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THEME 1 DEFINING A FAIR-ENABLING POLICY ENVIRONMENT

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A Data Policy Framework for Photon and Neutron Research Infrastructures

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ExPaNDS

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Introduction

The ExPaNDS project[1] is the European Open Science Cloud (EOSC) Photon and Neutron Data Service: a collaboration, funded by the Horizon 2020 programme, between ten national Photon and Neutron Research Infrastructures as well as EGI, an e-infrastructure that provides advanced computing services for research.[2] These research infrastructures are exemplars of "facilities science", providing specialised instruments and techniques for use by researchers from a wide range of fields.[3] One strand of work in the project is on "Enabling FAIR data for photon and neutron national research infrastructures", and includes development of a data policy framework to allow the facilities to adopt a coherent approach to FAIRness of the data that they generate.

The activity examined here concerns revisions to the ExPaNDS data policy framework presented in the project's Final data policy framework for Photon and Neutron RIs.[4] The earlier draft policy framework (ExPaNDS deliverable D2.1: Draft extended data policy framework for photon and neutron RIs) had been published in September 2020, and drew on the FAIRsFAIR Policy enhancement recommendations. Before that, there had been joint work with the PaNOSC project[5], which had produced its own data policy deliverable in May 2020. However it became apparent that ExPaNDS partners were keen to explore the various themes of the data policy framework in more depth, especially with a view to providing greater flexibility in approach, so a programme of consultations with each of the ten ExPaNDS partner facilities was undertaken.

FAIRsFAIR recommendation

"Align and harmonise FAIR and Open data policy"

FAIRsFAIR Recommendations on practice to support FAIR principles

1. https://expands.eu
2. www.egi.eu
3. In this document, the terms "facility" and "research infrastructure" are used interchangeably.
4. https://doi.org/10.5281/zenodo.5205824
5. Photon and Neutron Open Science Cloud, www.panosc.eu

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Consulting the Photon and Neutron Community

■ The Consultations

The consultations were conducted in spring 2021; these took the form of semi-structured interviews with a wide range of stakeholders from the research infrastructures represented in ExPaNDS. Those invited included policy makers, user office staff, IT and data managers, data librarians, legal staff, instrument scientists and senior managers. This variety meant that the consultations captured a range of perspectives due to differences in the seniority of individuals, their fields of expertise, and their knowledge and use of data policy. Facility users were not directly represented, since their priorities were represented by the user office staff and instrument scientists, who play a key role in supporting, interacting with, and advocating for users. The decision was taken to have everyone in the same "room" together for the consultation, though this was not always possible to achieve. The consultation was seen as an opportunity to engage in discussion and identify any gaps—a learning experience all round.

Systematic topic coding was employed to identify and analyse the themes that arose from the interviews. The consultation proved to be very helpful in refining the framework.

Challenges encountered and how these have been addressed

■ An important recognition

An important recognition was that there is significant diversity in conceptions and implementations of data policies at national photon and neutron facilities. The policies differ with respect to their intended audience (whether directed at external users or internal staff), and in the role of the policy as distinct from its purpose: the role might be as a legal instrument, a statement of best practice or of aspirations, or some combination of all of these. Another difference is that some policies apply mainly to raw data, whereas others also cover results data, software and other types of research outputs. The framework needs to be agnostic about such issues.

A further challenge is that data policy needs to be signed off by senior management, and its revision at facilities is a long procedure (several years). Because many facilities revised their policies in 2018 with the arrival of GDPR, only a few plan to undertake a formal update again in the near future. However, most ExPaNDS partners have expressed the desire to enhance their current policy and guidelines based on the new framework when the time comes. Thus, the data policy framework has helped to instigate discussions around data policy, has highlighted where improvements might be made, and has provided guidance on how FAIR can be incorporated into facility data policy making.

From the consultation discussions, some themes were uncovered that had not been anticipated. Two of these have been mentioned above: the role of the policy, and its audience (i.e. who needs to pay attention to it). A third theme is the promising approach of structuring a policy around roles, responsibilities and rights of different parties. This can help to clarify thinking and identify gaps—for example, while existing policies may emphasise what is expected of facility users, they may not always set out clearly what responsibilities sit with the facility, and therefore, what the user can expect from the facility.

For national facilities, national legislation and research culture is of paramount importance, and changes in those areas could trigger updates to the policy. After that, it is unclear where the next level of priorities lies: across the organisation itself, or across other photon and neutron facilities. This is an issue that will require further thought

1. https://www.cdcs.ed.ac.uk/
2. https://efi.ed.ac.uk/
3. https://thisisshape.org.uk/

Challenges encountered and how these have been addressed

across all of the photon and neutron facilities.

When conducting such a consultation, initial assumptions that seem obvious should be avoided: for example, that data is either open or embargoed—this applies to some facilities but certainly not to others. Likewise, as already highlighted, the assumption cannot be made that data policies play the same role for the same audience from facility to facility.

Consultation outcomes for the FAIR-enabling activity

A strong feedabck

There was strong feedback that flexibility in the framework is really important, and it should not be regarded as just a template. Therefore, during the revision process, some of the more specific aspects were removed or combined—for example, machine readability of data policies was not seen as necessary, and so should be left as an option for a future review of facilities' data policies. In general, the language was refined to prefer less prescriptive words like "may" and "might" to "should" and "must". It was also important to recognise what is and is not under the control of the facilities, such as citations of data reuse in journal publications (i.e. where publishers' rules and policy will take precedence).

In some cases, the facilities expect that the ExPaNDS policy framework will help to guide future planning, even if it does not lead to immediate updates of their policy statements. In other cases, the framework will serve more as a starting point for discussions around issues related to FAIR data management: these details will not necessarily be incorporated directly into the policy itself, but rather, will be reflected in the implementation decisions taken by the facility. An example could be introducing appropriate training; another example might be implementations related to the PaNOSC concept of "auxiliary data" which, although not universally applicable, should certainly be given some consideration. Not all facilities have data catalogues or PIDs for data so the framework can offer guidance there. Taken together, it has been shown that there are different ways of using the framework.

The framework will be most useful if it is flexible and admits various modes of use. It should concentrate on commitments rather than on actions (which will follow in order to meet the commitments).

Thinking in terms of roles, responsibilities, and rights leads to a natural structure for the framework and the policies that result. This should help to make the data policy more readable and meaningful for the people to whom it relates.

Further sources

The ExPaNDS final version data policy deliverable D2.3: Final data policy framework for Photon and Neutron RIs is at **https://doi.org/10.5281/zenodo.5205824**

The ExPaNDS draft data policy framework deliverable D2.1: Draft extended data policy framework for Photon and Neutron RIs is at **https://doi.org/10.5281/zenodo.4014810**

The PaNOSC deliverable D2.1: PaNOSC data policy framework is at **https://doi.org/10.5281/zenodo.3826039**

About FAIRsFAIR Implementation Stories

FAIRsFAIR Implementation stories illustrate good practices in research communities and organisations to support the implementation of the FAIR principles. These practices encompass 'FAIR-enabling' actions as recommended in the EC Expert Group on FAIR report Turning FAIR into Reality and the FAIRsFAIR Recommendations on practice to support FAIR principles. FAIRsFAIR "Fostering FAIR Data Practices In Europe" has received funding from the European Union's Horizon 2020 project call H2020-INFRAEOSC-2018-2020 Grant agreement 831558. The content of this document does not represent the opinion of the European Union, and the European Union is not responsible for any use that might be made of such content.

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