



EOSC and the e-infrastructures for R&E in Hungary

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ICT and Data infrastructures - 2019

Common ICT demands of research and education (data infrastructures):

- objects: data
- tools: e-infrastructure services

Traditional diversity:

- disciplinary (thematic) classes of data
- national (local) versions of e-infrastructure services

Recent directions (based on early European initiatives and results):

- demand for openness (opportunity of interdisciplinary data access)
- demand for integration (integrated-shared use of e-infrastructures)

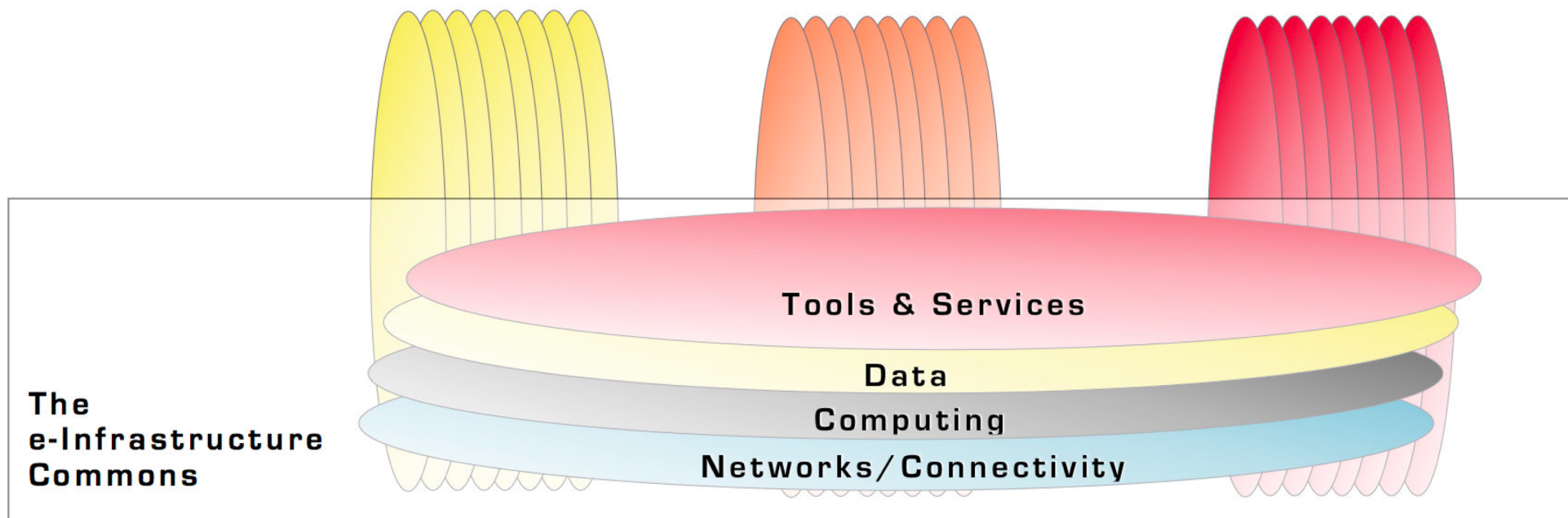
Responses (still in an early phase):

- ERA: European Research Area
- EOSC: European Open Science Cloud

**ESFRI Research
Infrastructures**

**Other Research
Infrastructures**

**International
Research Projects**



Source:e-eirg

EOSC: what, why, how

EOSC goal:

- unified access (one stop shop)
- single entry point (open platform)
- compatible services and data (interoperability)

Openness for new scientific opportunities:

- interdisciplinary search and select
- multidisciplinary combine and compose
- transdisciplinary manipulate and use

EOSC development framework:

- top-down approach
- large scale European treatment
- directed-dedicated project funding

EOSC Status 2019

Structural Framework:

- Governance Board
- Executive Board
- Stakeholders Forum
- Secretariat

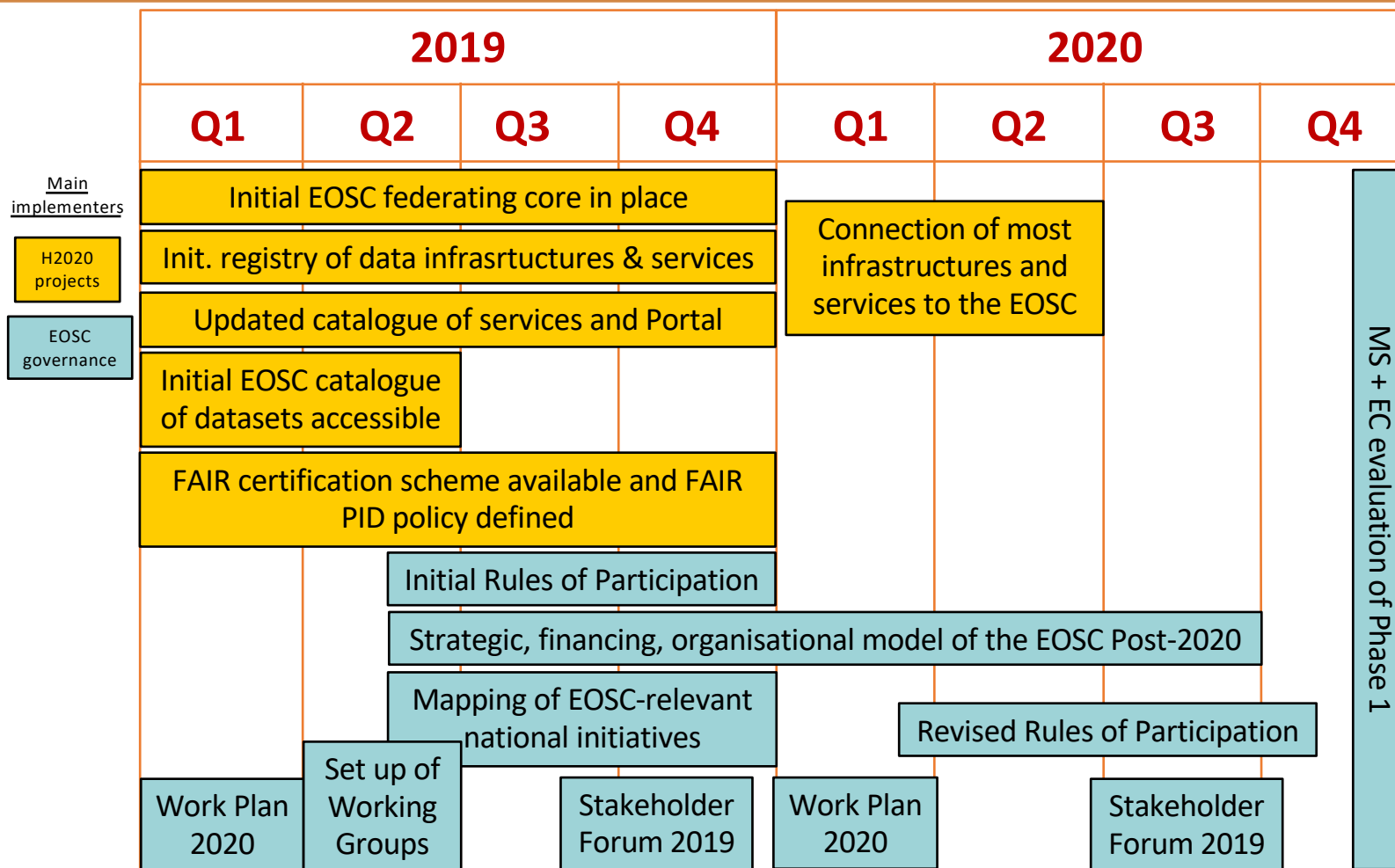
Activities:

- Working Groups (Architecture, Sustainability, Rules, FAIR, Landscape)
- Projects (completed-running-coming)

Major issues:

- Interoperability (compatibility of data infrastructure elements)
- Sustainability (functional, legal, financial, etc. stability)
- National & disciplinary integration
- Users-usage engagement (volume, impact)

EOSC Projects and Governance Timeline





Legal environment in Hungary related to EOSC

Legal framework

- **Act LXXVI of 1999 on Copyright**

Libraries and public collections are required to digitise any items in their collection and freely display them to individual members of the public.

- **Act CCIV of 2011 on National Higher Education amended in 2013**

Mandates open access to doctoral dissertations.

Doctoral dissertations and their abstracts are to be publicly available for all, without restrictions, in both electronic and printed format in the institutional repository and in the library of the awarding institution.

- **NRDI Office introduced an OA mandate in 2014**

The obligation to make publications open access is integrated into the text of the Grant Agreements

Data infrastructure in Hungary with regards in EOSC

2009 - OpenAIRE (Open Access Infrastructure for Research in Europe)

2011-2015 - OpenAIREplus (Infrastructure, interconnect publications, trainings, helpdesk)

2015-2018 - OpenAIRE2020 (support research data management)

2018-2020 - OpenAIRE Advance (National Open Access Desks (NOADs))

2008 – present - HUNOR (HUNGarian Open Repositories) - HUNOR - established by the libraries of Hungarian Higher Education institutions and the Library of the Hungarian Academy of Sciences (HAS) coordinated by the Debrecen University and National Library, which has been serving as NOAD (National Open Access Desk)

Data for EOSC - HRDA

Primary objectives of Hungarian node of Research Data Alliance

- To develop and support the Hungarian RDM community;
- Promote RDA membership;
- To provide a forum for the stakeholders (researchers, IT and other professionals, librarians/archivists etc.);
- Ensure Hungarian participation in RDA's international activities;
- Provide help and consulting for the preparation of research proposals regarding RDM;
- Liaise with different governmental offices and the Hungarian Academy of Sciences;
- Provide support and advice for the standardization of existing data resources locally and at international level;
- Organize local events and trainings in the context of data management and related EU policies;

Source: <https://hrda.hu/>

EOSC and the Hungarian e-infrastructure

Co-existence of living traditions and new directions in Europe:

- European-wide common attitude
- Organic development is crucial (past-present-future transition)
- Smart combination of bold intentions and wise patience needed

Goals in Hungary: saving past values, exploiting new results

- Continuing traditional services and development strategy
- Contributing to EOSC oriented common developments
- Participating in joint experiments and practical pilots

Key activities and highest priorities (on wide EOSC level):

- User involvement in planning and implementing the services
- Preliminary testing of service provision
- Outstanding emphasis on standardization efforts



KIFÜ-NIIF background (HBONE & members)

- ~ 6000 member institutional locations
- ~1.9 million users (including all the schools since 2013)

~ 3500 member institutions

Universities, academic/research institutions

All Primary and secondary schools

Public collections: libraries and museums

Research and educational hospitals

Access speed from 512Kbps to 100 Gbps

Backbone 99% DF with DWDM

Used access technologies: DF, DWDM, E-line, p2p dedicated capacity
microwave, GPON, DOCSIS, xDSL, ISM microwave, VSAT, LTE

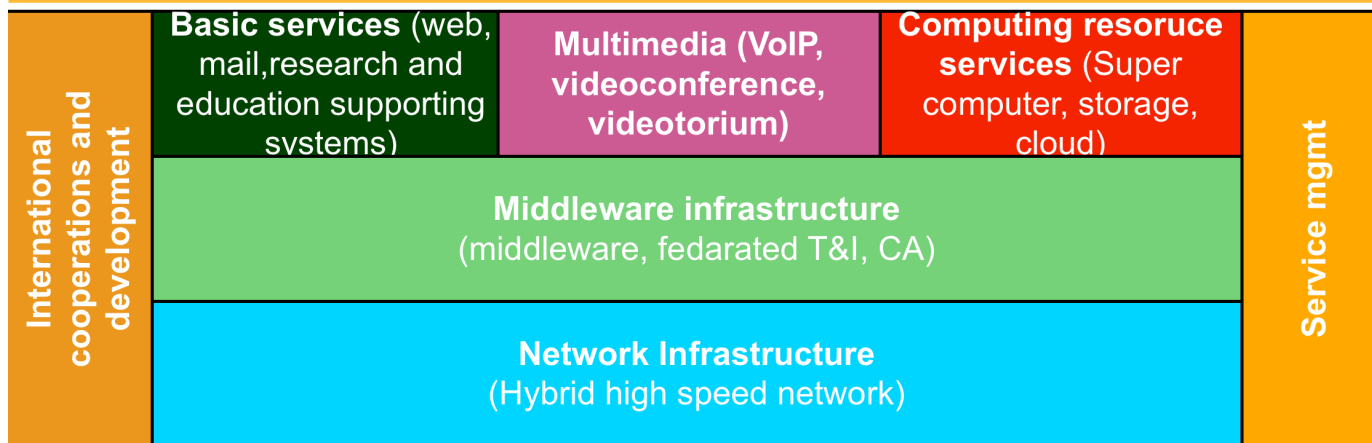
~1000 monitored core devices

~6000 monitored access devices (5/2019)

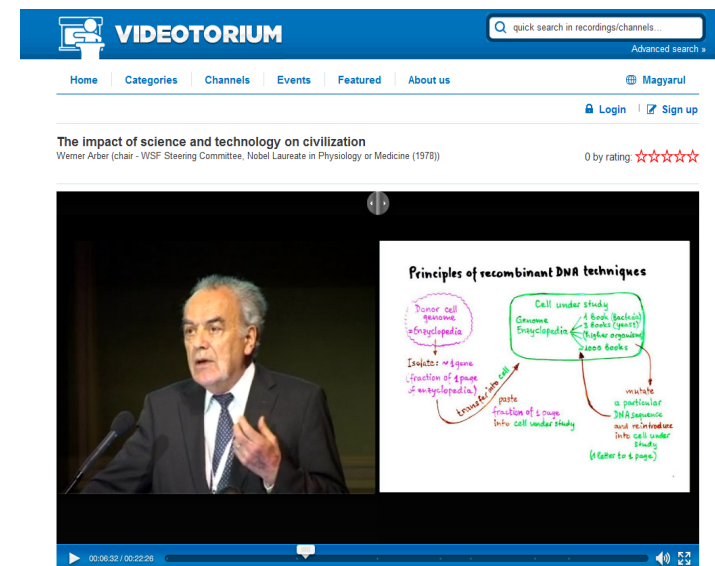


Services and development areas of KIFÜ

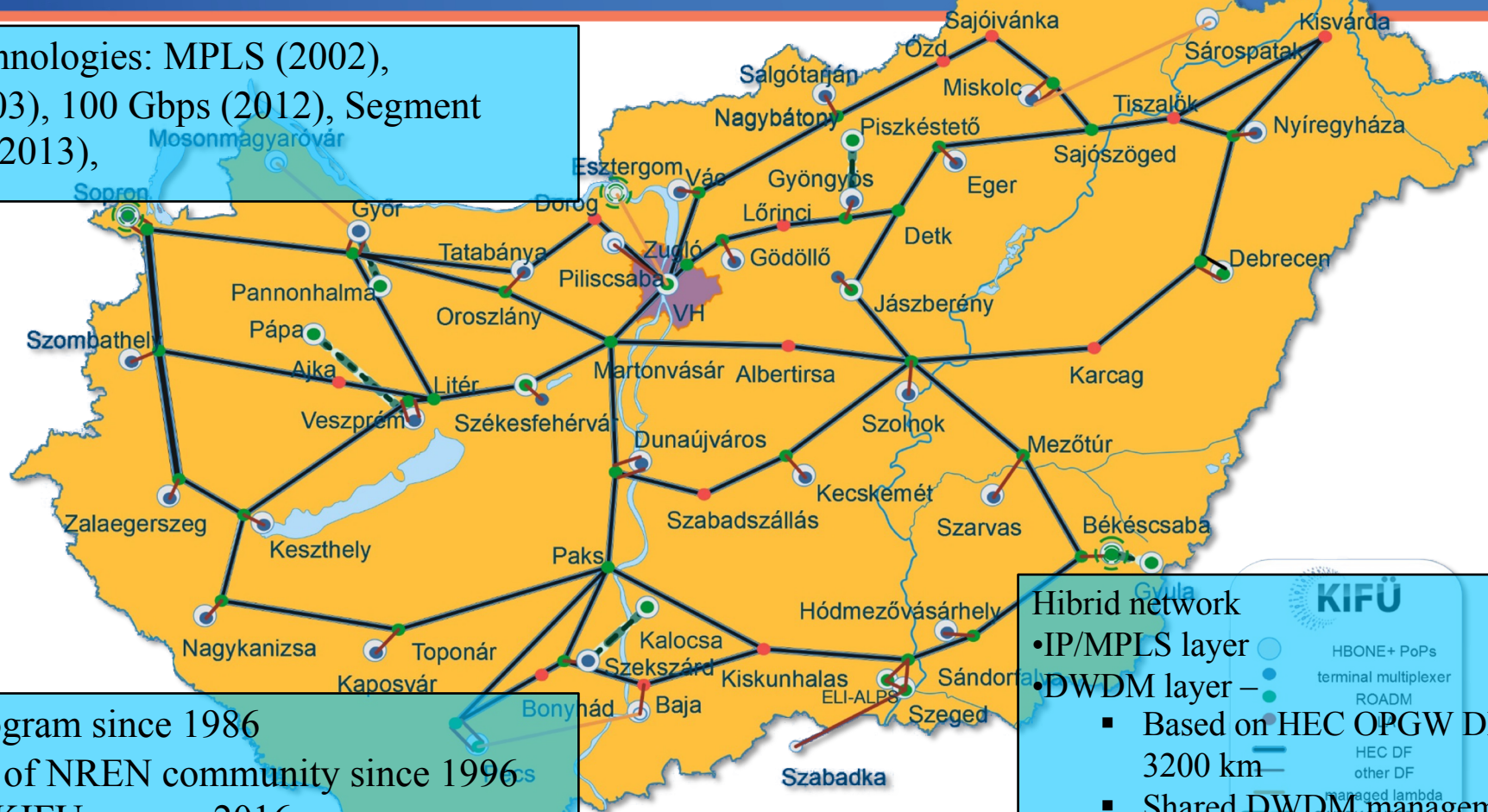
Infrastructure services



- **Network:** HBONE, IPv6, (λ)VPN, multicast
- **Middleware:** Federated AuthN/AuthZ eduID, CA/TCS, eduroam, CSIRT
- **HPC:** Supercomputing, storage, cloud (IaaS)
- **Multimedia:** Videoconferencing, VoIP, Videotorium
- **Applications:**
 - SaaS cloud service: web service, mail services, network mgmt
 - Databases: Hungarian Electronic Library, MOKKA, Subject Gateway (SZEZÁM)



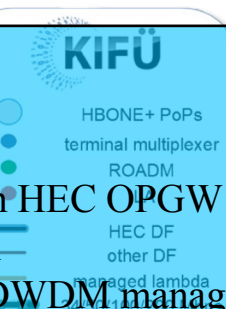
New technologies: MPLS (2002),
IPv6(2003), 100 Gbps (2012), Segment
routing (2013),



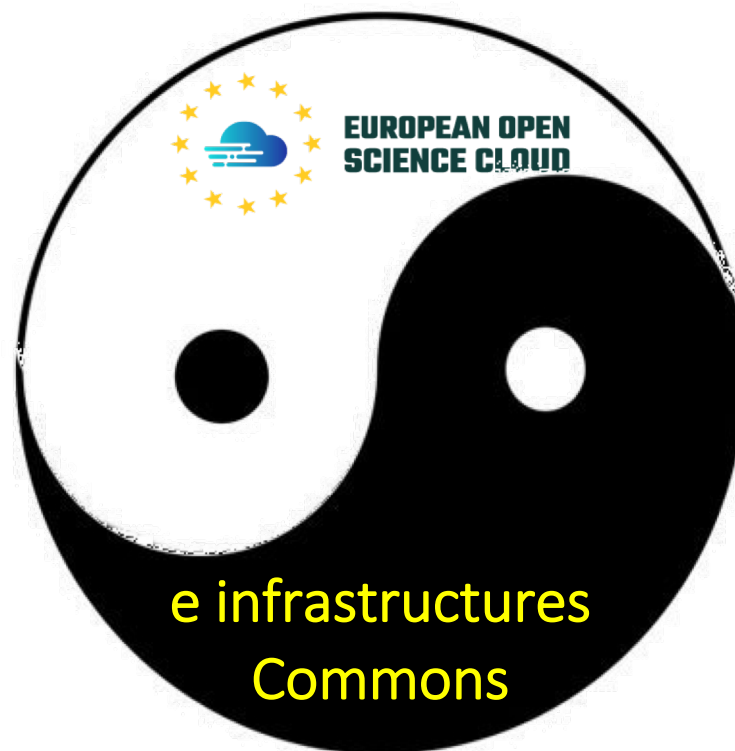
NIIF Program since 1986
Member of NREN community since 1996
NIIFI + KIFU merger 2016

Hibrid network

- IP/MPLS layer
- DWDM layer –
 - Based on HEC OPGW DF since 2009 ~ 3200 km
 - Shared DWDM management with HEC
 - 50Ghz ROADM (colorless, directionless)



The view under discussion in the EOSC EB (Chair and vice-chair)



Source: EOSC EB



EOSC strategy at KIFÜ, the Hungarian NREN

EOSC, with its admirable aims and goals is an attractive initiative for us:

- Major principles are shared by Hungary
- We are highly interested in joining common EOSC oriented efforts

We are prepared to contribute to solve issues needing careful treatment:

- decreasing complexity of EOSC operational structure and governance
- preparing practical user guides, pilots, tests, evaluations
- joining standardization for solving interoperability problems,
- developing usage based business model (focusing on finances),
- participating in clarification of operational plans, responsibilities

EOSC, EuroHPC, DEP, CEF2, etc. are all of high priority at KIFÜ:

- We want to serve all of them (+ our traditional users)
- We urge the NRENs and GÉANT to do that as well
- We offer our humble input to InfraEOSC-03 and -07
- We, however, wish to keep our colourful engagement



- Federation & on-boarding
 - Enrich EOSC catalogue
 - Interoperability between national and EOSC services
 - ORDM practices
 - National repositories and FAIRness
- EOSC Governance
 - Building national OSC initiatives
- Inclusiveness
 - Community engagement

Questions?

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