



Memorandum of Understanding

The consortia NFDI-MatWerk and NFDI4Energy in the German National Research Data Infrastructure (NFDI) hereby agree to collaborate in the field of research data management in the following areas of cooperation.

About the consortia

NFDI-MatWerk is the consortium for materials science and engineering (MSE). It envisions a federated, FAIR digital infrastructure for the MSE community that accelerates resource-efficient materials design. It supports every stage of a research project and facilitates barrier-free data usage, publication, and re-use. The consortium also enables the integration of materials data from a variety of techniques, including experimental methods and simulations.

NFDI4Energy is the consortium for the energy research community, providing services for energy researchers to manage, publish, and reuse data and software throughout the research process. NFDI4Energy sees FAIR data and software as the scientific foundation for a sustainable energy future.

Goals for the collaboration

NFDI4Energy and NFDI-MatWerk are jointly targeting material scientists in energy research from two perspectives. While NFDI-MatWerk covers this community from a methodical focus, NFDI4Energy has a focus on the potential field of application of this research. To better serve this community, the consortia intend to intensify their collaboration in order to jointly advance research data management and to open up and make use of relevant data resources. By combining their expertise, they seek to create new opportunities that support their respective missions and generate benefits for their communities as well as harmonizing their approaches to improve interoperability between service ecosystems and close research gaps. In this way, the cooperation also simplifies future interdisciplinary energy research. Through coordinated efforts, the consortia aim to achieve their common goals more effectively and to foster sustainable progress in research and innovation.

Areas of cooperation

Cooperation areas include, but are not restricted to:

- Mutual invitations and participation in consortia meetings and conferences
- Helpdesk cooperation
- Joint calls for cross-consortial use cases
- Opening services for the other community
- Supporting semantic interoperability

The consortia plan to **mutual invite** each other to relevant **consortia meeting and consortia conferences** (e.g., the yearly NFDI4Energy conference). Thereby, the consortia have opportunities to learn from each other's experiences, exchange insights, and stay updated on the latest developments in the consortia. Attending each other's events allows members of both communities to meet, network, and foster collaboration and potential joint initiatives. This engagement helps both consortia to align their strategies and to advance their shared objectives more effectively.

The **helpdesks** of both consortia plan to **closely collaborate** to allow the communities to access a wider pool of expertise, receive faster and more accurate support, and benefit from shared resources and best practices. This enhances user support and improves efficiency.

The consortia plan to arrange funding for **cross-consortial use case calls**. A use case demonstrates RDM services, concepts and processes in realistic projects with a typical research question to establish these and support their use in the community. By providing example applications, tutorials or best practices or making existing data easily accessible, a use case aims to improve RDM processes throughout the research lifecycle. A use-case becomes cross-consortial if it uses services from both consortia and/or makes a service from one consortia usable for the other. This allows us to combine our expertise, share insights and develop practical solutions to common problems. In this context, the consortia continue and expand their existing cross-consortial use case on synthetic data in materials and energy research, highlighting the practical value of shared workflows and interoperable services.

The consortium plans to **open and make its services available** for the community of the other consortium. One consortium **integrates** the service of another consortium into the portfolio to make it available to the community. This includes the usage of electronic lab notebook (ELN) eLabFTW for NFDI4Energy.

To further strengthen **semantic interoperability**, both consortia will coordinate on shared metadata profiles, controlled vocabularies, and ontologies (including mappings between community schemas) and promote the consistent use of persistent identifiers, wherever appropriate.

Signatories of the memorandum

For NFDI-MatWerk

- Christoph Eberl (Fraunhofer IWM / Albert-Ludwigs-Universität Freiburg)

For NFDI4Energy

- Astrid Nieße (Carl von Ossietzky Universität Oldenburg)

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