

# Collaborative Infrastructure: Data Stewards and the Base4NFDI Service Ecosystem

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The German National Research Data Infrastructure (NFDI) initiative Base4NFDI addresses interdisciplinary challenges in research data management by supporting the development and integration of cross-domain *basic services*. This poster introduces a selection of Base4NFDI services and highlights the pivotal role data stewards play as stakeholders, contributors, and multipliers in their development and adoption. It also illustrates how basic services support data stewards and other RDM professionals in their role.

**Data stewards** bridge domain-specific requirements and technical implementation, making them critical stakeholders in basic service development adoption. During basic service development, they can contribute their requirements to tailor services to their target groups' needs. In the *integration phase*, which is the second of three stages of service development focusing on integrating basic services broadly into NFDI consortia, they may facilitate service-related training and advocate for institutional buy-in.

Base4NFDI is developing a growing portfolio of basic services at various stages of maturity. The following selection presents key services that are already in use and particularly relevant for data stewards, as they are community-developed, cross-disciplinary, and directly support the work of RDM professionals and researchers.

**Jupyter4NFDI** provides a centralized JupyterHub and democratizes access to computational infrastructure via Jupyter notebooks. Thereby it fosters reproducible, FAIR digital research workflows. Data stewards are users and multipliers of this service. They help researchers adopt the platform, show how it can be used for workshops or may provide RDM training and resources via Jupyter notebooks.

**IAM4NFDI** delivers a state-of-the-art identity and access management system, enabling users to login to NFDI services with their home organizations account. Data stewards can point resource providers to potential integrations with IAM4NFDI solutions, facilitate access to virtual organisations for researchers where appropriate, and communicate user needs to service developers.

**TS4NFDI** offers widgets for terminologies, supporting harmonization and curation across disciplines. Its Terminology Service Suite (TSS) provides a collection of interactive widgets that ease the integration of terminology service functions into user applications. This makes it easier for data stewards to promote metadata provision, quality and interoperability within their communities.

**DMP4NFDI** standardizes and streamlines the creation and management of data management plans (DMPs) and software management plans (SMPs) using the open-source RDMO tool. It coordinates template creation, offers guidance, training and support, directly empowering data stewards in their advisory and quality assurance roles.

**RDMTraining4NFDI** assembles a modular collection of RDM training materials and supports the development of community-specific adaptations. Data stewards are both contributors to and primary users of these train-the-trainer resources, helping to disseminate best practices and foster a culture of data literacy.

By actively engaging with these services - through co-development, feedback, training, and advocacy - data stewards can help shape solutions that are not only technically sound but also aligned with the practical needs of their research community. With their involvement they can directly influence tools and standards that support their daily work, making them more usable, interoperable, and sustainable. Contributing in this way not only enhances their professional expertise and network but also reinforces their role as a key enabler of FAIR data practices.

To engage, data stewards and other RDM professionals can join NFDI sections and consortia or simply contact Base4NFDI's **Service Stewards** who consolidate technical and community requirements. The 2025 Data Stewardship conference in Karlsruhe provides a platform to discuss these dynamics, emphasizing use cases in interoperability, tool integration, and reproducibility.

## Abstract

Poster

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