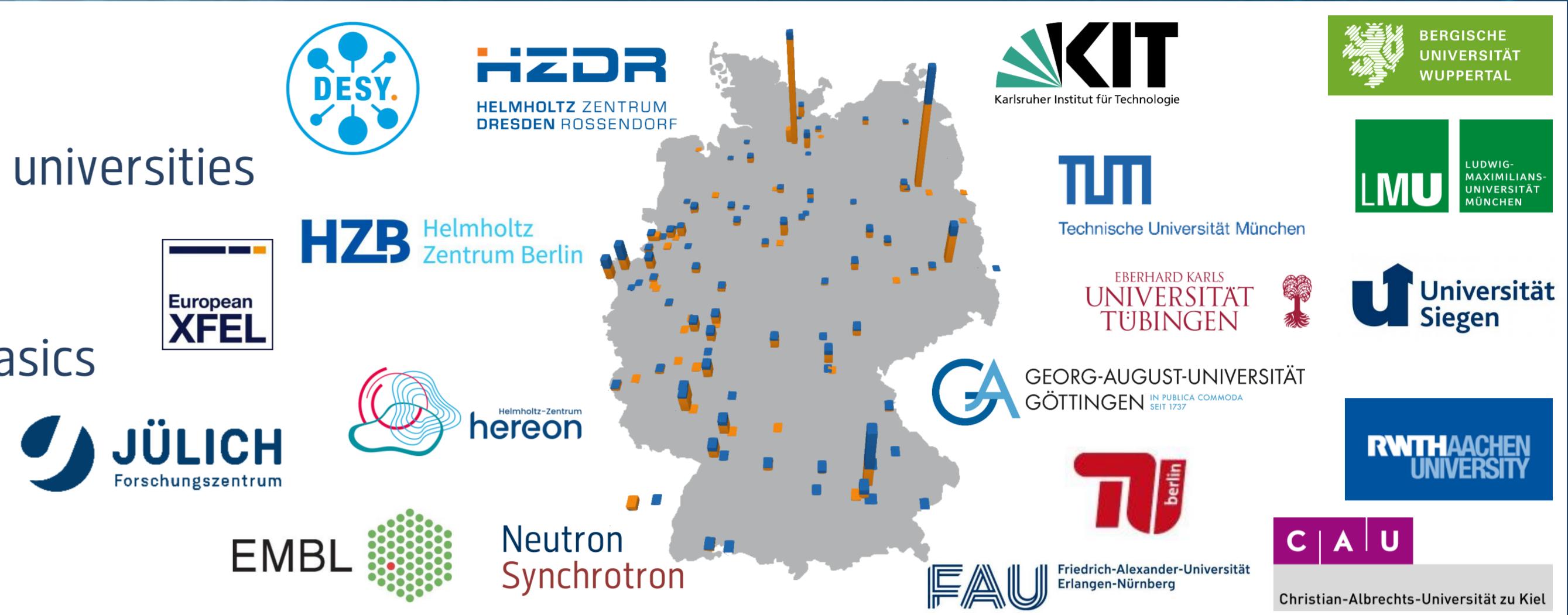


DAPHNE4NFDI: DATA from PHoton and Neutron Experiments for NFDI

Bridget Murphy, Astrid Schneidewind, Wiebke Lohstroh, Christian Gutt, Lisa Amelung, Sebastian Busch and Jan-Dierk Grunwaldt – on behalf of the consortium

Our consortium: challenges & opportunities

- Diverse research community: broad range of science areas and expertise
- Development of and integration into (existing) infrastructure: 7 large-scale facilities & 11 universities
- High data volume and complexity: great potential for interdisciplinary reuse
- Limited research data management awareness: education and training – starting from basics
- Missing acknowledgement for young scientists: leading cultural change by example
- Lack of role models: use cases to lead the community with flagship projects



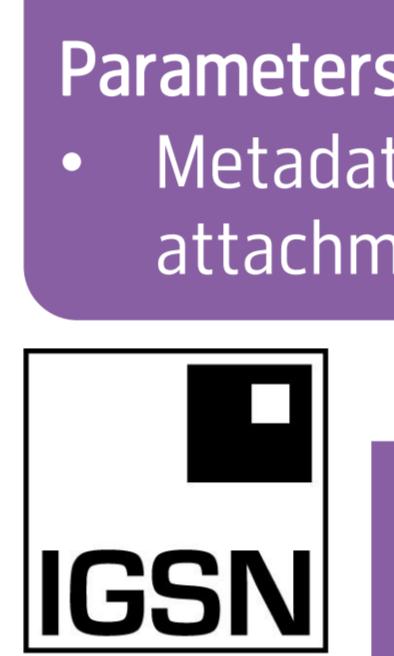
Overview of work

Collect

TA1: Managing Data Production

Capture

- Publication on specifications of domain specific metadata schemata and vocabulary [1]
- Automated and standardized metadata capture in control software
- Use and recommendation of Nexus/openPMD standard and data formats



TA4: Outreach and Dissemination

- Community interaction and engagement through various events and social media activities [8]
- Lecture material and contribution to university curricula
- Zenodo community with outputs of the consortium [9]

TA5: External Communication and Policies

- Publication of an (inter-)national community white paper [10]
- Integration of services into two EOSC nodes

DataCite

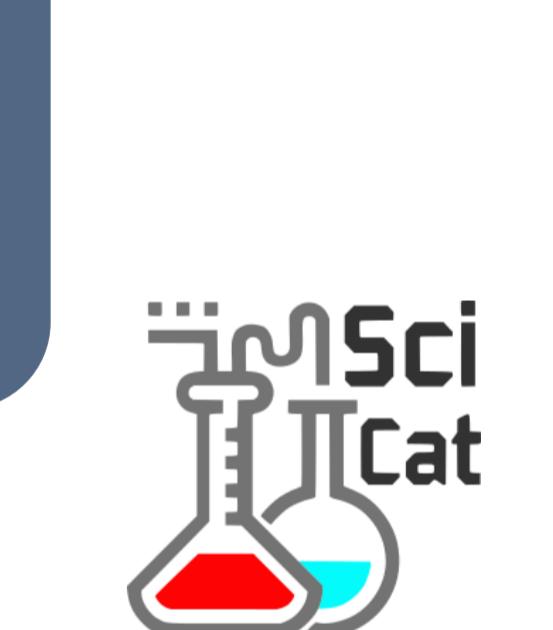
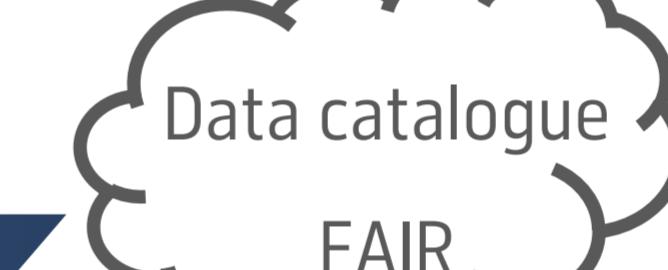
CONNECTING RESEARCH,
ADVANCING KNOWLEDGE

Store

TA2: (Meta)data repositories & catalogues

Curate

- Set-up of public reference data bases [4]
- Automated quality control



Access

- Provision of (meta)data catalogues at facilities
- Adoption of agreed common search API [5]
- Set-up of an open data repository [6]
- Active contribution to SciCat project

Visualise

- Live data visualisation



Evaluate

TA3: Infrastructure for data & software reuse

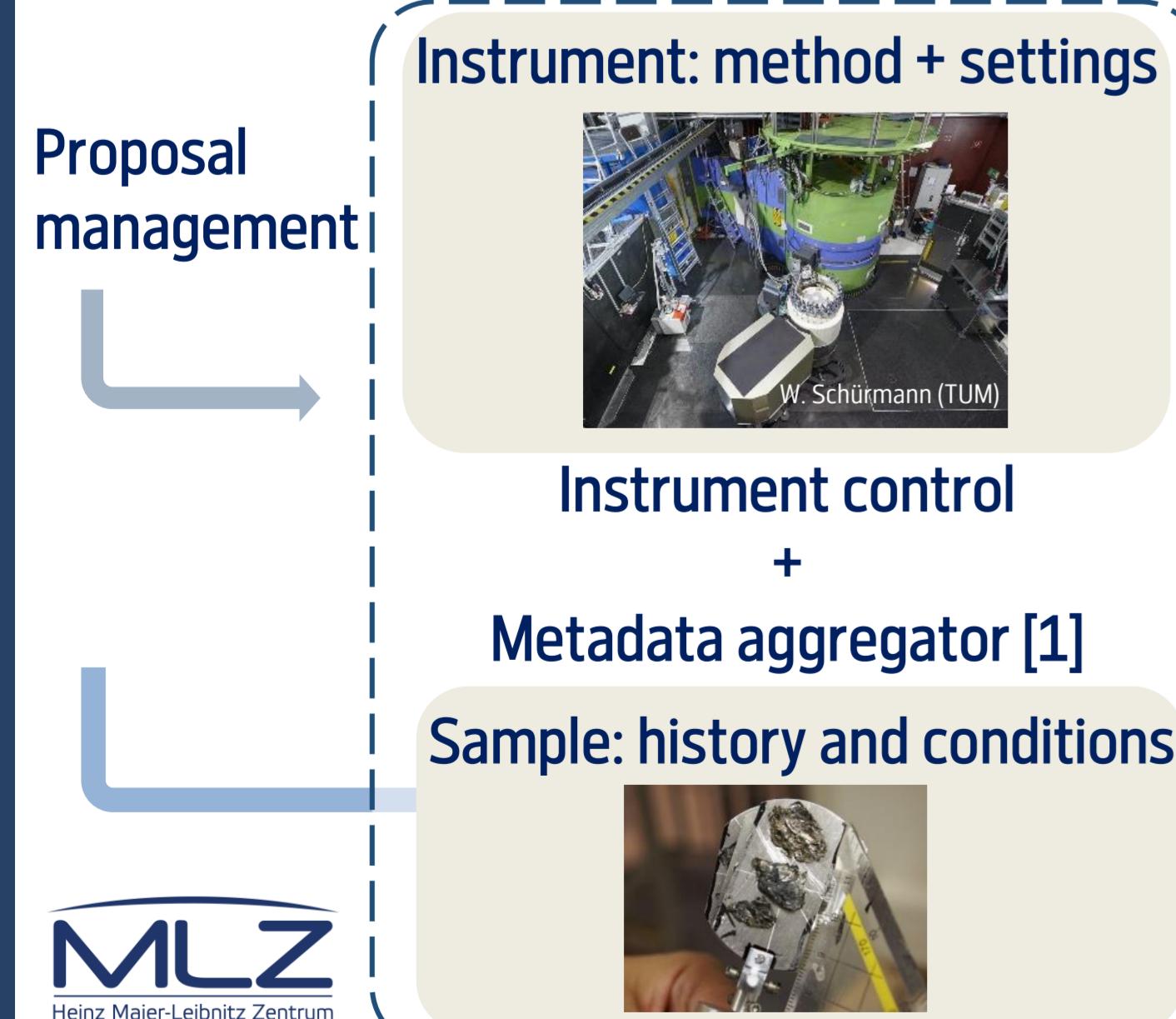
[1] Recommendations for Metadata capture and specifications, <https://doi.org/10.5281/zenodo.12169110>
[2] Specifications for Electronic Laboratory Notebooks in the Photon and Neutron Community, *Synchro. Rad. News*, <https://doi.org/10.1080/08940886.2024.2432265>
[3] IGSN portal, <https://igsn.uni-kiel.de/>
[4] XAFS Reference database, <http://xafsdb.ddns.net/>, <https://doi.org/10.5281/zenodo.8412918>
[5] Common search principle, <https://data.panosc.eu/>

[6] Central public catalogue, <https://public-data.desy.de/>
[7] Helmholtz Research Software Directory, <https://helmholtz.software/projects/daphne4nfdi>
[8] DAPHNE4NFDI homepage, <https://www.daphne4nfdi.de/>
[9] DAPHNE4NFDI Zenodo community, <https://zenodo.org/communities/daphne4nfdi>

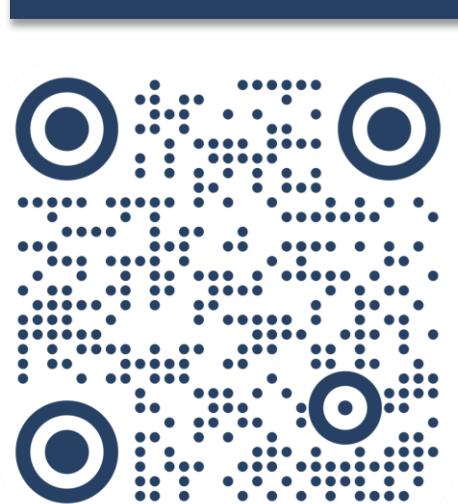
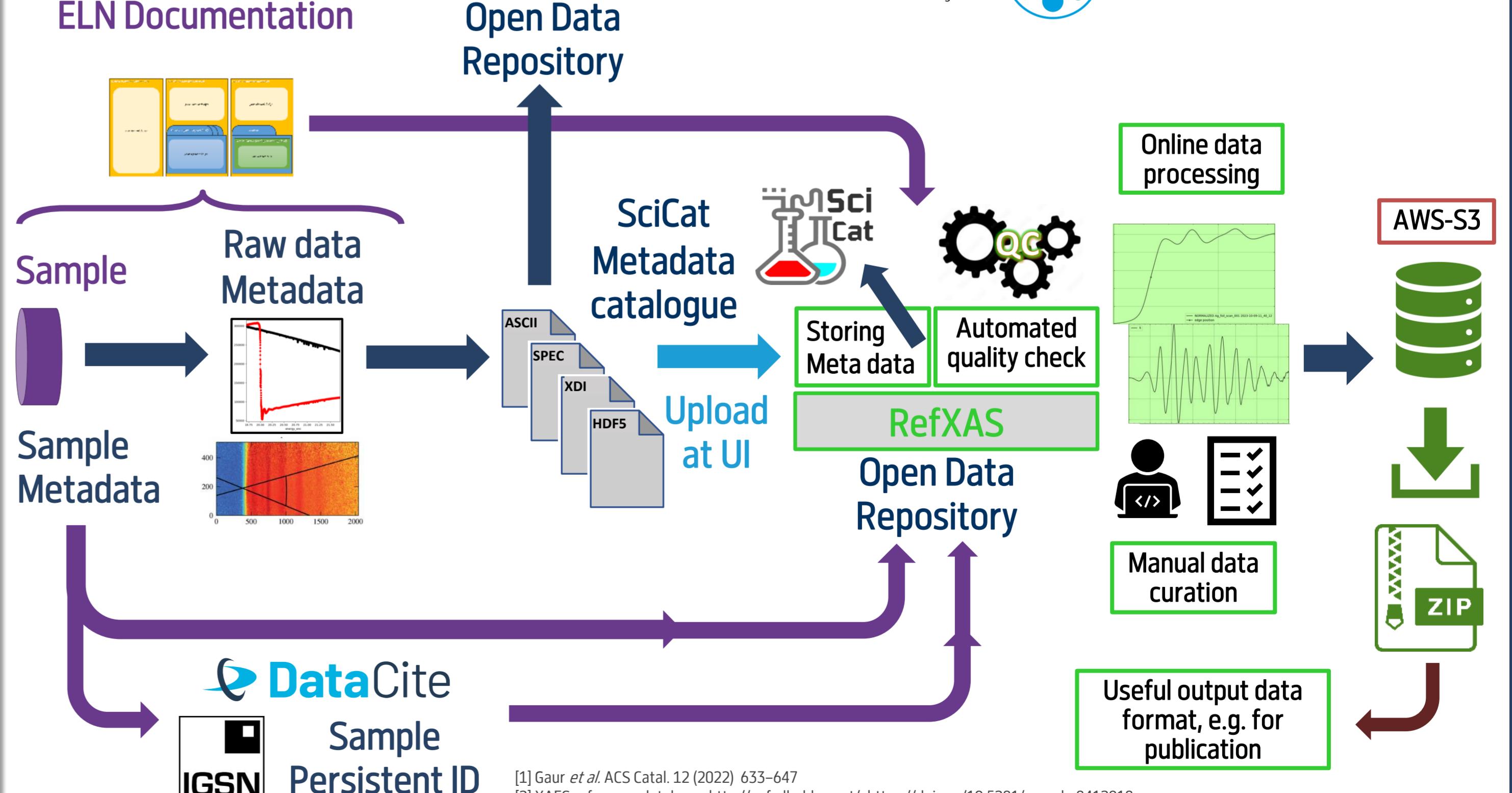
[10] The Photon and Neutron communities move together towards Open Science, IUCr, <https://doi.org/10.1107/S20522524011941>

Two of our 11 use cases (UCs)

Neutron (and X-ray) inelastic spectroscopy



X-ray absorption Spectroscopy



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