



PaNOSC & ExPaNDS Annual Meeting

PaNOSC and ExPaNDS Communication and Dissemination

11th November, 2020

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PaNOSC and ExPaNDS projects have received funding from the European Union's Horizon 2020 research and innovation programme under grant agreements 823852 and 857641, respectively.

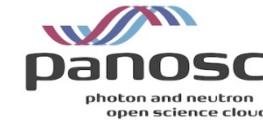
PaNOSC – WP9 so far



- Activities so far and ongoing:
 - ✓ Communication and Dissemination Plan updated: <http://bit.ly/PaNOSC-CommsDissemPlan-update2020>;
 - ✓ Continued development of the PaNOSC website;
 - ✓ Regular Social Media updates ([Twitter](#): @Panosc_eu / [Youtube](#): <http://bit.ly/PaNOSC-on-Youtube>);
 - ✓ Promotion of projects' results, activities & events via projects' and partners' websites, newsletters and social media accounts, lightsources.org and neutronsources.org mailing lists, LENS and LEAPS initiatives, CORDIS website, etc.;
 - ✓ Projects' poster / video presentations at events for policy makers and the general public (e.g., ESOF 2020, EU for a smarter future conference);
 - ✓ Regular meetings with PMC / WP Leaders;
 - ✓ Promotion of PaNOSC presentations and publications, and monitoring of views (1978) and downloads (1454) of PaNOSC publications on Zenodo: <https://zenodo.org/communities/panosc/>;
 - ✓ Continuous interaction with comms staff at the partners to share PaNOSC updates with their communities;
 - ✓ Contribution to the collection of use cases.

Dissemination of PaNOSC deliverables

News & social media posts, partners newsletters, etc. (example on release of PaNOSC data policy framework)



PaNOSC @Panosc_eu · May 25

Latest news from PaNOSC: in the frame of the project's work package on #DataAnalysis & stewardship, we have published the update of the #FAIRdata policy framework for management of scientific data at photon and neutron facilities, available on [@ZENODO_ORG](#) doi.org/10.5281/zenodo...



Deliverable: D2.1 - PaNOSC data policy framework

ESS and 9 others

Andy Gotz @andy_gotz · May 25

10 years after the @PaN_data data policy, @Panosc_eu has released an updated FAIR Data Policy framework for research data: doi.org/10.5281/zenodo.... The data policy framework will be used by the @Panosc_eu and @ExPaNDS_EU community to ensure research data is FAIR.

Show this thread

Partners' newsletter

PaNOSC updates research data policy framework to be FAIR

Ten years after the PaN-data policy, PaNOSC has released an updated FAIR Data Policy framework for research data, which describes the common framework for management of scientific data at photon and neutron facilities, and will be used by PaNOSC and ExPaNDS' community to ensure research data is FAIR. [Read more](#)

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News

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PaNOSC updates research data policy framework to be FAIR

PaNOSC has released an updated FAIR Data Policy framework for research data, which describes the common framework for management of scientific data at photon and neutron facilities, and will be used by PaNOSC and ExPaNDS' community to ensure research data is FAIR.

PaNOSC is a European project financed by the INFRAEOSC-04 call for making FAIR data a reality in six European Research Infrastructures (RIs) for photon and neutron science, developing and providing services for scientific data, and connecting these to the European Open Science Cloud (EOSC).

Background and Scope

Photon and Neutron (PaN) facilities are essential research infrastructures for the understanding of matter and its properties. Together these facilities produce petabytes of data, which can give us a more complete picture of the world around us.

PaNOSC (and its sister project, ExPaNDS) will make the data produced easily accessible to the users and the public, by providing scientific data management for enabling Open Science.

Data will be managed according to the FAIR principles. This means data will be curated and made available under an Open Data policy, and be findable, interoperable and reusable.

Overall Concept

The overall approach implemented implies to make the data available, as well as the data analysis software, contributing to "Reproducible Science and FAIR data, and increase the ability to find and inspect the data interactively.

Based on this approach, PaNOSC will provide:

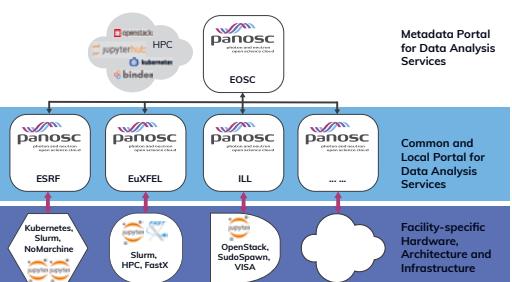
- Data analysis services to complement data and metadata;
- Open Source Software to share data analysis knowledge and expertise;
- Inform and train scientists to include software that has created the results shown in the manuscript as part of the publication, and include a description of how the software needs to be executed.

Strategy

PaNOSC aims to create an analysis environment with analysis software available through a **data search portal** and **data analysis portal** connected to the facility specific services, such as authentication, metadata catalogues, file location information and remote analysis services.

Remote data analysis will be possible via the data analysis portal with Jupyter Notebook, or remote Desktop technologies.

The **user experience** should be similar at all facilities. Data sources and services that are used as back end to this portal will be facility specific.



Objectives



- Contribute to the construction of the EOSC linking e-RIs and ESFRI clusters
- Make data fully compatible with FAIR principles
- Generalise the adoption of data policies, standard metadata and data stewardship
- Provide innovative services for data processing, reduction, analysis, and simulation
- Increase of RIs' impact by ensuring data can be shared beyond the original scope
- Share the outcomes to promote the adoption of FAIR data principles, data stewardship and the EOSC

Partners



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PaNOSC key achievements in the 1st implementation period (18 months)



Data Policy & Stewardship

To make FAIR data a reality for research data produced by the photon and neutron facilities involved in PaNOSC and its sister project ExPaNDS, PaNOSC updated the [PaNdata data policy framework to be FAIR](#). The framework will be adopted by all partners to ensure they have FAIR data policies in place.

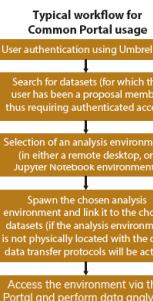
The updated framework has been then compared with the RDA FAIR Data Maturity Model¹ to evaluate the level of FAIRness.



Data Analysis Services

PaNOSC has been developing the **Common Portal for Data Analysis Services** to facilitate starting a data analysis session after a dataset of interest has been collected. The Portal aims to provide access to both remote desktop environments and Jupyter Notebooks, enabling users to **remotely analyse data** from PaN facilities.

After initial deployment at facilities to provide remote analysis services to local data, the Portal will be deployed as part of the EOSC to provide federated data analysis of data across the facilities.



Data Policy & Stewardship

To make data **Findable and Accessible**, enabling domain-specific searches across the PaNOSC data repositories, a [search API](#) has been defined and developed. All sites have also implemented the [OAI-PMH protocol](#) for indexing metadata and data by OpenAire and r3data.

To make data **re-usable**:

- Metadata harvesting endpoints have been deployed at all partners;
- NeXus has been promoted as community metadata standard for PaN sources;
- Electronic logbooks have been developed to capture what happens during experiments at few sites.

Milestones reached

- Existing data analysis requirements and solutions from all partner sites (including ExPaNDS) have been surveyed;^{3,4}
- All sites now provide remote desktop analysis services or remote Jupyter Notebook analysis services in a variety of states (some in production with large user numbers);
- Provision of a citizen science prototype environment for remote and reproducible data analysis of COVID 19 infection data OSCVIDA (<https://osovidia.github.io>).

Common Portal - Achievements

- Possible use cases of the **Portal** have been listed⁵;
- Definition of the **Portal Architecture** by adopting a microservices approach (foundation services, user services and compute services⁶), for more flexible integration into site-specific infrastructures.



Simulation Data System

PaNOSC has been developing the "Virtual Neutron and x-ray Laboratory" (ViNYL), to offer services for simulation and modelling of PaN sources, beamlines and experimental instruments, as well as start-to-end simulations to describe entire experiments at PaN facilities.



Sustainability

PaNOSC has been constantly interacting with stakeholders, and contributing to shape the EOSC. This is necessary to ensure, through the proper definition of costs and metrics, realistic **business models** for the sustainability of the services to be developed during the lifetime of the project and made available through the EOSC. The partners also identified possible areas of collaboration with other projects and initiatives.



Staff & User Training

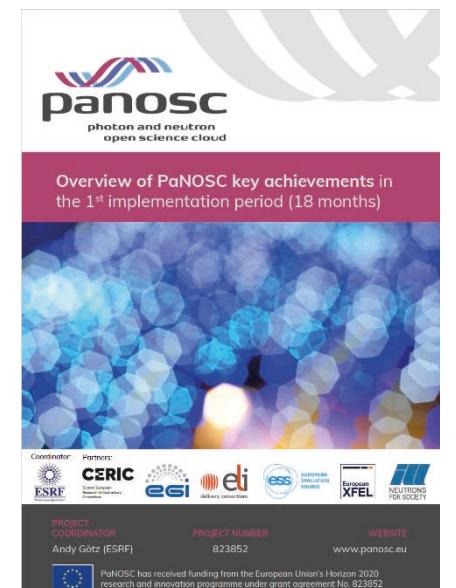
The e-learning platform e-neutrons.org has been migrated to ESS, where it is now operating under the domain name pan-learning.org. It will be used to provide training resources for both staff and users of PaN sources. Various solutions for integration of Jupyter in the platform have been identified, and work has started to integrate federated AAI. PaNOSC and ExPaNDS will add new content, and workshops for both PaN staff and users will take place to get acquainted with the features and functionalities of pan-learning.org.

EOSC Integration
PaNOSC has been working towards setting up a **federated Authorization and Authentication Infrastructure (AAI)** for the users of PaN facilities, which will allow seamless access to data and data services. In close collaboration with GÉANT, the UmbrellaID management formally approved the introduction of eduTEAMs in the UmbrellaID infrastructure, and services have been set up to accept authentication through it.

¹[PaNOSC Research Data Policy Framework: https://doi.org/10.5281/zenodo.3862701](https://doi.org/10.5281/zenodo.3862701)
²[FDMM: https://doi.org/10.5281/zenodo.4000045](https://doi.org/10.5281/zenodo.4000045)
³<https://www.panosc.eu/wp-content/uploads/2019/12/D4.1-Re-port-Data-Analysis-Capture.pdf>

Overview of PaNOSC Progress & Key Achievements

PaNOSC brochure:
<https://doi.org/10.5281/zenodo.4247623>

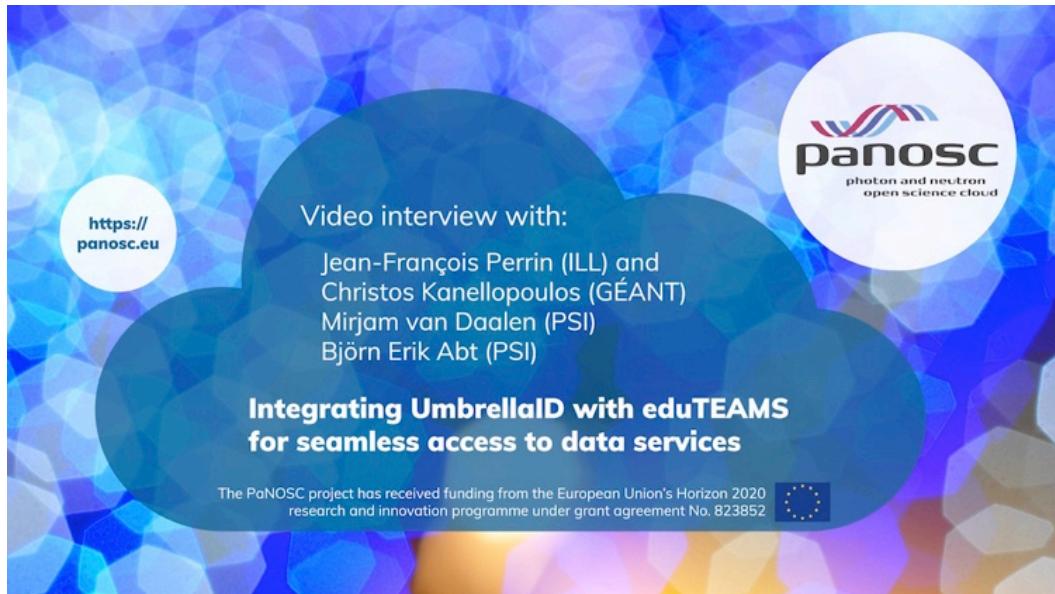


Dissemination activities on PaNOSC achievements

Production of videos on PaNOSC achievements



Interview on the work carried out in the frame of **PaNOSC WP6 – EOSC integration**, towards the set-up of a federated authorization and authentication infrastructure (AAI) for the users of photon and neutron sources, which will allow a seamless access to data and data services.



Full interview: <http://bit.ly/36ghSwJ>

Articles and interviews were published on the PaNOSC website and distributed to the PaNOSC network, via direct email and social media

Interview with prof. Hans Fangohr (leader of **PaNOSC WP4**) on OSCOVIDA, the Open Science COVID Analysis website (<http://oscovida.github.io>) that collects and shows analysis plots of COVID19 cases and deaths to better understand the time development of the pandemic and the measures taken in all countries worldwide.



Full interview: <https://bit.ly/2Xm07Lj>

Dissemination activities on PaNOSC achievements

Promotion of demos showcasing the features of the services developed in other WPs



Demo showcasing how PaNOSC aims to implement FAIR principles and how this could help improve the status of data analysis at photon and neutron facilities (**PaNOSC WP 4**).

panosc
photon and neutron
open science cloud

Towards Reproducible Publications with FAIR Data

Robert Rosca – European XFEL

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

Watch the video: <https://youtu.be/pudgE68jDEY>

Demonstration of simulating and analysing serial crystallography data to show use case for Jupyter Notebooks in the PaNOSC project (**PaNOSC WP5**)

Simulating and Analysing Serial Crystallography Data in Jupyter Notebooks

Contributors to the demo:

Juncheng E - European XFEL
Hans Fangohr - European XFEL
Carsten Fortmann-Grote - European XFEL
Thomas Kluyver - European XFEL

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

Watch the video: https://youtu.be/g5_DdVzWiQs

Promotion of pan-learning.org



The screenshot shows the main navigation bar with links: FRONTPAGE, ABOUT PAN-LEARNING, FOR TEACHERS, SUPPORT, SIGN ME UP!, and COURSE LOGIN. Below the navigation, there are two main sections: "Courses" and "Science cases".

Courses (Login required):

- My courses: Quick access to the courses you have already enrolled in.
- Materials Science at a Virtual Neutron Facility: A 3D learning game.
- Introduction to Neutron Scattering: An introductory course to neutron scattering, intended for students at master level or above.
- Topics in Neutron Scattering: A collection of short modules about a specific science case or neutron technique.

Science cases (Login required):

- HERCULES: HERCULES school provides training for students, postdocs and scientists from European and non-European universities.
- Cultural heritage objects: Cultural heritage.
- Monitoring solid state reactions: Chemistry of materials.
- Characterising liposomes in suspension: Life sciences.
- Finding crystal structure: Chemistry of materials.
- Characterising magnetic order: Chemistry of materials.

Below these sections are three taster sections:

- Exercise taster: Fourier Transform.
- Quiz taster: Neutron Properties.
- Simulation taster: Small Angle Scattering.

Published 25th September 2020

Discover pan-learning.org, the PaN sources e-learning platform

PaNOSC aims to provide the infrastructure, service and training resources for e-learning for the use of both staff and users of photon and neutron sources. To this aim, the European Spallation Source ERIC (ESS) and the Extreme Light Infrastructure (ELI), with the support of staff at the Technical University of Denmark and University of Copenhagen [...]

Read →

Demo on **pan-learning.org** showing its features, and the types of modules and material available on scientific topics related to PaN science.

This screenshot shows a demo version of the pan-learning.org website. The layout is identical to the real homepage, featuring the same navigation bar and sections for Courses and Science cases. The content in the demo is placeholder or simplified versions of the actual modules.

Courses (Login required):

- My courses: Quick access to the courses you have already enrolled in.
- Materials Science at a Virtual Neutron Facility: A 3D learning game.
- Introduction to Neutron Scattering: An introductory course to neutron scattering, intended for students at master level or above.
- Topics in Neutron Scattering: A collection of short modules about a specific science case or neutron technique.

Science cases (Login required):

- Corrosion state of cultural heritage objects: Cultural heritage.
- Monitoring solid state reactions: Chemistry of materials.
- Characterising liposomes in suspension: Life sciences.
- Finding crystal structure: Chemistry of materials.
- Characterising magnetic order: Chemistry of materials.

Below these sections are three taster sections:

- Exercise taster: Fourier Transform.
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- Simulation taster: Small Angle Scattering.

Watch the video: <https://youtu.be/pudgE68jDEY>

PaNOSC @PaN User Meetings



- DESY & European XFEL User Meeting (Jan 2020)
- ESRF User Meeting (February 2020)



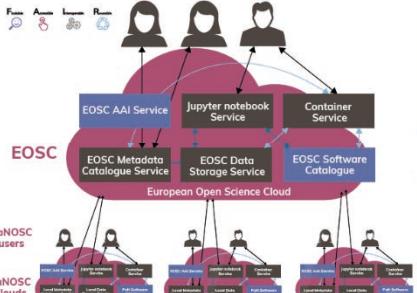
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PaNOSC Developments

Common data API:	ALL partners
Jupyter notebooks:	ALL partners
Data Analysis Portal:	ALL partners
Software catalogue:	ALL partners
AAI:	ALL partners (with PaNs + GÉANT)
Data catalogues:	ICAT (ESRF), SciCat (ESS), MDC (EuXFEL, ILL), VUO (CERIC)
Data transfer + Computation:	ALL + STFC, Desy, CESNET Simex (EuXFEL), OASYS (ESRF, CERIC), McStas (ESS, ILL)
Simulation:	ICAT+ (ESRF, EuXFEL)
E-logbook:	ESS, ELI, ESRF (with Hercules)
e-Training platform:	(with Hercules)

All the above are interoperable with EOSC. We are seeking collaboration and standards.

EOSC + PaNOSC Clouds



Common APIs for 6 catalogues



Poster Session @SOLARIS

User Meeting (Sept 2020)



Objectives

1. Participate in the construction of the EOSC
2. Make scientific data from ESFRI Photon and Neutron sources fully compatible with FAIR principles
3. Generalise the adoption of open data policies + standard metadata
4. Provide innovative data services to the users via the EOSC
5. Increase the impact of RIs by ensuring re-use of data
6. Share outcomes with national RIs

Some latest achievements

- pan-learning.eu online for scientific training staff and users
- OSCVIDA (<https://oscovida.github.io/>) online. Open Science project with Jupyter notebooks, collecting and showing analysis plots of COVID19 cases & deaths
- PaNOSC updated open data policy framework released
- Example of Open Data for EOSC: <http://bit.ly/35CYnNa>
- Umbrella ID now integrated with GÉANT EduTEAM for seamless access to EOSC services

Talk at ESS/ILL User Meeting (Sept 2020)



PaNOSC will provide by 2022

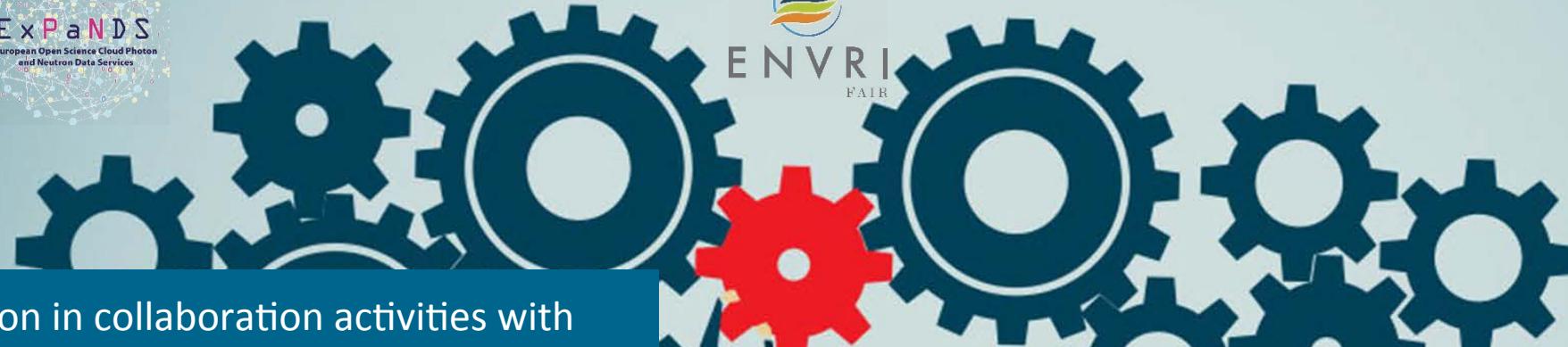
- | | |
|---|---|
| <p>data policy framework
persistent identifiers
(DOIs) for data
Data management plans
standard metadata
Nexus/HDF5
electronic logbooks
open data
data search API</p> | <p>data portal
Jupyter notebook service
remote access desktops
data simulation services
data transfer service
persistent user identities (AAI)
scientific software catalogue
e-training platform + material</p> |
|---|---|

Enabling Open Data +



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 823852

Watch the video: <https://youtu.be/i5SLI1rWmqA?t=7626>



Participation in collaboration activities with FAIRsFAIR, EOSC Secretariat and the EOSC clusters

Mapping key people in EOSC cluster projects in all domains (management, data policy and stewardship, data analysis / simulation, sustainability, training, communications, etc.) to enhance networking & collaboration:
<http://bit.ly/EOSCclusters-keypeople>



Collaboration with other EOSC projects and clusters



Video Release



LINKED ACTIVITIES:

- New mailing lists for queries on DOIs: pan-data-doi@panosc.eu
- Action advocating scientific journals to include data DOIs in their published articles

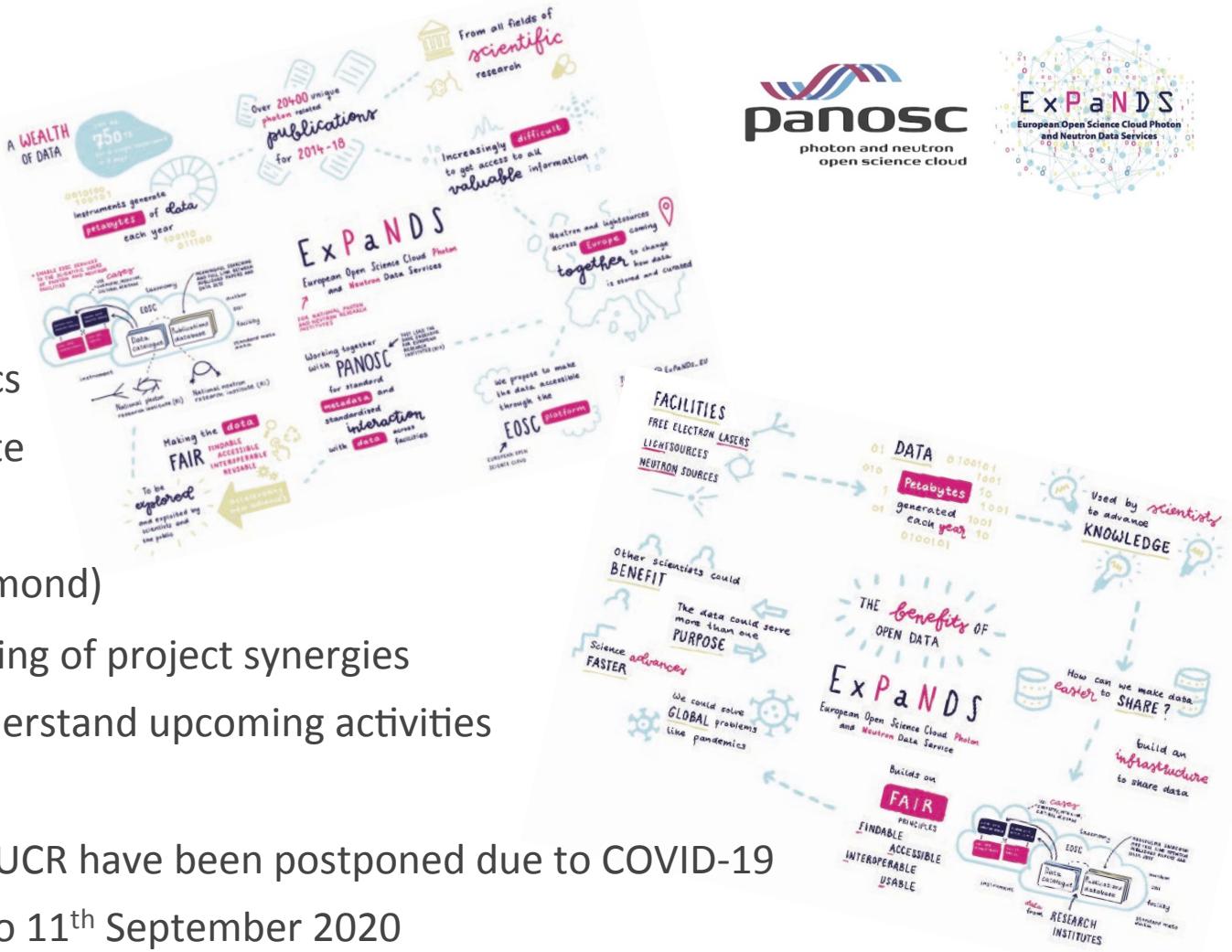
Partners / Projects / Initiatives involved:



Watch the video: <https://bit.ly/The-DOI-for-Data>

ExPaNDS – WP6 so far

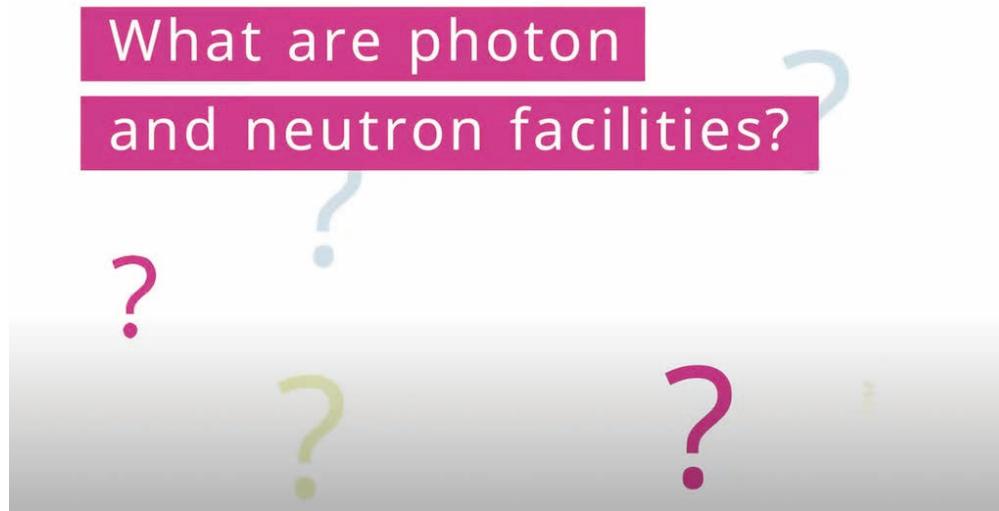
- Activities so far and ongoing:
 - ✓ Development of LinkedIn Profile
 - ✓ Creation of three ExPaNDS Videos + Infographics
 - ✓ Continued development of our ExPaNDS website
 - ✓ Regular meetings with WP Leaders in rotation
 - ✓ Regular Site Stakeholder Meetings (UKRI & Diamond)
 - ✓ Meeting held with EOSCLife to gain understanding of project synergies
 - ✓ Taking part in other WP conference calls to understand upcoming activities
 - ✓ Regular Social Media Updates
 - ✓ Review of speaking opportunities as Lund and IUCR have been postponed due to COVID-19
 - ✓ Poster presentation SOLARIS user meeting 9th to 11th September 2020
 - ✓ Organisation and promotion of WP2 FAIR Events 1st & 2nd October 2020
 - ✓ Administration and promotion of ExPaNDS/PaNOSC and CALIPSOplus Technical Coordination Workshop : The Portal Architecture test on 8th & 9th October 2020
 - ✓ Contribution to the planning of the joint annual meeting 9th to 11th Nov 2020



Video Releases - ExPaNDS



Watch the video: <https://www.youtube.com/watch?v=f3HUzTabqus>



Watch the video: <https://www.youtube.com/watch?v=MflGW9Kk0YI>

Watch the video: <https://youtu.be/Tuct8u47pHI>

MOST RECENT DELIVERABLES

AND MILESTONES COMPLETED SO FAR

- STANDARD INFORMATION SHEET ON EXPANDS AND THE *benefits* OF OPEN DATA FOR RI USERS (6.17)
- EXPANDS PRESENTATION FOR *conferences* (D6.9)
- REFERENCE FROM COMMUNITY *websites* (M6.4)



UPCOMING DELIVERABLES

- DEDICATED EUROPEAN *user meeting*
FOCUSED ON EXPANDS (D6.15)
- VISION AND *roadmaps* DOCUMENTS
FOR KEY AUDIENCES (D6.4)



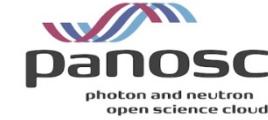
ExPaNDS

European Open Science Cloud Photon
and Neutron Data Services

PaNOSC WP9 / ExPaNDS WP6 KPIs

Activity	KPI description	PaNOSC Value	Date	ExPaNDS Value	Date	FINAL TARGET VALUE	Notes
		PaNOSC		ExPaNDS			
Outreach through the project's website and social media platforms	No. of visitors/views to website	Views: 15,765 Visitors: 2,403	06/11/2020	Views: 8,238 Visitors: 2,542	10/11/2020	Not defined (as high as possible)	
	No. of tweets mentioning PaNOSC/ExPaNDS	293	06/11/2020	170	10/11/2020	500	
	No. of social media posts	188	06/11/2020	78 Tweets 22 LinkedIn posts	10/11/2020	Not defined (as high as possible)	
	No. of followers on social media	Twitter: 480	06/11/2020	Twitter: 198 LinkedIn: 24	10/11/2020	1000	
	No. of video views	1836	06/11/2020	277	06/11/2020	Not defined (as high as possible)	
Dissemination and communication	No. of user meetings in which PaNOSC/ExPaNDS is presented	4	06/11/2020	4	06/11/2020	15	
	No. of invited talks as PaNOSC/ExPaNDS representatives on topics of relevance for the projects and their partners	38	06/11/2020	approx. 10	10/11/2020	70	
	No. of PaNOSC/ExPaNDS-related publications' downloads on Zenodo	1454	06/11/2020	428	10/11/2020	Not defined (as high as possible)	
	No. of peer-reviewed OA publications	1	06/11/2020			Not defined (as high as possible)	
	Cumulative No. of attendees at outreach online events organized by the projects	n/a		n/a		Not defined (as high as possible)	No outreach events as yet, due to COVID-19 outbreak. In the process of arranging webinars

2021-2022 Joint Roadmap



Cross-grant regular communication

External communication

- Produce and distribute **promotional material of our main projects achievements**;
- **Support our work packages** by promoting their activities
- Mutually support communications via our **social media** channels
- Mutually support the promoting of our **initiatives, events and training material as well as training activities**
- **Enhance interactive participation** of the audience attending our events via the tools available within online conferencing tools, and monitor performance

2021-2022 Joint Roadmap



User Engagement

- Target **user meetings** more widely and jointly
- Identify and attend **other events and conferences targeting users**
- Engage with **user offices** across PaN facilities
- Identify and collect **user success stories** at PaN facilities and publish these use cases
- Organise **user-centric workshops / meetings** (training WPs) and attract participants from the PaN community
- Promote and distribute **demos / videos** on the services developed
- Present progress and achievements at our partners **scientific board meetings**
- Promote services and policies via **PaN networks** (lightsources.org, neutronsources.org, etc.)

2021-2022 Joint Roadmap



Collaboration with other EOSC-related projects:

- Ensure all cluster projects attend our **Annual Meeting** and that we attend theirs
- Invite 5b / cluster projects representatives to all our **workshops / events**
- Active participation in the **EOSC Secretariat's interest group** "EOSC Cluster Collaboration" meetings, and related joint actions
- **Periodical meetings** among coordinators of the cluster projects and transfer of the relevant inputs to the leaders of WP comms/dissemination in the various projects, to ensure appropriate communications/dissemination of the set actions and results achieved



PaNOSC & ExPaNDs Annual Meeting

Thank you

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k.roarty@diamond.ac.uk



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[@ExPaNDs_EU](https://twitter.com/ExPaNDs_EU)



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