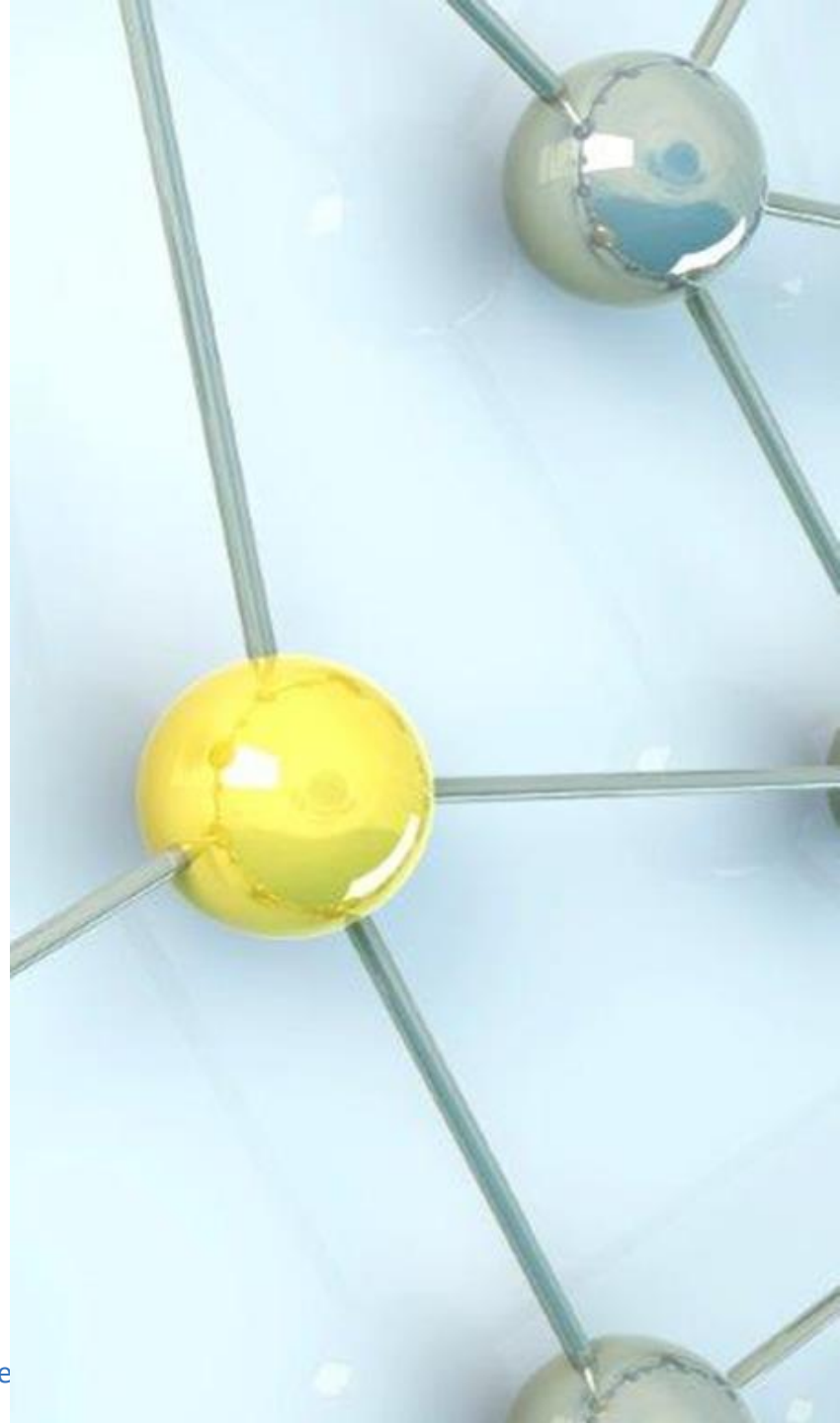




# National Initiatives for Open Science in Europe

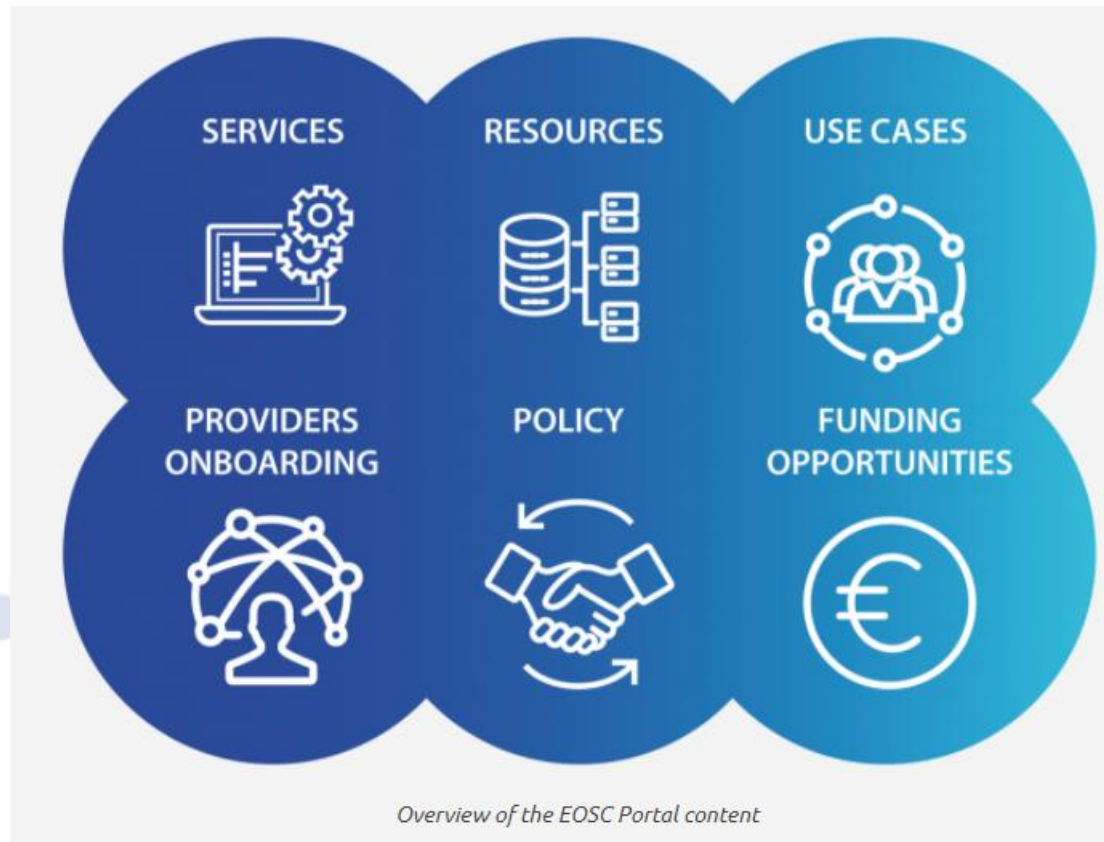
Acces la servicii EOSC.  
Includerea serviciilor în EOSC (on-boarding)

Alexandr Golubev

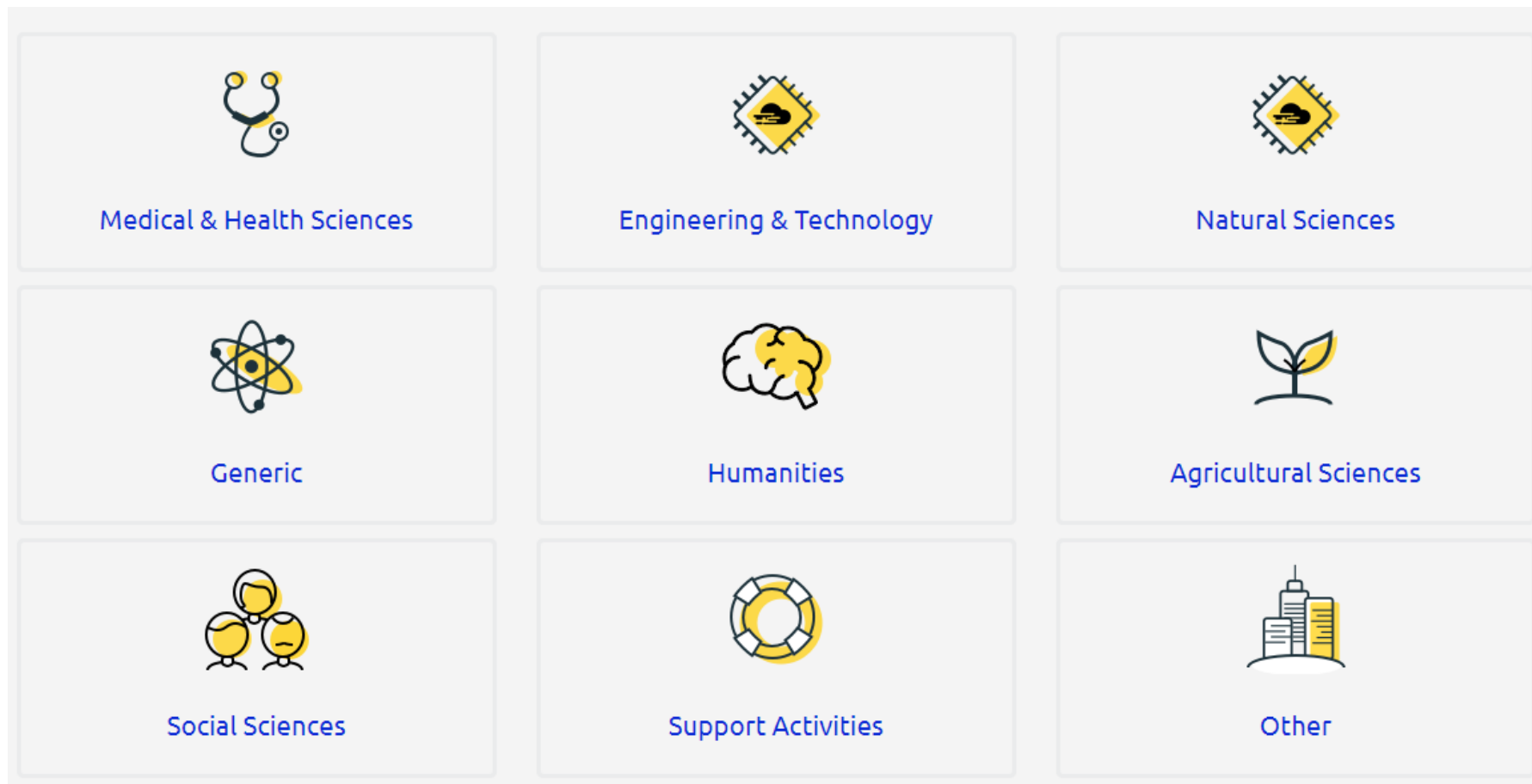


# Access to EOSC services

- <https://eosc-portal.eu/>



# Scientific Domains

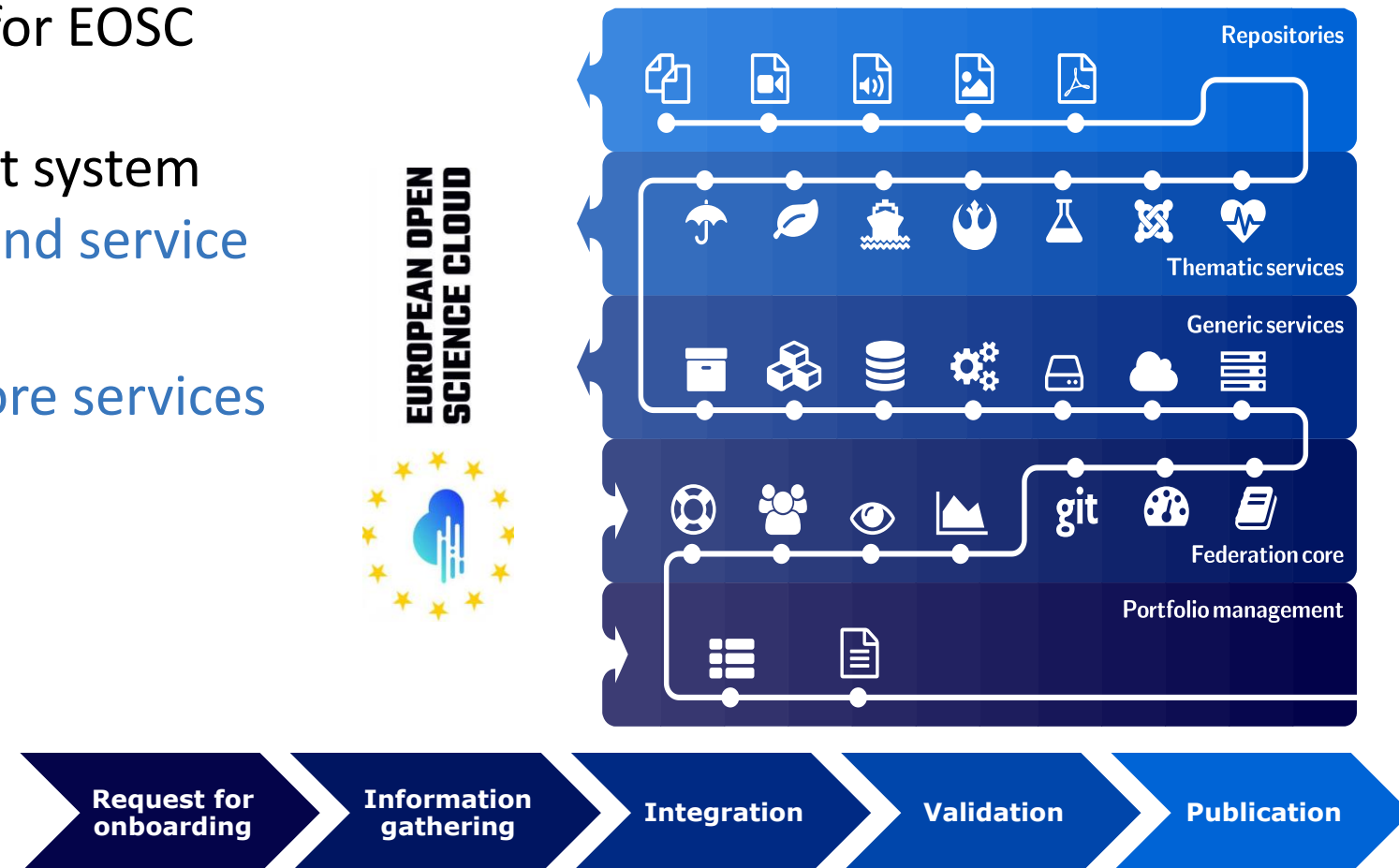


# Categories



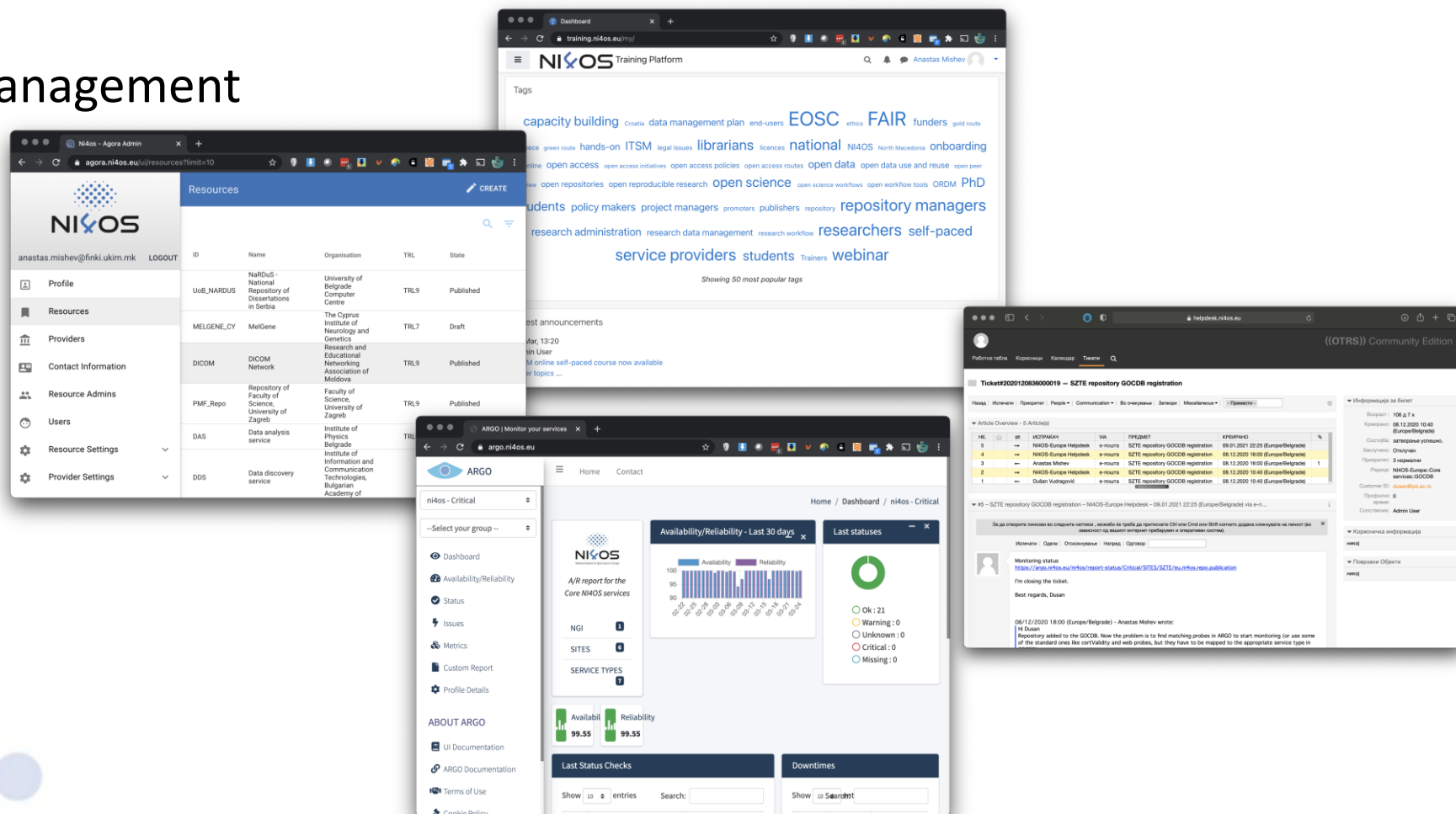
# Service integration and onboarding

- 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





# On-boarded generic services

- HPC resources: CPU, GPU, Xeon Phi
- Cloud Virtual Machines
- Generic Storage
- Data management services
- 14 generic services registered within the AGORA catalogue
- 4 generic services are fully on-boarded



**EXPLORE**  
NI4OS-Europe Catalogue

Generic services

The **PARADOX Hadoop** cluster is designed to overlap computation & data storage operations, i.e., to enable performing of computation on the same machine(s) that store the corresponding data.



**EXPLORE**  
NI4OS-Europe Catalogue

Generic services

**PARADOX-IV cluster** consists of 106 working nodes and 3 service nodes. The total number of new processor-cores in the cluster is 1696. Its peak computing power is 105 TFlops.



**EXPLORE**  
NI4OS-Europe Catalogue

Generic services

**AVITOHOL supercomputer** provides 412 TFlops of performance for diverse scientific and industrial applications.



**EXPLORE**  
NI4OS-Europe Catalogue

Generic services

**FINKI cloud** infrastructure, based on **Openstack**, is hosted on 15 servers, each with 128GB RAM and 20 HT CPU cores, totaling in 300 vCPU cores and 37TB SSD and 32 TB SAS storage.

# Registered Generic Services for Moldova

## ○ **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 l	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.



# On-boarded thematic services

- 14 thematic services **registered** within the AGORA catalogue
- 6 thematic services are **fully on-boarded**

**NI4OS Europe**

EXPLORE  
NI4OS-Europe Catalogue

Thematic Services

**ChemBioServer** is a publicly available web application for effectively **filtering and clustering chemical compounds** used in drug discovery.

entering tools

Drug-like & Lead-like  
Toxicity  
Bad pose  
PAINS  
ADME

Empirical rules

ONBOARDED

**NI4OS Europe**

EXPLORE  
NI4OS-Europe Catalogue

Thematic Services

**Gaussian API** is a service for fitting repulsive potentials in density-functional tight-binding with Gaussian process regression.

ONBOARDED

**NI4OS Europe**

EXPLORE  
NI4OS-Europe Catalogue

Thematic Services

**Schrödinger API** offers advanced methods for solving of **multidimensional time-independent Schrödinger equation**.

ONBOARDED

**NI4OS Europe**

EXPLORE  
NI4OS-Europe Catalogue

Thematic Services

**DREAMM** is a novel web-based tool that **predicts protein-membrane interfaces of peripheral membrane proteins** using ensemble machine learning.

ONBOARDED

**NI4OS Europe**

EXPLORE  
NI4OS-Europe Catalogue

Thematic Services

**NanoCrystal** is a novel web-based crystallographic tool for the **construction of nanoparticles** from any material crystal structure.

ONBOARDED

**NI4OS Europe**

EXPLORE  
NI4OS-Europe Catalogue

Thematic Services

**FEPPrepare** is a webserver, which automates the set-up procedure for performing **NAMD/FEP simulations**.

FEPPrepare

ONBOARDED

# Registered Thematic Services and Repositories

- Thematic services:

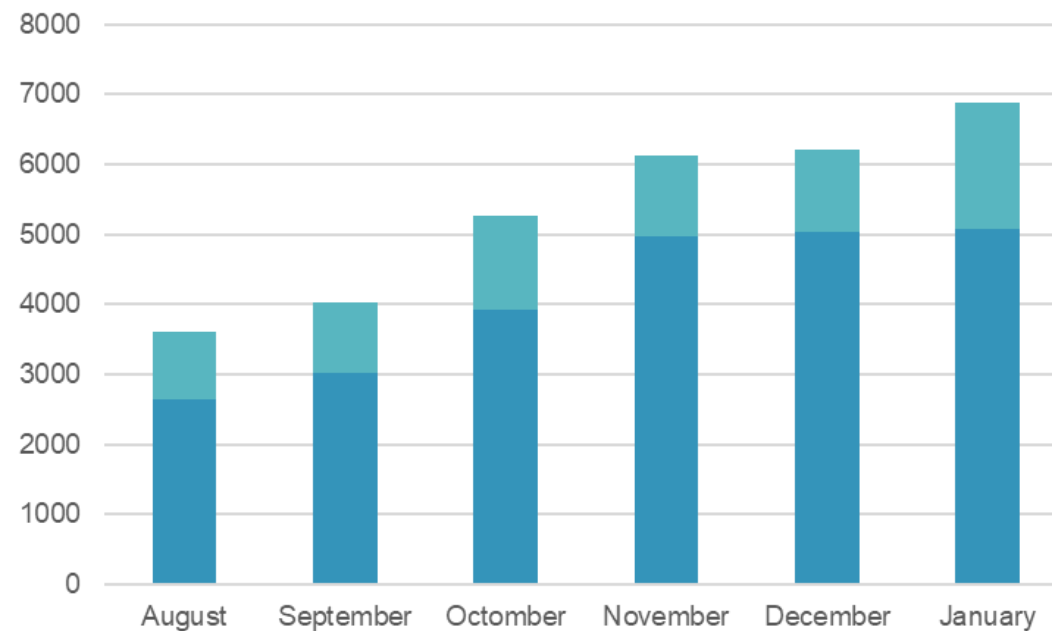
- DICOM Network
- CSIA

- 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.

# On-boarded repositories

- Enhance discoverability (indexed by registries)
- Contribute to OpenAIRE/EOSC Research Graph (OpenAIRE compatibility; information contextualization)
- Enrich collections (Broker)
- Certification (in collaboration with FAIRsFAIR)
- 7 repositories **registered** within the AGORA catalogue
- 2 fully **on-boarded**





# On-boarded pre-production environment



**EXPLORE**  
NI4OS-Europe Catalogue

**Core Services**

NI4OS-Europe **helpdesk** supports **ticket creation & classification** per support unit. It is based on OTRS technology and can be **easily integrated with external resources**.



**EXPLORE**  
NI4OS-Europe Catalogue

**Core Services**


The **ARGO Monitoring Engine** supports monitoring of the **status, availability, and reliability of services** provided in NI4OS-Europe.



**EXPLORE**  
NI4OS-Europe Catalogue

**Core Services**

NI4OS-Europe **accounting system** collects, analyzes & provides information about the **usage of services**, e.g. **HPC usage, storage data, virtual machines data**.



**EXPLORE**  
NI4OS-Europe Catalogue

**Core Services**

**AGORA** is a tool for managing a **"service portfolio"**. It is addressed to the management board of an organization to **oversee all services, tools and products** that it either uses internally or provides to its customers.



**EXPLORE**  
NI4OS-Europe Catalogue

**Core Services**

NI4OS-Europe **training portal** contains material of the project's training events. It also offers **self-paced courses** on **EOSC** related topic.

Services from NI4OS-Europe pre-production environment have been on-boarded

# EOSC candidate repositories: actions



National

- Type of repository (CRIS, registry, database, etc)
- Maturity (in beta vs in production; maintenance, software versions)
- Types of content/ data (literature, data, OER, digitisations, etc)
- Services integrated (internal vs external; PIDs etc)
- Best practices adoption (Open & FAIR, policy, training)

- Enhance discoverability (indexed by registries)
- Contribute to OpenAIRE/ EOSC Research Graph (OpenAIRE compatibility; information contextualisation)
- Enrich collections (Broker)
- Certification (in collaboration with FAIRsFAIR)



Institutional

45 candidates  
Certification  
NOADs cooperation



# 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

This image shows a multi-step form for the License Clearance Tool. The steps are numbered 1 to 6: 1. Resource Information, 2. Licensing In, 3. Licensing Out, 4. Personal Data, 5. Other Rights, and 6. Additional notes and clarifications. The current view is step 3, "Licensing Out". It includes a section for "Compatible Licenses" with a dropdown menu showing "Creative Commons Attribution". Below this is a "Data source Description" field with a URL "https://data.europa.eu/euro". There is also a "URL" field and a "DOI" field. The form is partially obscured by other overlapping windows.

## License Clearance Wizard

The License Clearance Wizard form is a multi-step process with six numbered steps: 1. Resource Information, 2. Licensing In, 3. Licensing Out, 4. Personal Data, 5. Other Rights, and 6. Additional notes and clarifications. The current view is step 5, "Other Rights". It contains several sections for legal considerations: "National legislation limitations", "Statistical limitations", "Confidentiality agreements", "Confidentiality: Describe", "Embargo period for the data?", "Embargo conditions", "National Security limitations?", "National Security limitations: Specify", "Cultural heritage legislation limitations?", and "Cultural heritage limitations: Specify". Each section has a text input field for the user to provide details. The form is partially obscured by other overlapping windows.

# LCT- License Clearance Tool

➤ <https://lct.ni4os.eu/>

- An intuitive tool for content license clearance.
- Automates the clearance of rights (copyright) for derivate works.
- Mitigates legal uncertainty and diminishes costs in the clearance of licensing issues.
- Effectively reduces time to publicly release properly licensed content.
- Mainstreams legal support on usage rights.
- Allows for both free-tier and cost-model based crowdsourced clearance.

The screenshot displays the LCT- License Clearance Tool interface. At the top, a user profile for 'Christos Liatas' is shown with an email address 'cliatas@athenarc.gr' and a 'Save Changes' button. Below the profile, a navigation bar contains six tabs: '1 Resource Information', '2 Licensing In', '3 Licensing Out', '4 Personal Data', '5 Other Rights', and '6 Additional notes and clarifications'. The '1 Resource Information' tab is active. The form below the tabs includes a text area for 'Add any information about the resource you would like to clear its derivate work licenses. Not all fields are mandatory, it is highly recommended, though, that you provide information as possible.' and a dropdown menu labeled 'I am interested in \*' with the option 'Select a resource type'. The bottom section of the interface features a dark blue background with a network diagram and the text 'License Clearance Tool' and 'An easy and automatic approach in license clearance'. On the right side, there is a logo and text stating 'Our wizard guides you through the needed information for clearing your resources, facilitating openness and reproducibility in research.' Below this, there are buttons for 'Login via NI4OS AAI' and 'Explore the tool as a guest user'. At the bottom right, there are links for 'Privacy and Terms of Use' and 'Contact Us'.

# RoLECT - EOSC RoP Legal & Ethics Compliance

➤ <https://rolect.ni4os.eu>

- Guided compliance check for legal and ethics EOSC RoP.
- Targets service providers, researchers and research organizations.
- Mitigates legal uncertainty and ensures compliance with the key legal and ethical aspects.
- Successfully reduces time for compliance evaluations.
- Mainstreams EOSC RoP compliance procedure, tracking changes, identifying and constructing a series of legal and ethical rules.
- Will evolve to automatically check the validity of the provided resources.

The screenshot displays the RoLECT web application interface. At the top, the RoLECT logo is shown, consisting of a network of colored nodes (yellow, blue, green) connected by lines, with the word 'RoLECT' in green text. Below the logo, the text 'EOSC RoP Legal & Ethics Compliance' is displayed. A green button labeled 'Login via NI4OS AAI' is prominent. Below this button, the text 'Explore the tool as a guest user' is shown in orange. The interface also features a sidebar with various navigation options, including 'General', 'Service', 'IPR: Basic', 'IPR: Restricted', 'IPR: License', 'IPR: Open', 'Personal Data', 'Ethics Information', and 'Public Sector Information (PSI)'. The main content area contains a registration form with fields for 'Enter text' and a 'NEXT STEP' button. A calendar widget is visible on the left side of the form.