The Photon and Neutron Open Science Cloud for FAIR data

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The Photon and Neutron Open Science Cloud (PaNOSC) is a cluster which proposes to align the efforts of the existing and new photon and neutron sources to link up to the EOSC (European Open Science Cloud). Photon and Neutron (PaN) sources produce petabytes of scientific data that in order to be available to everyone, have to comply with the principles of being Findable, Accessible, Interoperable and Reproducible (FAIR). At the same time, scientific publishing has been evolving to make scientific data part of publications. The presentation will introduce the PaNOSC project (https://www.panosc.eu), aimed at providing scientific data management tools, policies and services for enabling FAIR and Open Science in 6 Photon and Neutron research facilities: ESRF, ILL, European XFEL, ELI, ESS and CERIC-ERIC, with its partner facility SOLARIS, in collaboration with the e-infrastructures EGI and GÉANT. The outputs of

PaNOSC will benefit the whole community of researchers using photon and neutron sources.

PaNOSC objectives include:

- Full FAIR compliance of PaN scientific data;
- Innovative data services at RIs and as part of the EOSC;
- Support in shaping EOSC services for users needs;
- Sharing best practices for open data policies;
- Increase RIs' impact by encouraging data reuse;
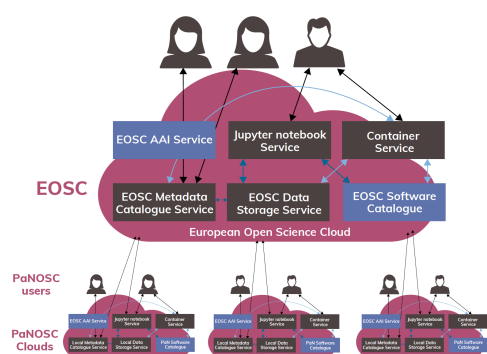- Collaboration with EOSC projects to share outcomes.

Fig. 1 EOSC + PaNOSC Clouds

In addition to presenting the benefits that the PaNOSC project will bring for the scientific community, the talk will give an overview of the updated FAIR Data Policy framework for research data, developed in collaboration with most of the PaN sources in Europe and its implementation in CERIC. Special emphasis will be put in the collection of feedback from the community.

Having an open access data policy with data in well-defined formats has many benefits:

- It makes previously measured data available for further analysis without having to repeat the experiment.
- It promotes data use, cross-disciplinary research and machine learning.
- Raw data becomes open to scrutiny by other researchers, ensuring scientific integrity and experiments' reproducibility.
- Scientists can mine data in previously unknown ways or reapply new methods to existing data.

References

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2. Götz, A., *PaNOSC position paper on the EOSC*, Zenodo, February 2020, DOI: https://doi.org/10.5281/zenodo.3689420