



PaNOSC Closing Event

Paving the way towards the PaN FAIR Data Commons

29-30 November 2022

Grenoble - France

ELI ERIC Scientific Data Management System & PaNOSC Data Commons

Teodor Ivanoaica

ELI ERIC

Nov 29-30 2022



PaNOSC has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 823852

Outline

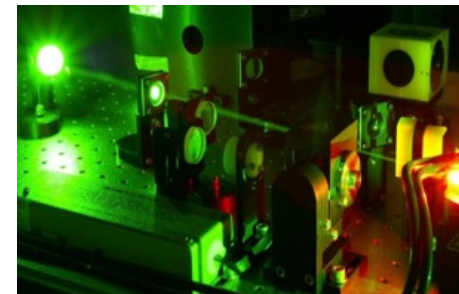
- The ELI ERIC Data Policy and Data Management Plan
- Development of Scientific Data Management Practices
- Development of FAIR Services
- Promoting Open Science by building meaningful Scientific Use Cases
- FAIR data services @ELI ERIC supporting EOSC



**ELI Attosecond Light
Pulse Source**
www.eli-alps.hu



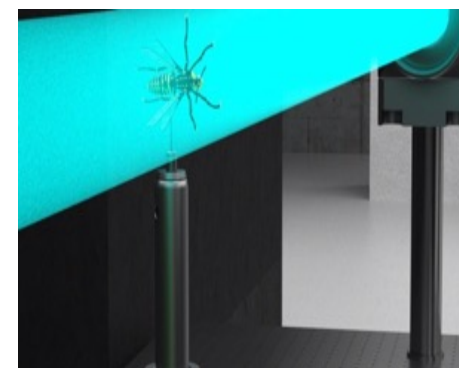
ELI Beamlines
www.eli-beams.eu



Laser Development



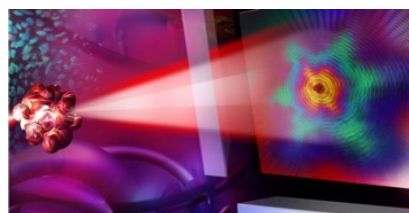
**Plasma Physics and High Energy Density,
Astrophysics, Nuclear Photonics**



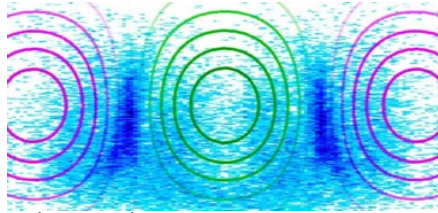
**Radiation Physics and Electron
Acceleration**
Soft to hard x-rays, GeV electrons



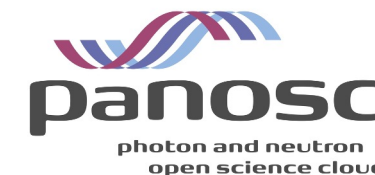
Particle Acceleration
250 MeV Ions Acceleration by lasers



**Applications in Material
Science and Biology**



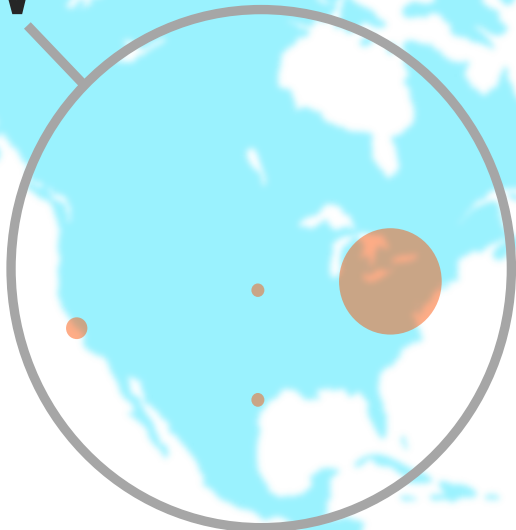
Ultra High Intensity Interactions
High-field physics and theory



Europe leads the world in laser production and installation, especially state-of-the-art systems.

- **Investment** in high-power laser systems in Europe is connected to a **strong and relatively consolidated** community in Laserlab Europe beginning in 2001.
- **The ELI Facilities** are introducing **5 PW+ lasers**, (**3x10PW** and **2xPW@10Hz**) plus a diverse set of leading atto-second high-repetition systems.

7.3 PW



84.1 PW

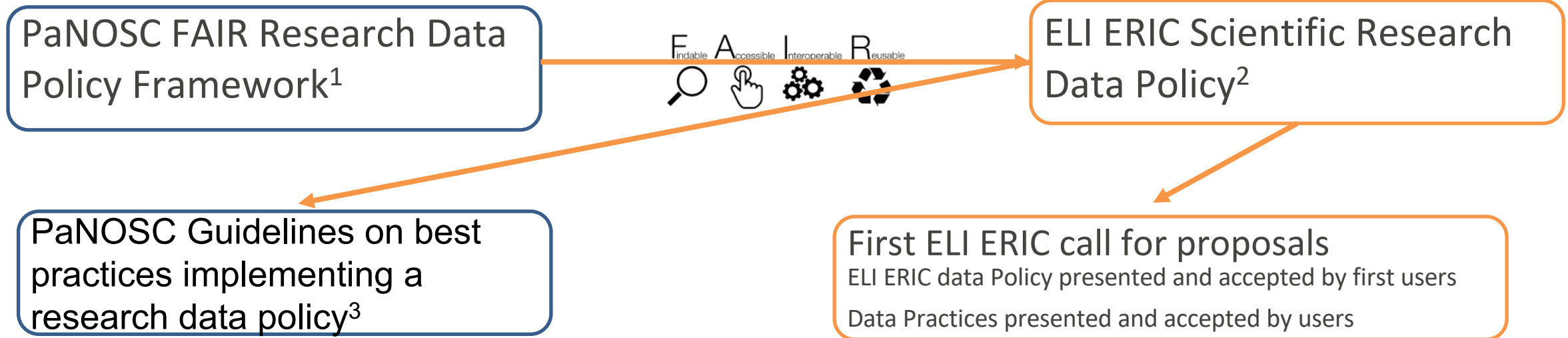


24.7 PW



ELI ERIC Data Policy and DMP Strategy

ELI ERIC Scientific Data Policy



Mission statement:

- Embargo of data and exclusive access for the PI – 3 years (can be extended, if justified/approved by a scientific board or reduced if the PI asks)
- Aim at storing the data for 10 years and metadata forever
- Develop FAIR-by-Design tools and services
- Establish ELI-wide Data and Metadata standards and support their implementation
- Share data as Open Data after the embargo period (3 years)
- Multi-stage DMP – 1st stage via User Portal, second during the experiment preparation, only for approved proposals

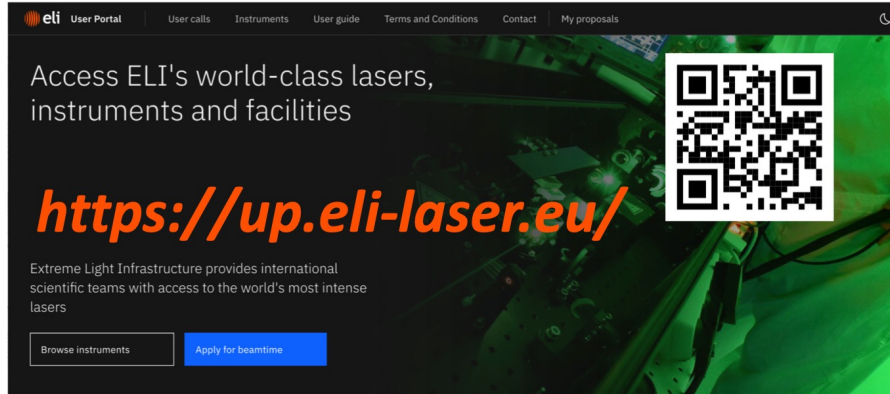
1. PaNOSC FAIR Research Data Policy Framework: <https://zenodo.org/record/3862701#.Y4SQaOzMLso>

2. ELI ERIC Scientific Data Policy: <https://zenodo.org/record/6515903#.Y4SRR-zMLso>

3. Guidelines and best practices on implementing a Research data Policy: <https://zenodo.org/record/4899344#.Y4SS7-zMLso>

DMP and a DMP strategy

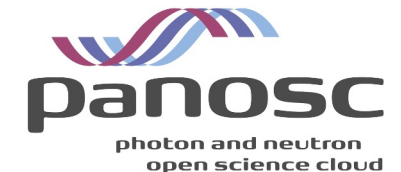
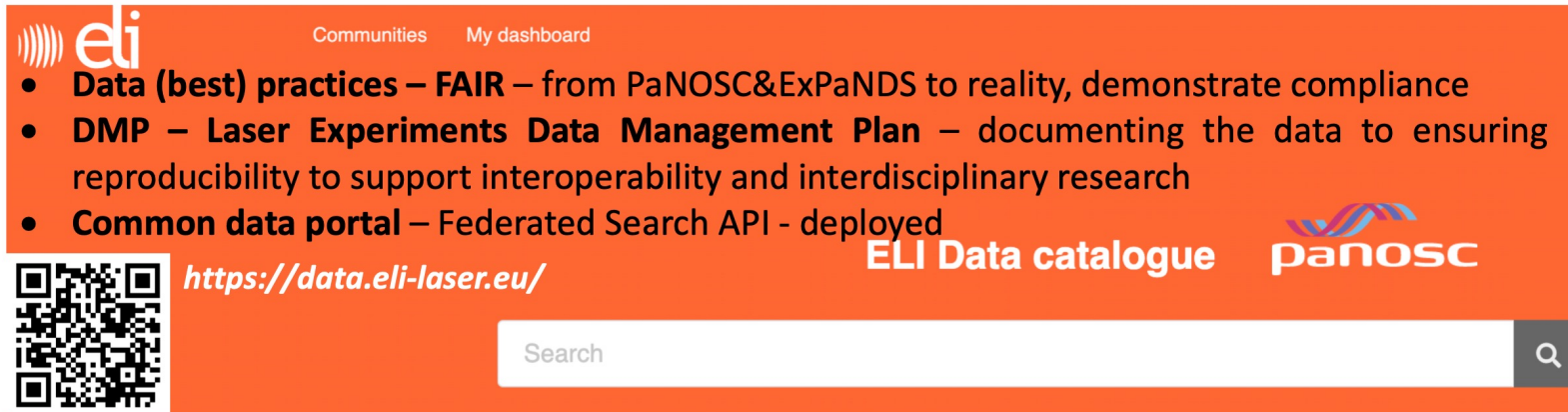
ELI ERIC 1st ELI ERIC Call



- High-level metadata collection
- A multi stage Data Management Approach
 - Stage 1 DMP during proposal submission
 - Stage 2 DMP during the experiment setup (after proposal is approved)
- Initiates and defines Data Lifecycle
- Closes the experiment and enables initiates embargo period



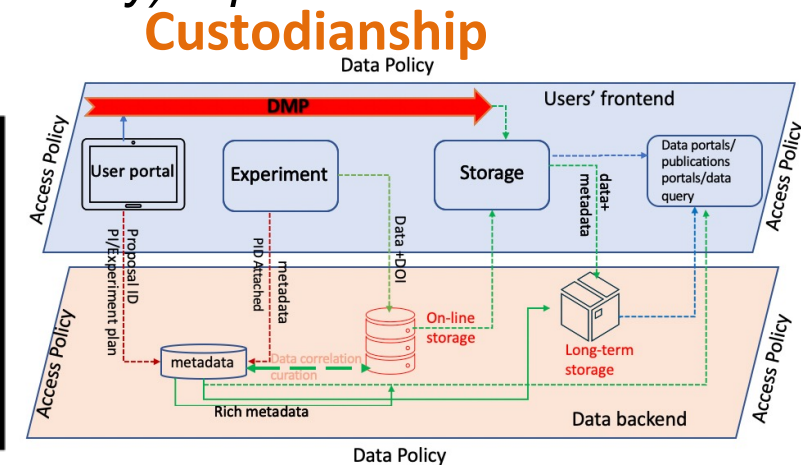
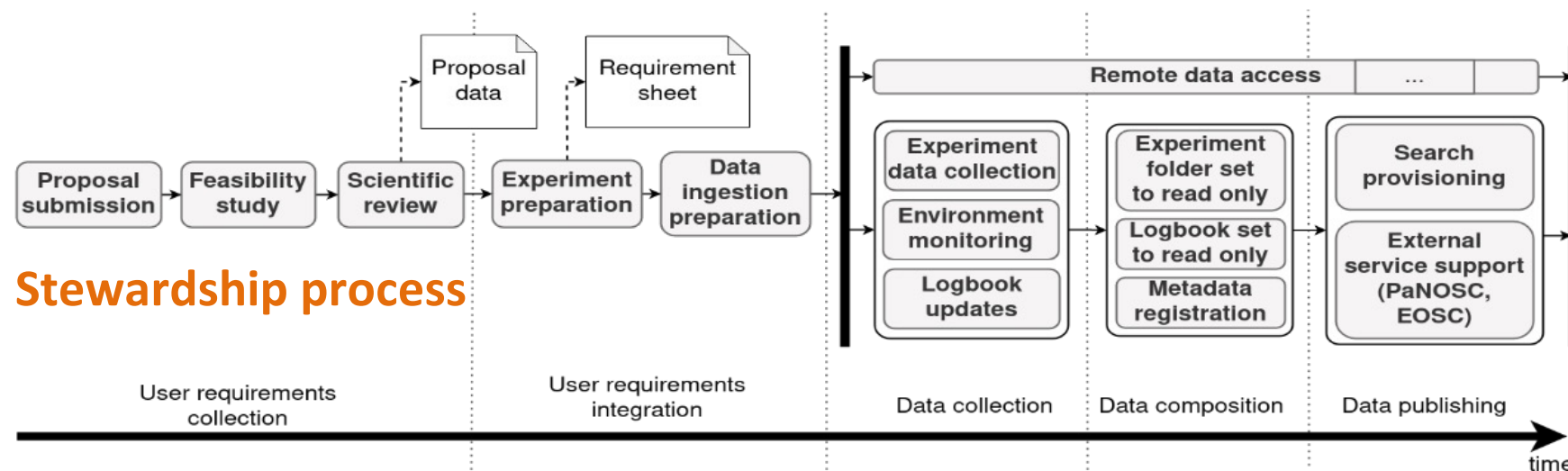
Data Stewardship wizard has also been deployed and will be tested for future calls.



Scientific Data Management Practices

ELI ERIC 1st ELI ERIC Call

1. **Data Custodianship** - *“ELI ERIC shall be the custodian of the Data, with the responsibility to collect, secure, archive and provide access to the Data”*¹
2. **Data Stewardship** – using the already existing practices to demonstrate compliance
 - *Common data structure has been agreed with each facility*
 - *Data will be made accessible to users via ELI ERIC Data Portal*
 - *Each user will have his data stored at the level of ELI ERIC, local (facility) replicas of the data sets can also be stored*



1. <https://zenodo.org/record/6515903#.Y4TRmOzMJts>

Development of FAIR Services Ready for the 1st ELI Call

Invenio RDM – searchable MetaData

The screenshot displays the Invenio RDM web interface. At the top, there is a navigation bar with the 'eli' logo, a search bar, and user information. Below the navigation bar, there are tabs for 'Uploads', 'Communities', and 'Requests'. The main content area shows search results for '234 result(s) found'. A list of results is visible, including 'Gas high harmonic generation optimisation' and 'Laser driven ion acceleration'. A detailed record for 'XUV spectroscopy with PG2 at 60.0 mm' is shown below, including a citation in APA style and additional details like 'Related works' and 'Is referenced by'.

Identity Management

The screenshot shows the ELI-ALPS login page. It features a 'Sign in to your account' form with fields for 'Username or email' and 'Password', and a 'Sign in' button. Below the form, there is a section for 'Or sign in with' with a link for 'ADFS ELI-ERIC.net' circled in blue.

ELI ERIC Identity Management System towards implementing SSO services:

- AD (operational)
- ORCID and UmbrellaID (tested)

Data Portal for download

The screenshot shows the Data Portal interface. It features a navigation bar with the 'eli' logo and icons for file management. Below the navigation bar, there are tabs for 'All files', 'Recent', 'Favorites', and 'Shares'. The 'Shares' tab is selected, showing a list of shares including 'Shared with others', 'Shared with you', 'Shared by link', 'Deleted shares', and 'Pending shares'. A folder named 'NanoESCA_DataPilot' is visible in the list.

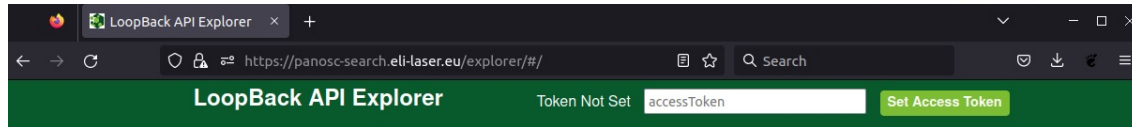


Open science services

ELI ERIC and ELI ALPS already supporting:

- PaNOSC Search API support
- OAI-PMH endpoint

1. ✓ HTTP status 200
2. ⚠ Content type text/xml; charset=utf-8
3. ✓ Content XML checked.
4. ✓ Request time is 0.158 sec
5. ✓ XML complies with OAI-PMH XML Schema <http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd>
6. ✓ Found set "OpenAIRE" with setSpec "openaire_data".
7. ⚠ Found set with a very short setName (under 5 chars) Demo.



search-api

PaN search REST api

Dataset : Information about an experimental run, including optional File, Sample, Instrument and Technique.

Document : Represents a scientific proposal or publication.

Instrument : Beam line where experiment took place.

Parameter

Technique

[BASE URL: /api , API VERSION: 1.0.0]

REPOSITORY	VALIDATION TYPE	STATUS	SCORE	STARTED	GUIDELINES	ACTIONS
https://data.eli-laser.eu/oai2d	OAI Content OAI Usage	finished finished	85 100	2022-06-29 13:45:53	For Data Archives (2.0)	View Results > Resubmit Job

ELI Eric EOSC Data sharing

OpenAIRE | EXPLORE

Search

Organization
ELI ERIC
EXTREME LIGHT INFRASTRUCTURE ERIC

Funding / Projects (5)

Project . 2018 - 2022

PaNOSC (Photon and Neutron Open Science Cloud)

OPEN ACCESS MANDATE FOR PUBLICATIONS AND RESEARCH DATA

L Schema <http://www.openarchives.org/OAI/2.0/OAI-PMH.xsd>

re3data.org

Search

laser.eu

Filter

- Subjects
- Content Types
- Countries
- Data access
- Data access restrictions
- Database access
- Data licenses
- Data upload
- Enhanced publication
- Institution responsibility type
- Institution type
- Keywords

eli eric

← Previous 1 Next →

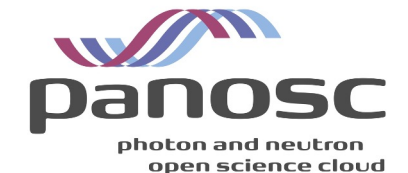
Found 1 result(s)

ELI ERIC Open Data Repository
Extreme Light Infrastructure

Subject(s) [Optics, Quantum Optics and Physics of Atoms, Molecules and Plasmas](#) [Physics](#) [Natural Sciences](#)

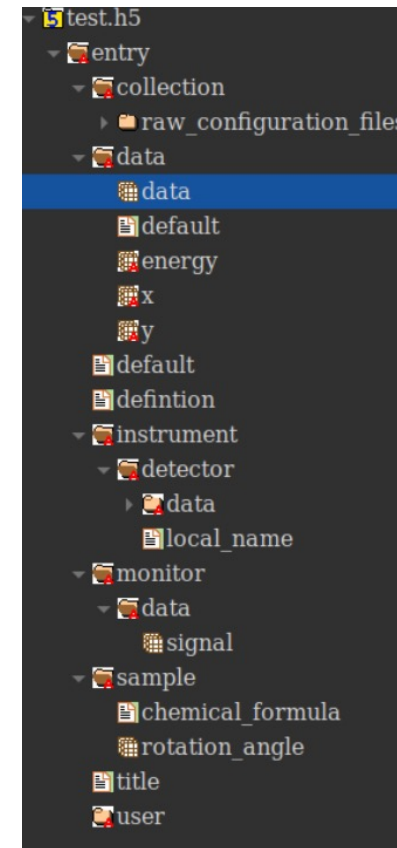
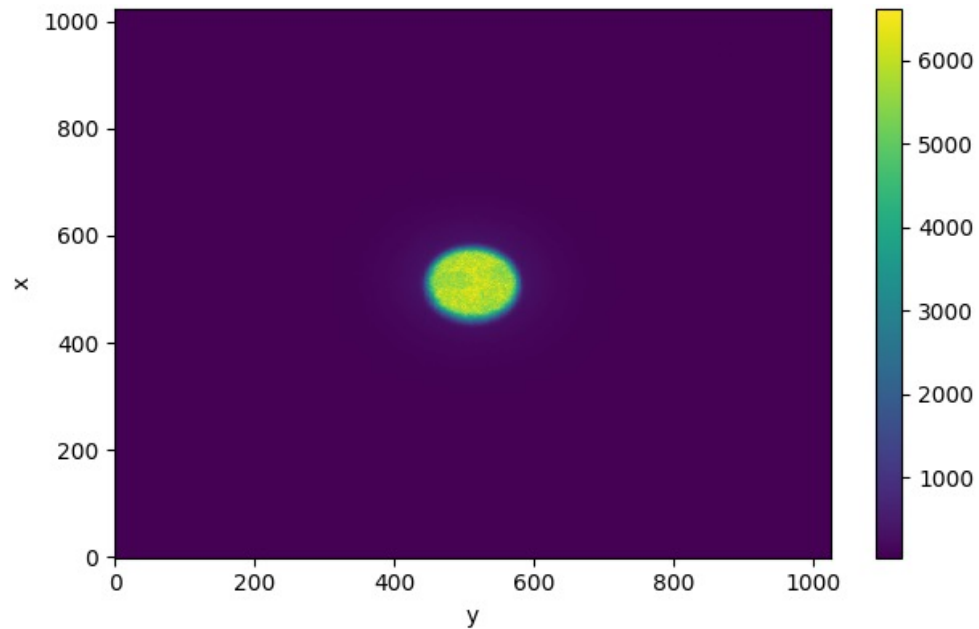
Content type(s) [Software applications](#) [other](#)

Country [European Union](#)



Data and metadata standards (ELI ALPS)

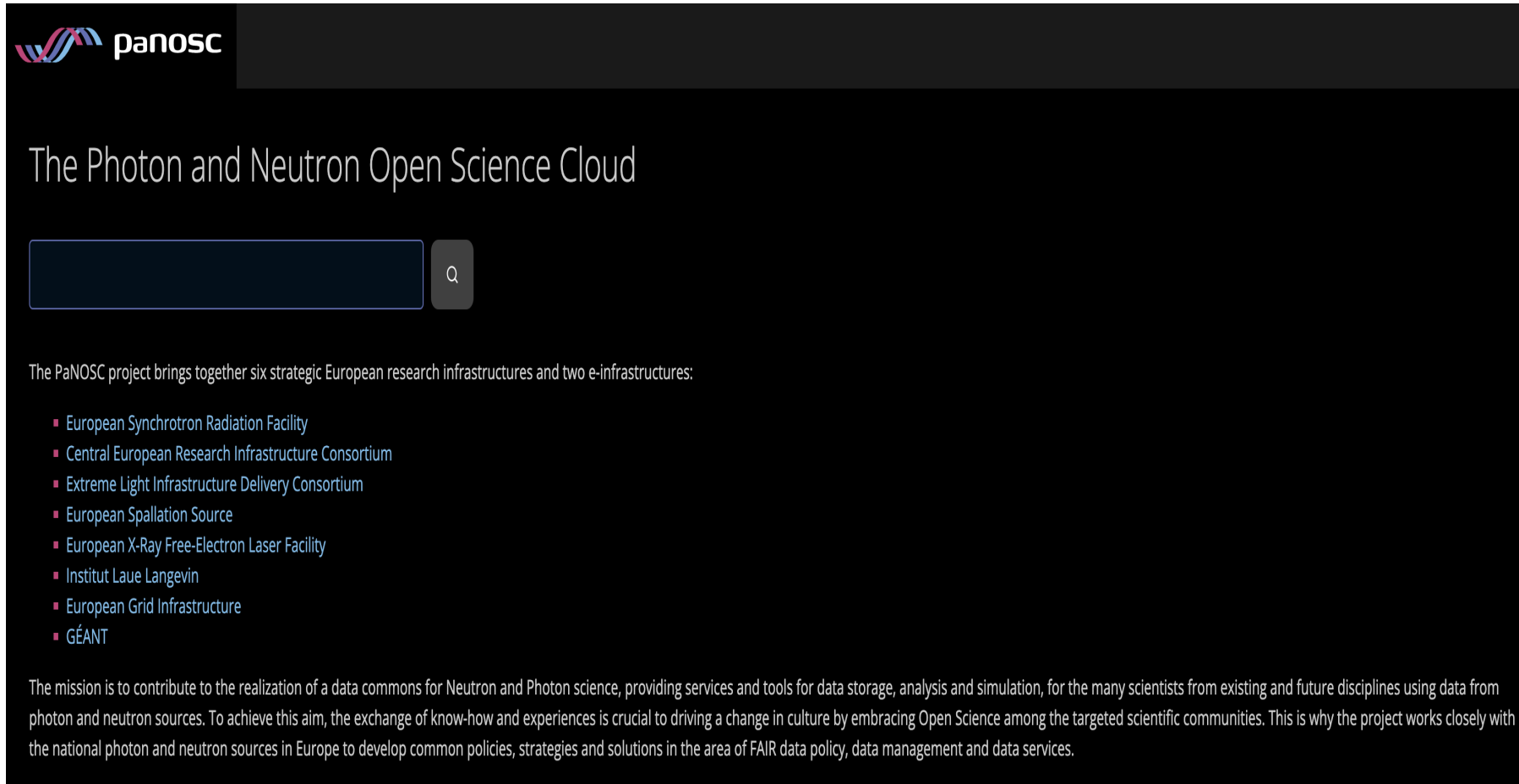
- **NanoESCA instrument @ELI Alps**
 - **NeXus Application Definition – NXScan**
 - **PaNET - Angle resolved photoemission spectroscopy (momentum microscopy)**




Data Portal and remote data analysis

ELI Beamlines & WP4 activities

- The adapter/middleware software supporting the implementation of the PaNOSC Federated Search API is in production



 panosc

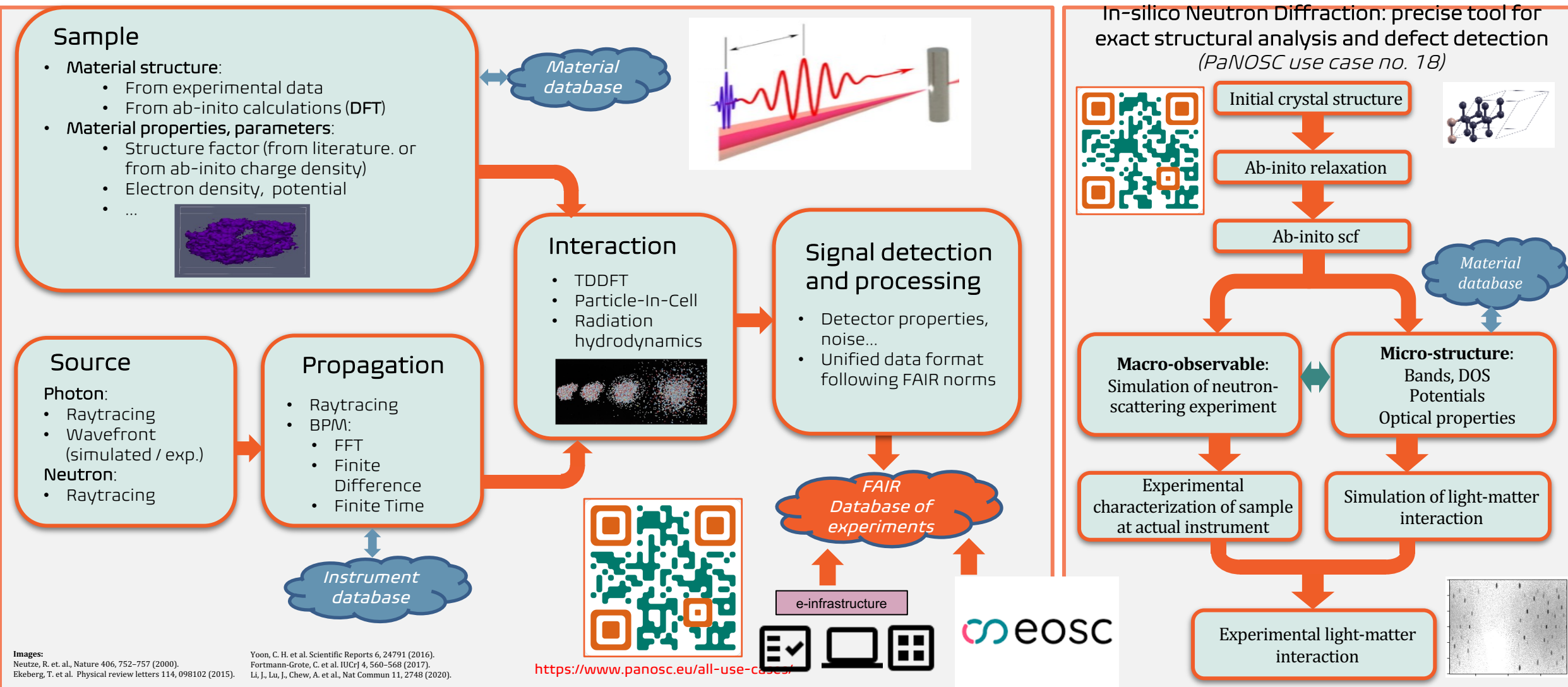
The Photon and Neutron Open Science Cloud

Remote Data Analysis services require dedicated IT Infra (Computing + Storage)

ELI Beams team is continuing the work, aiming at deploying a VISA instance for users.

Production Environment will be hosted by ELI ERIC IT Infrastructure.

An ELI-EOSC Scientific Use Case and a PaNOSC training

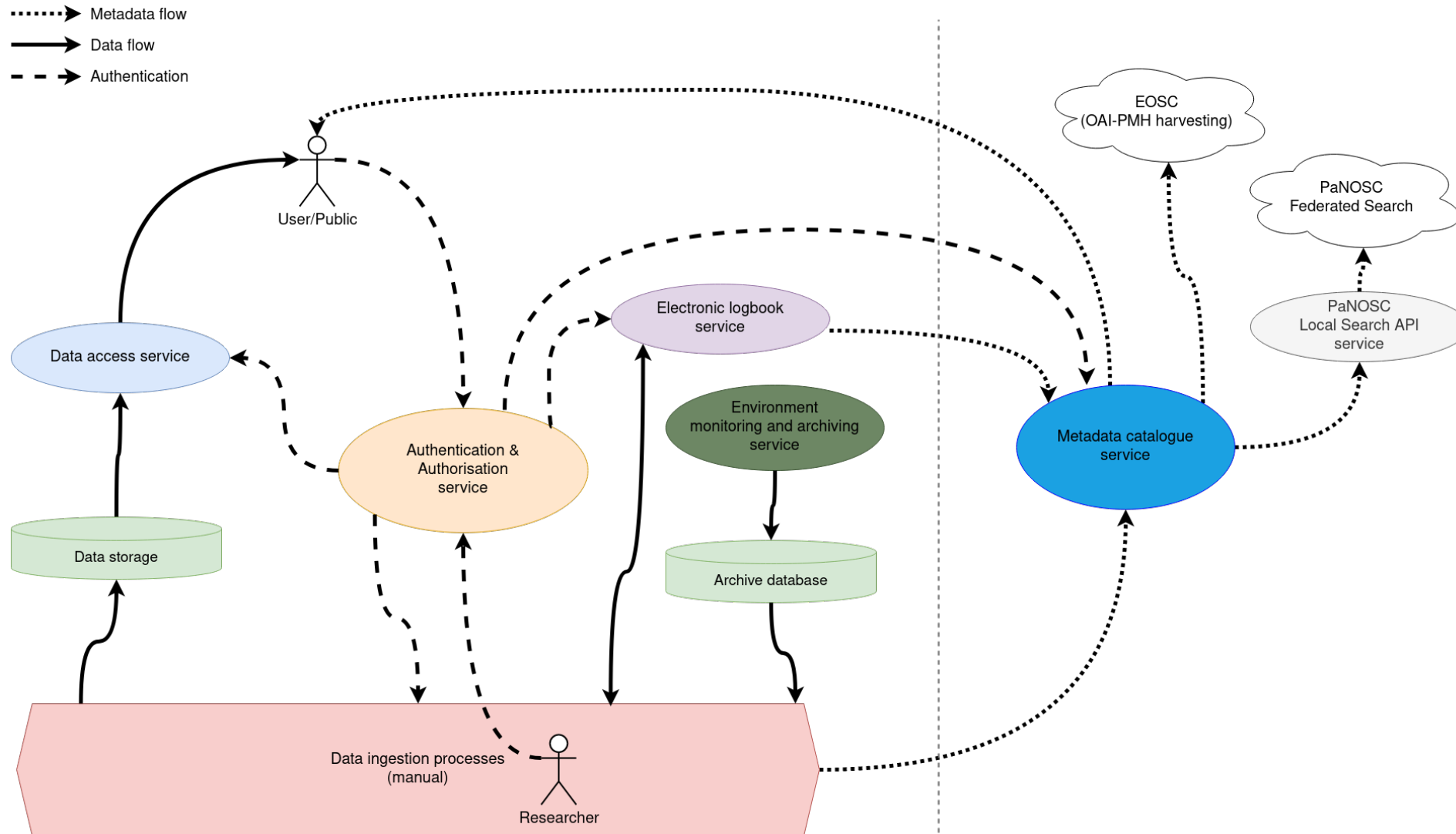


Images:
 Neutze, R. et al., Nature 406, 752-757 (2000).
 Ekeberg, T. et al. Physical review letters 114, 098102 (2015).
 Yoon, C. H. et al. Scientific Reports 6, 24791 (2016).
 Fortmann-Grote, C. et al. IUCr 4, 560-568 (2017).
 Li, J., Lu, J., Chew, A. et al., Nat Commun 11, 2748 (2020).

Developed by Mousumi Kahaly and the Computational Material Science Team @ELI ALPS

ELI ERIC 1st Call Scientific Data Management

Demonstrating minimum compliance and provide functional use cases to our users





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On behalf of ELI ERIC Team,
Teodor Ivanoaica
itservices@eli-laser.eu

Thank you



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