-2028 through National Development Funds

Project and support ecosystem

CARDS (**NTK**) – 2023-2028

    primary library Platform for Next Generation (PNG); Metadata and PID support

EOSC-CZ (**MU**, CESNET, VSB-TUO) – 2023-2028

    EOSC CZ strategic project, overseeing the whole EOSC implementation in Czechia

    EOSC CZ Secretariat and Training Centre; NMA, base AAI architecture, fast data transfers

    Support for EOSC CZ Working Groups

NRP for Research Data (**CESNET** et al; 10 members of the consortium) – 2024-2028

    The core of EOSC CZ implementation;

OS II (**UK** et al; 10 members of the consortium/different from NRP one) – 2025-2028

    Research oriented, 20+ supported thematic repositories, evolved around the EOSC CZ WGs

OS III in preparation, targeting primarily those not participating in projects above

    Uptake and institutional development

Projects Timeline

	2023	2024	2025	2026	2027	2028	2029

Systemic Project EOSC CZ (2023–2028)

Systemic Project CARDS (2023–2028)

First Open Science Call: Single Project of National Repository Platform (NRP) (2024–2029)

Second Open Science Call: Project(s) for Thematic Domain Clusters (2025–2029)

Third Open Science call: Development of Human Competencies (2026–2029)

Architecture
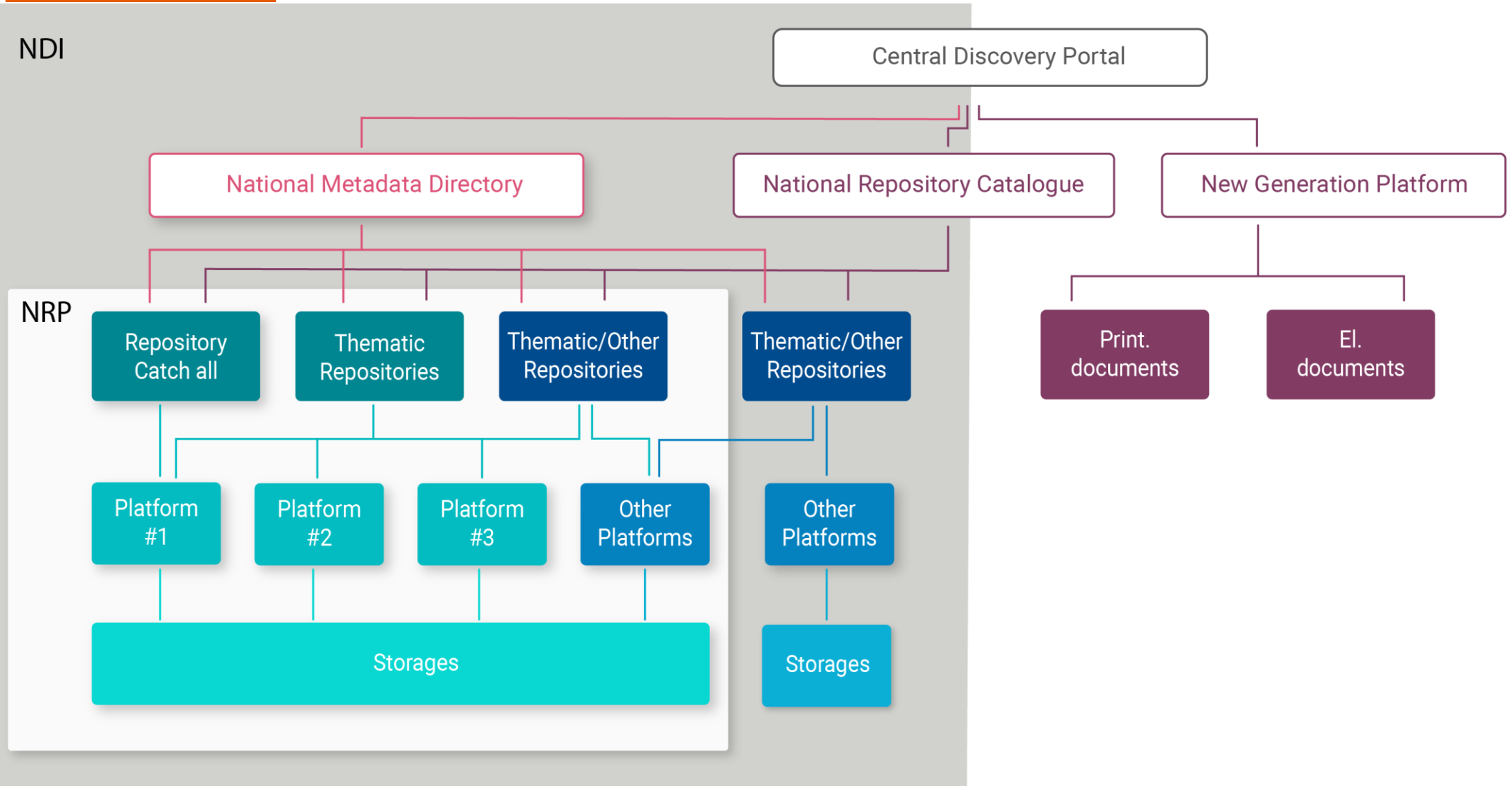
National Repository Platform – tangible support

Raw storage capacity, object storage and repository systems

The place where data is stored

Several layers – from hardware through storage, repository software to repositories and their interfaces

Hardware

4-5 geo-distributed nodes (Prague, Brno, Olomouc, Ostrava)

First two nodes operational at the beginning of 2025 (now)

Tens of PB usable capacity

Object storage Ceph (S3)

Replication, High availability

Three supported repository systems – **CESNET-Invenio, CLARIN DSpace, ASEP/ARL**

Other repository platforms/architectures can be added by future repositrory owners
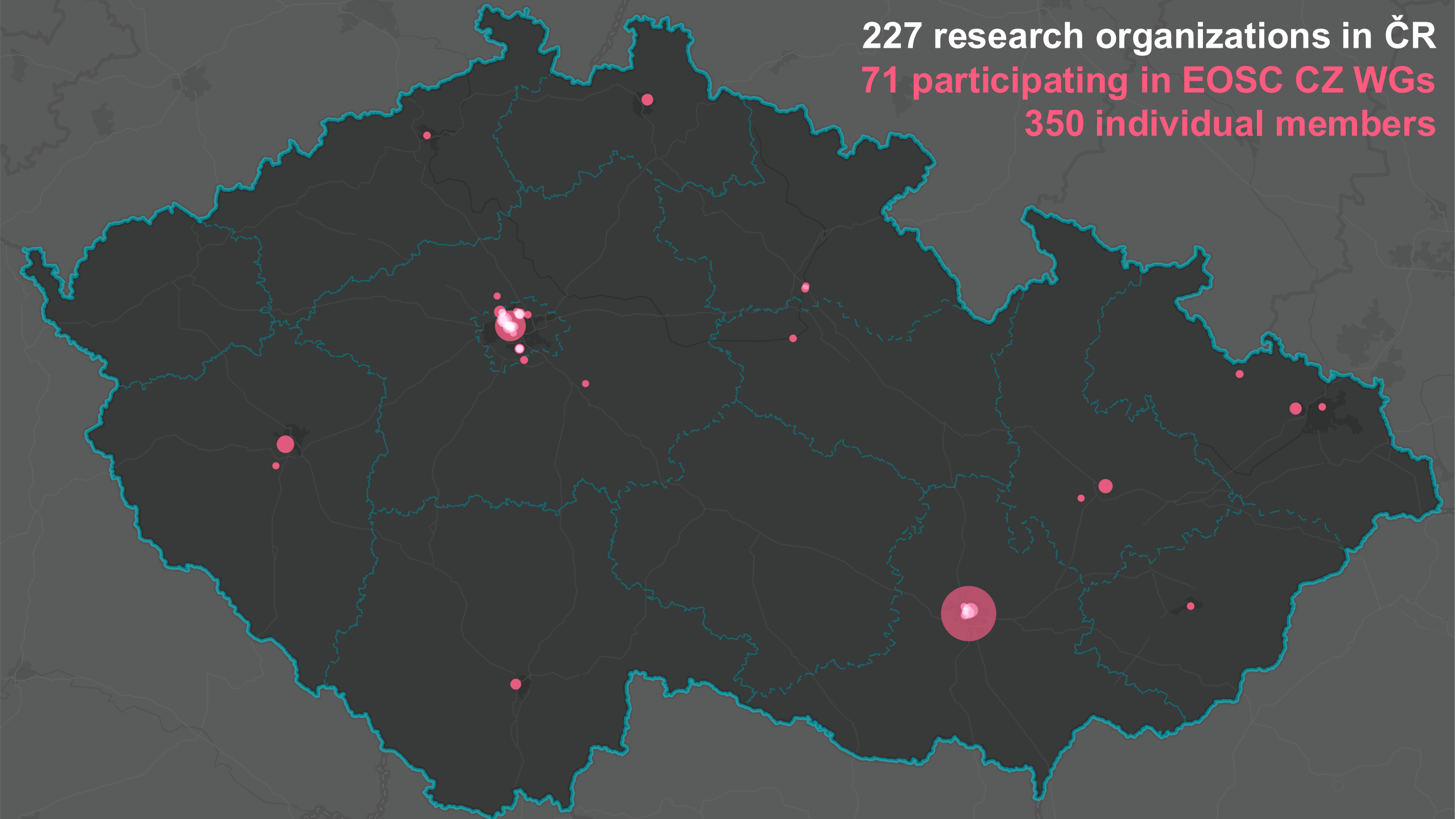
EOSC CZ Working Groups

4 Cross-cutting

    Architecture

    Metadata

    Core Services

    Education and Training

8 Thematic

    Bio/Health/Food

    Social Sciences

    Humanities and the Arts

    Physics

    Environmental Sciences

    Material Sciences and technology

    Data management for AI and ML

    Sensitive data

In total around 350 hundred scientists, data stewards, project administrators and others from 71 institutions across country participating

227 research organizations in ČR
71 participating in EOSC CZ WGs
350 individual members

Open Science II Project (OS II)

Built around the Thematic Working Groups

Aims to build and/or maintain repositories and to support direct research data manipulation

Repositories in NRP are primarily supported, including transfer to NRP

Data FAIRification, transfer to repositories

Also development of more specific tools and methods

Including advanced portals, analysis environments

Repositories storing sensitive data

Specific tools, key manipulation, legal support, …

The project just started

CZECH DATA REPOSITORIES

IMAGING · BIOPHYSICS · MOLECULAR BIOPHYSICS · AGROFOOD · BIO/CHEM · OMICS · ARCHAEOLOGY · CORPUS · BIBLIOGRAPHY · FUNGI · PHENOTYPE · BIOIMAGING · SENSITIVE SOCIAL DATA · SOCIAL · MAPS AND DATA · PLANTS · ISOARCH · SIMULATIONS · MATERIALS · AI · LINGUISTIC · GENASIS · BIODIVERSITY · PLASMA · DUNE · LASER PHYSICS · OBSERVATORY · CRYSTALOGRAPHY · ARCHEO VAULT · ARTS · ZOOLOGY · EXPOSOME · BIOMONITORING · LAUEDB · TELESCOPE · SENSORS · SOLAR · ARCHAEOMAPS · REPO CZ

From EOSC CZ implementation towards EOSC CZ Node

CESNET participates as a subcontractor in LOT1 and LOT3 of the EOSC EU Node

Removed from the first wave of EOSC Nodes

Plan to apply in the current second wave

Vision: EOSC CZ Node as an entry point into the EOSC CZ ecosystem

Governance: e-INFRA CZ led by CESNET; other partners in discussion

Services:

e-INFRA CZ services at its core

services under development in EOSC CZ project ecosystem

selected thematics repositories

EOSC CZ Node under preparation

Core services

- Scalable storages (object, block, archive, repositories) with storage capacity for national users

- Sync & share data (OwnCloud/NextCloud)

- Compute (HPC - CPU/GPU, cloud, Kubernetes) plus platforms: JupyterNotebooks, Galaxy,…

- LLM-as-a-Service (OpenAI-style API)

Additional services under discussion

- Thematic data repositories from EOSC projects

- Sensitive Cloud – our TRE solution

- LifeScience AAI (single-sign-on, federated identities, support for sensitive data) --> customizable

- Services from EuroHPC world – IT4Innovations Lexis portal

- Services from CZ ESFRI/ERIC (ELIXIR, ELI, ELTER, EIREENE)

Some reflections from EOSC Steering Board (unofficial)

The key question – EOSC fate in the 10FP

Options under discussion:

Some form of explicit support for EOSC – Partnership, Joint Undertaking

Different conditions and legal forms (still under development for 10FP)

Explicit national upfront funding (details not clear yet)

Will guarantee dedicated EOSC and MS funding and political support through 10FP

Workprogramme based support – open calls when and how needed

No explicit a-priory political support and funding guarantees

Also important:

Co-fund action HORIZON-INFRA-2027-01-EOSC-01 "Expanding and deepening the EOSC Federation"

MREŽA ZNANJA
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Thank you !

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