



# PaNOSC & ExPaNDS Annual Meeting

## Training activities PaNOSC WP8 – ExPaNDS WP5

11<sup>th</sup> November 2020

Authors: Thomas Holm Rod, Thibaud Cayla, Nazaré Guimard, Florian Gliksohn



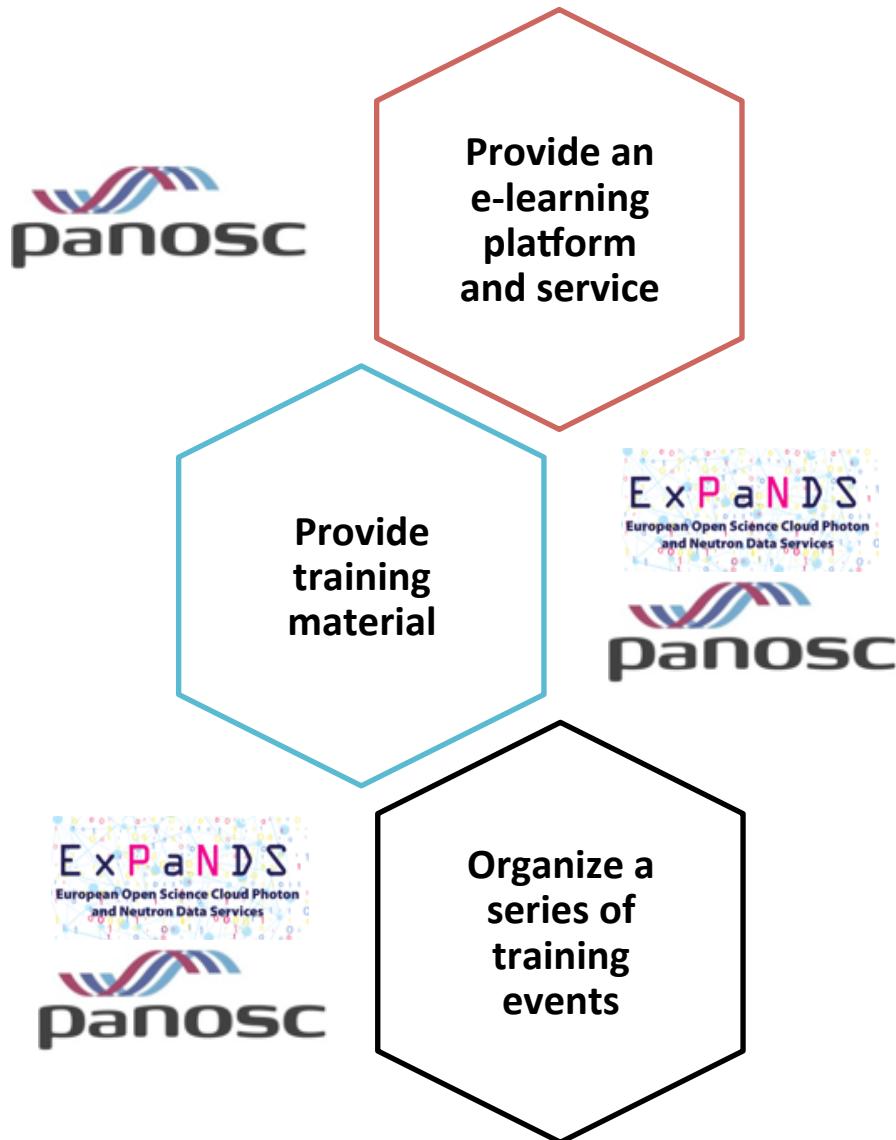
PaNOSC and ExPaNDS projects have received funding from the European Union's Horizon 2020 research and innovation programme under grant agreements 823852 and 857641, respectively.

## Overview

- Objectives, deliverables, dependencies
- Common achievements of this year
- Past and foreseen engagement with users
- **Next steps for the upcoming 12 months**

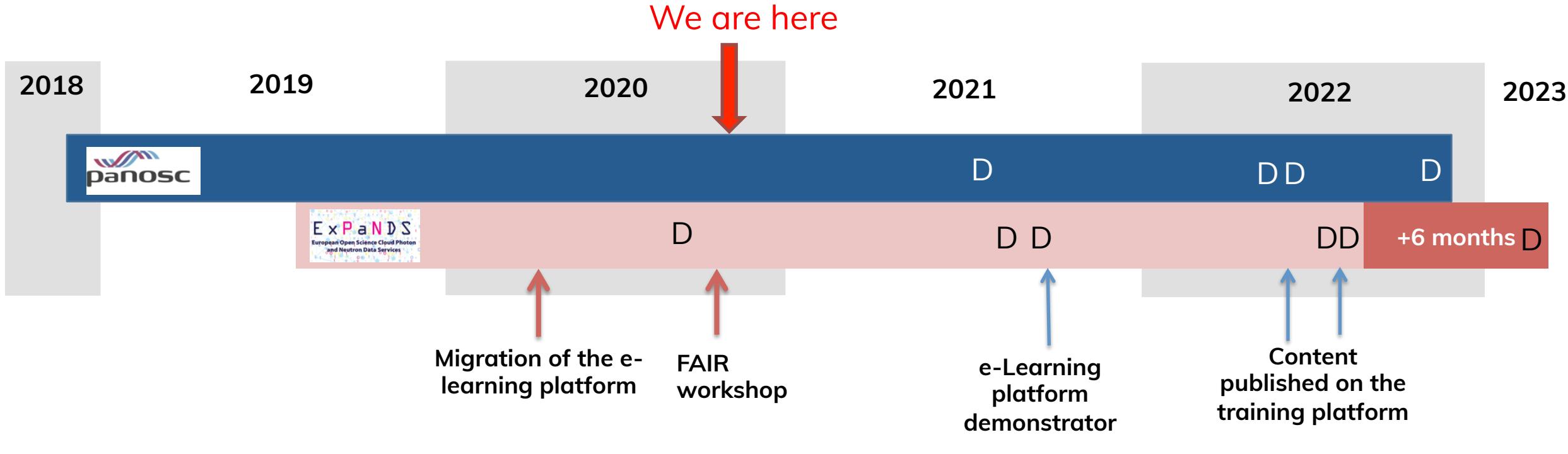
# Objectives, deliverables, dependencies

# PaNOSC and ExPaNDS Training activities objectives



- **Provide an e-learning platform and service to provide training to staff and users**
- **Provide training material**
  - ✓ accessible to staff and users from national RIs
  - ✓ using EOSC data websites and e-learning platforms
  - ✓ to use the e-learning platform
  - ✓ to develop courses, and train staff at relevant RIs at specific workshops
  - ✓ to promote the FAIR principles and best practices
  - ✓ to promote services and capabilities of PaN facilities
- **Organize a series of training events**
  - ✓ data FAIR principles
  - ✓ data stewardship
  - ✓ data management
  - ✓ data analysis services integrated into the EOSC services
  - ✓ staff training on e-learning platform

# PaNOSC and ExPaNDS GANTT chart



| Project | WP start   | WP end     | WP Leader                              | WP Co-Leader           | Partners                              | Dependencies            |
|---------|------------|------------|--|------------------------|---------------------------------------|-------------------------|
| PaNOSC  | 01/12/2018 | 30/11/2022 | Thomas Holm Rod (ESS)                  | Florian Gliksohn (ELI) | ESS, ELI, ESRF, XFEL, ILL, CERIC-ERIC | WP2, WP3, WP4, WP5, WP6 |
| ExPaNDS | 01/08/2020 | 28/02/2023 | Thibaud Cayla, Nazaré Guimard (SOLEIL) | Uwe Konrad (HZDR)      | SOLEIL, HZDR, EGI                     | WP2, WP3, WP4           |

# PaNOSC and ExPaNDS Deliverables



## Amendment to align the activities between ExPaNDS and PaNOSC

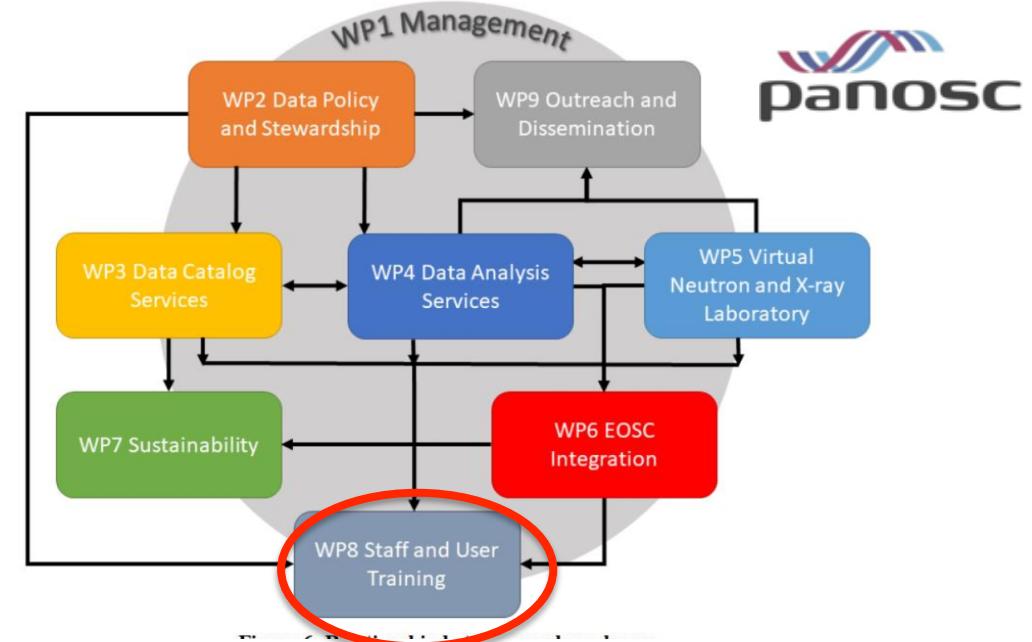
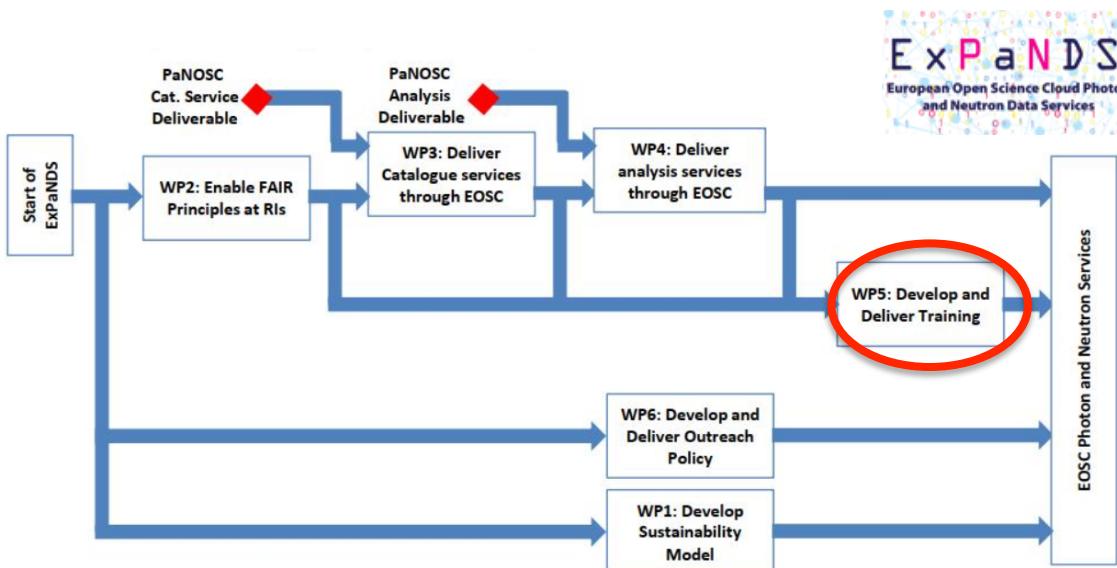
| Project | Deliverable | Due Date                   | Status  | Description   |
|---------|-------------|----------------------------|---------|---|
| ExPaNDS | D5.1        | Aug 2020                   | Done    | Annual Report, year 1   |
| PaNOSC  | D8.1        | Jul 2021                   | Pending | Report on lessons learned and future prospects for adopting best practices data stewardship |
| ExPaNDS | D5.2        | Aug 2021                   | Pending | Annual Report, year 2   |
| ExPaNDS | D5.4        | Sept 2021                  | Pending | <b>Demonstrator for using of e-learning platforms</b>                                       |
| PaNOSC  | D8.2        | May 2022                   | Pending | Report on lessons learned for adopting the e-learning platform                              |
| PaNOSC  | D8.3        | May 2022                   | Pending | <b>Teaching material accessible in the e-learning platform</b>                              |
| ExPaNDS | D5.3        | Aug 2022                   | Pending | Annual Report, year 3   |
| ExPaNDS | D5.5        | Aug 2022 (incl.+6 months)  | Pending | <b>Dedicated websites and e-platforms with the teaching materials</b>                       |
| PaNOSC  | D8.4        | Nov 2022                   | Pending | Closing report including report from summer school  |
| ExPaNDS | D5.6        | Jan 2023 (incl. +6 months) | Pending | Report on lessons learned and future prospects for adopting best practices                  |



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# Dependencies with Technical and Outreach WPs



## Input from ExPaNDS WP5 and PaNOSC WP8

- Provide a training platform (PaNOSC)
- Provide guidelines to create training material
- Provide guidelines to use the training platform
- Collect and publish training material
- Organise training workshops and events

## Input from other WPs

- Define the training objectives
- Provide training material
- Identify training workshops and events to be organised
- Contribute to the adoption of the training platform

# Coordination of ExPaNDS and PaNOSC training activities

## ExPanDS/PaNOSC joint meetings

- Objectives: PaNOSC WP8 and ExPaNDS WP5 monitoring

- Participants:

- Thomas H. Rod, ESS
- Florian Gliksohn, ELI
- Thomas Kluyver, XFEL
- Miguel Gonzalez, ILL
- Vincent Favre-Nicolin, ESRF
- Nicoletta Carboni, CERIC
- Teodor Ivănoaica, ELI
- Peter K. Willendrup, ESS
- Thomas H. Rod, ESS
- Nazaré Guimard, SOLEIL
- Thibaud Cayla, SOLEIL
- Uwe Konrad, HZDR
- Oliver Knodel, HZDR
- Giuseppe La Rocca (EGI)



## Training platform Task Force

- Objectives: Technical requirements for setting the training portal

- Participants:

- Alexandre Stefanov, ESS
- Fredrik Bolmsten, ESS
- Kareem Galal, ESS
- Peter K. Willendrup, ESS
- Sebastian Micluța-Câmpleanu, ELI
- Teodor Ivănoaica, ELI
- Lottie Greenwood, ESS
- Jesper R. Selknaes, ESS
- Oliver Knodel, HZDR





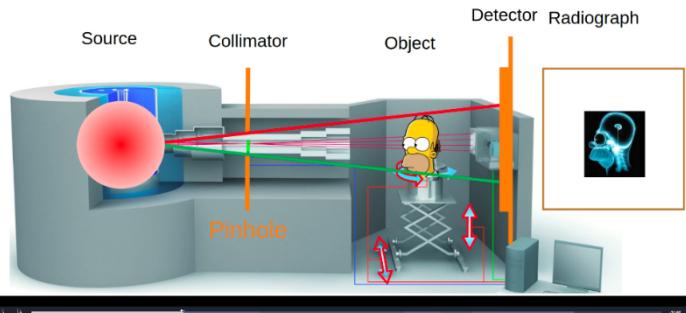
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# Common achievements of this year

# E-learning platform modules

## The neutron imaging setup



## Types of learning materials

- ✓ Text book material
- ✓ Quizzes
- ✓ Slides
- ✓ Videos
- ✓ Annotated videos
- ✓ Virtual experiments
- ✓ Jupyter (scripting)

## Components:



## Work in progress:

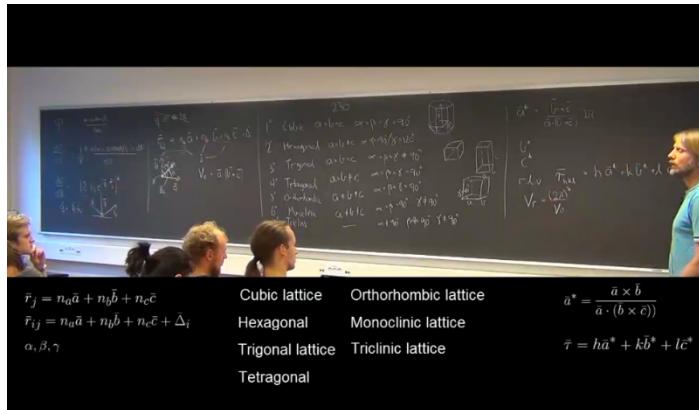
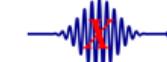


+ other simulation software

*McStas*



*McXtrace*



## Introduction to neutron scattering

Dashboard / Courses / intro-ns / Introduction to small-angle neutron scattering (SANS) / Simulation quiz: Small Angle Neutron Scattering / Preview

Question 1

Tries remaining: 4  
Marked out of 1.00  
Flag question  
Edit question

Run the simulation with default parameters or another set of parameters that you like.

You should get a web-page with images that look like the first row of images below. By pressing L, you can get different images. We want you to find out what the different images on the web page represent. We encourage you to play around and click on the page (not the image below).

Below the following image, you will find text codes that you can drag onto an area on the image. Each code corresponds to a description of the area on the image:

POI: A plot of the image at the detector

LPOI: A log-plot of the image at the detector

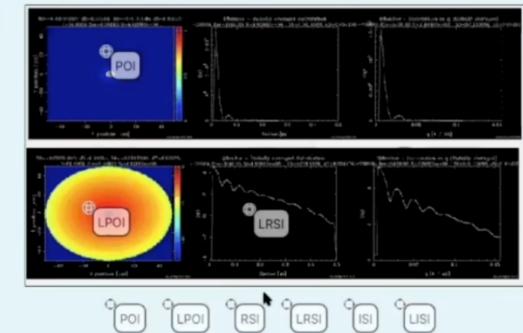
RSI: A graph of the intensity measured at the detector in real space.

LRSI: A log scale graph of the intensity measured at the detector in real space.

ISI: A graph of the intensity measured at the detector in reciprocal space.

LISI: A log scale graph of the intensity measured at the detector in reciprocal space.

When you are ready, drag and drop the text boxes to the appropriate places on the image.



Previous page

Next page



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# E-learning platform outcomes

✓ e-neutrons.org migrated to ESS under the name of pan-learning.org

✓ devops and security improved

✓ Jupyter integrated

✓ Umbrella AAI integrated

✓ E-learning train the trainer workshop

✓ Underpinning technologies upgraded



New content added

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  
photons and neutrons  
open science cloud

FRONTPAGE ABOUT PAN-LEARNING FOR TEACHERS SUPPORT

## Courses

(login required)

My courses  
Quick access to the courses you have already enrolled in.



Materials Science at a Virtual Neutron Facility  
A 1h learning game



ERCULES

ERCULES school provides training for students, postdoctoral researchers and senior scientists from European and non-European universities.

Introduction to Neutron Scattering  
An introductory course to neutron scattering, intended for students at master level or above.



Introduction to neutron scattering

MY COURSES  
Quick access to the courses you have already enrolled in.

Topics in Neutron Scattering  
A collection of short modules about a specific science case or neutron technique



course you will learn about the basic techniques used to perform experiments in neutron scattering

READ MORE

## Exercise taster

Problem Discussion Read View source View history Go Search

Problem: Fourier transform  
Mathematically the scattering amplitude is the Fourier transform of the distribution of scattering centers (nuclei, electrons, spins) within the material. The scattered intensity (the scattering function) is the square of the scattering amplitude.

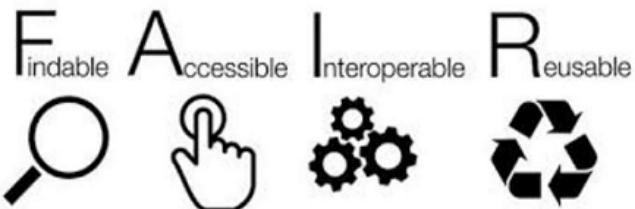
One-dimensional input

## Quiz taster



# First training event: FAIR workshop (01-02/10/2020)

## We will help make data



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 857641

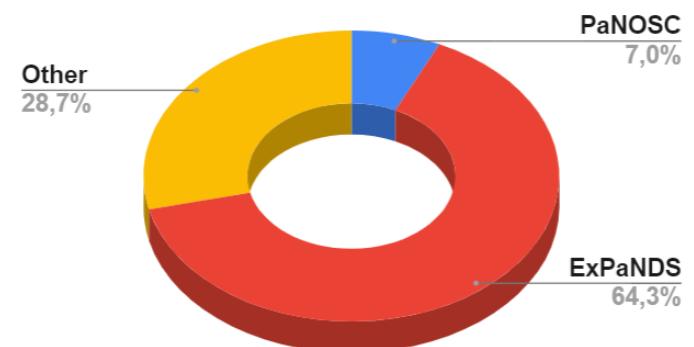
| Target Audience                                | Objectives  |
|--|---|
| Instrument scientists and other facility staff | <ul style="list-style-type: none"><li>✓ Overview of FAIR – key questions related to the data facilities produce</li><li>✓ Exploration of the FAIR experiment</li><li>✓ Receive feedback from audience</li></ul> |

<https://expands.eu/2020/09/09/expands-fair-workshops-1st-2nd-october-2020/>

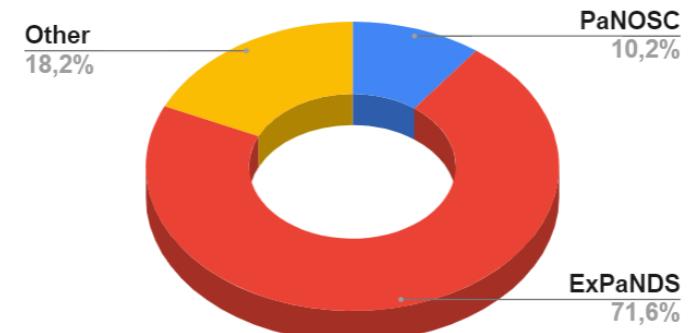


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Day 1: 115 participants



Day 2 : 87 participants



# Upcoming events

- Next workshops (topic to be defined by WP leaders) :
  - On-bording with EOSC (April 2021)
  - Data stewardship
  - Data catalogue
  - Data services

ONLINE FORMATS DUE TO THE COVID-19 SITUATION

- «Train the trainer (TtT)» online workshop using the e-learning platform (beginning 2021)
  - Objectives: Develop onboarding guidance for trainers and training modules, feedback on platform
  - Trainers: Jesper Bruun, Department of Science Education, UCPH & Victor L. Holm, Niels Bohr Institute, UCPH
  - Duration and scope: 3 + 2 days during winter with hands-on team work, developing actual courses for pan-learning.org.
  - Participants: Preferably one from each facility, although max 24.

CONTRIBUTION FROM  
TECHNICAL WPs NEEDED

CALL FOR PARTICIPANTS  
(one per facility)



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# Past and foreseen engagement with users, other initiatives and stakeholders

# Observation 1: FAIR for training good practices required

## Ten simple rules for making training materials FAIR



Garcia et al. (2020) Ten simple rules for making training materials FAIR. *PLoS Comput Biol*  
16(5): e1007854. <https://doi.org/10.1371/journal.pcbi.1007854>

- Guidelines which apply the FAIR principles to limitation experienced by trainers looking to find, (re)use and adapt learning materials.
- Guidelines pertinent across domain and include amongst others:
  - Plan to share your training materials online
  - Give your training materials a unique identity
  - Make your training materials contribution friendly
  - Improve findability of your training materials by properly describing them



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# Observation 2: Need to centralise the access of available training material in PaN facilities?

Do you offer data analysis/reduction training at your facility?

| Facility | Response  |
|----------|---|
| DESY     | To some extend in dedicated, instrument specific workshop   |
| PSI      | no  |
| Diamond  | The training provided will depend on the user communities.  |
| ISIS     | Yes, through annual Neutron training school and Muon training school. Plus e-learning material, documentation of software used on beamlines and through training by instrument scientists   |
| SOLEIL   | Not yet regularly, only punctually during some meetings (as annual Users' Meeting) or workshops.  |
| ESRF     | 2018: We provide some Python trainings oriented towards data analysis (Training material: <a href="https://github.com/silx-kit/silx-training">https://github.com/silx-kit/silx-training</a> ) 2023: Training material should be made available and possibly trainings should be complemented by tutoring services |
| ALBA     | The Experiments Division has offered specific training to some users in the past.   |
| HZB      | Not centralised   |
| HZDR     | on individual request, not regularly  |
| MAXIV    | Yes   |

- ✓ Many scattered existing training materials
- ✓ How to centralise and index all of them ?

Stolen from the survey done for the WP4 technical workshop organized by ExPaNDS and PaNOSC

# Ambition: Provide a training portal dedicated to PaN community

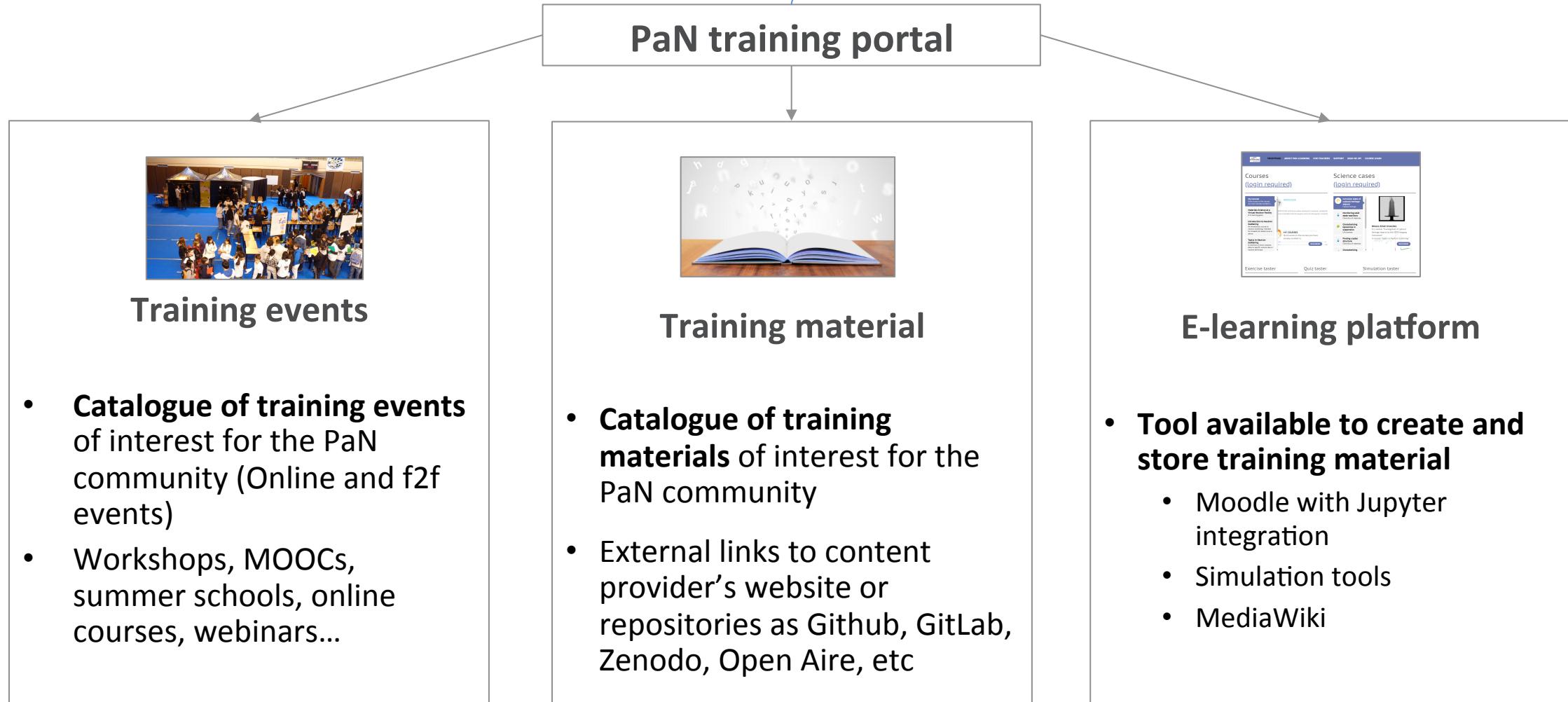
- Objectives of the future PaN training portal:
  - will be a **single entry point to relevant training ressources** for the PaN community
  - will **include the e-learning platform** to create training material.
  - will be a **catalogue of centralized PaN dedicated training resources** (material and events), adopting FAIR principles.
  - will contribute to a **growing EU PaN dedicated training catalogues**
  - will be an **effective gateway to find and share training events and ressources** for the PaN community
  - will be **sustainable beyond the timeframe of the projects** to serve users in the long-term in terms of technology, maintenance, and business model
- Future work on **collecting the material and events**, and on **metadata definition** to index the training content.



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# Ambition



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# Sustainability: PaN facilities covered by PaNOSC/ExPaNDS

## Photon (LEAPS)



PaNOSC  
ExPaNDS

## Neutron (LENS)



Source: Helmut Dosch

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# Sustainability: Engagement with other initiatives and Stakeholders

## ESFRI cluster projects



Sharing of good practices

## INFRAEOSC -5B projects



Neutronsources.org  
Your entry into the neutron world

Promote adoption and sustainability



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# Next steps for the upcoming 12 months

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# Next steps for the upcoming 12 months

Establishing a strong relation with key stakeholders within and outside the projects is crucial to the future adoption and sustainability of the platform

CONTRIBUTION FROM OTHER  
WPs NEEDED!

- **Technical developments:** Jupyter integration in the e-learning platform, PaN portal prototype
- **Identification of training contact points at each facility** to promote platform adoption and addition of new content
- **Organisation of the Train the Trainer workshop** (beginning 2021) and the **onboarding with EOSC workshop** (April 2021)
- **Definition of training objectives and development of training content :** Survey to be sent to PaNOSC and ExPaNDS partners (Dec. 2020)
- **Provide guidelines** to create training material and to use the training platform
- **Adoption and sustainability:** Contact with LEAPS, LENS, LASERLab



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