Memorandum of Understanding

The speakers of the consortia DataPLANT, NFDI4Biodiversity and NFDI4Microbiota agree on the following areas of cooperation in the area of research data management for the biological sciences.

About the consortia

DataPLANT is a consortium for the plant science community, providing a state-of-the-art tool-box for managing, processing and publishing data packages early on in the research process following an open contribution and participatory model. Its overarching goal is to provide robust, easily accessible and user-oriented research data management practices, tools, and infrastructure to support collaborative plant biology research.

NFDI4Biodiversity is a broad resource provider and expert network with a variety of services for biodiversity, ecological and environmental data. In the first funding phase, the foundations were laid for a common infrastructure and data mobilisation according to the FAIR principles, with focus on occurrence and molecular sequencing data (metabarcoding).

NFDI4Microbiota offers a broad set of solutions and services to the microbiological research community to make their data and other research output FAIR and open. This includes among others training, data storage solutions, data analysis services and RDM consulting.

Goals and areas of cooperation

Despite different subject areas and research contexts (field/lab), the target communities of the three consortia use similar methods, and similar data types are relevant for their research. Based on their relevance for the community, the consortia´s investments in solutions for certain data types and methods in the first three years of operation were quite complementary. This provides us with a good basis to leverage resources.

We therefore intend to use biological data as the connecting element to harmonise research data management strategies for different research contexts, thereby facilitating access to services and other data-related resources in the field of biology, and developing synergies across consortia. The cooperation will be open to include other consortia with biological data.

Synergies may include but are not restricted to:

- Education and training
- Outreach and communication
- Service portfolio (reuse and co-development of services)
- User support
- Activities in the UN policy arena regarding digital sequence information

Table 1: Complementary investment in major biological data types
The focus of investment of NFDI4Biodiversity, DataPLANT and NFDI4Microbiota in community services, guidelines, blueprints, use cases, training, etc. for different biological data types were highly complementary in the first three years of operation.
Legend: +++ high; ++ solid; + not much in focus; - no priority so far

Data type	NFDI4Biodiversity	DataPLANT	NFDI4Microbiota
Type 1: Collection data, species occurrence data	+++	-	-
Type 2: Taxon data (catalogue, checklist or so-called red list)	+++	-	+
Type 3: biological and ecological study data including functional and phylogenetic trait data	+	+	+
Type 4: non-molecular analysis data f.e. in laboratory research contexts	+	+++	+++
Type 5: molecular sequence data	++	+++	+++

Living the collaboration: Activities

The consortia will implement a biodata interest group within NFDI to govern joint activities and to include other consortia over time. The interest group shall review training materials and service developments to highlight synergies and complementarity, so that operational goals in the consortia can be aligned and co-marketing activities can be planned. It will develop cross-consortia collaborations on essential services and advocate for sustained funding of biodata services. The interest group shall be integrated in the work programmes and coordination shall alternate between the consortia.

1) Joint partners and staff: As the three consortia are approaching the second funding period, they will strengthen their partnership through shared co-applicants, participants and staff. A list of current partners is included as an annex to this MoU. Shared partners will allow the co-funding of staff positions for core activities in service development, marketing, and in the policy sector.

2) Joint infrastructure: The consortia rely on collaboration with the de.NBI service centres and cloud. They have a common interest to stimulate the further development of the de.NBI infrastructure to meet the needs of their target communities and will provide new use cases encouraging de.NBI to sharpen its portfolio for research data infrastructure providers in the life sciences. This will be facilitated through the de.NBI cloud providers who are shared members of the consortia. There is also a joint intererest in multicloud technologies and the Research Data Commons concept. This

will be promoted jointly within the current negotiations about the NFDI architecture and basic services.

3) Joint programming for the uptake of services and standards: The consortia will develop dedicated cross-consortia flexfunds projects and use cases, for example regarding the use of the Annotated Research Context (ARC) in biodiversity research groups, the use of BiodivPortal and Bioportal ontology repositories, and eventually TS4NFDI, the joint development of tools for the collection of service usage metrics and the implementation of bioschemas.org by data and service providers in the consortia. These projects and use cases will be used to promote services across subject areas and to plan cross-consortia workshops and seasonal schools. For services marketed across consortia, joint user groups will be set up.

4) Pooling know-how for outreach purposes: The consortia use branded knowledge bases to reach their target audiences and market their expertise and services. In the second funding period, the consortia strive to pool capacities for the development and update of such resources, in order to achieve economies of scale and avoid duplication of efforts. Care will be taken to enable marketing in each consortium´s community of interest, while providing easy access to comprehensive biodata resources for biology in general. Collaboration with existing knowledge brokers in the field, e.g. ELIXIR, forschungsdaten.info and GFBio e.V., will be pursued as part of this activity.

Transparency

The partners provide information on the collaboration on their websites.