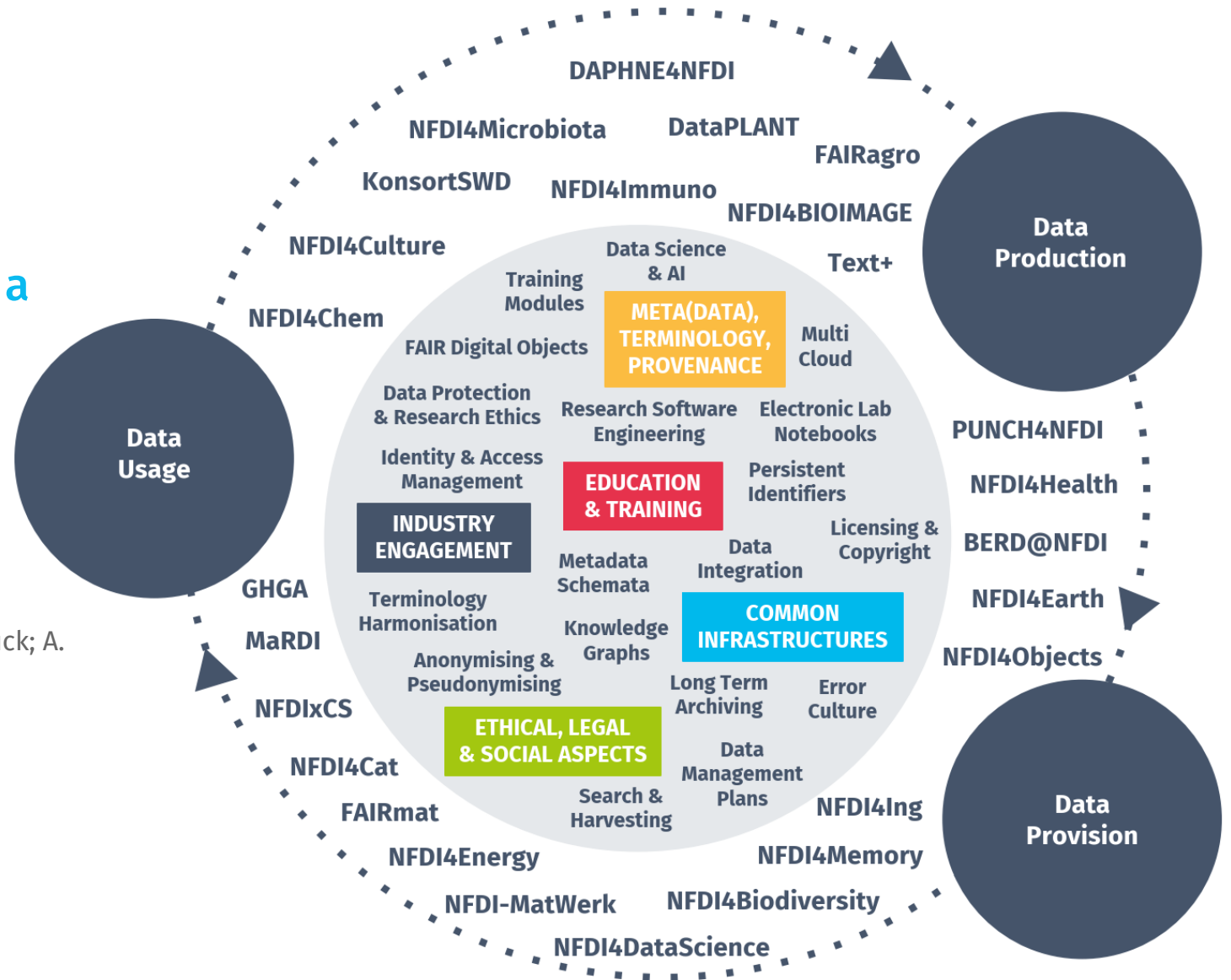# Base4NFDI

Creating NFDI-wide basic services in a world of specific domains

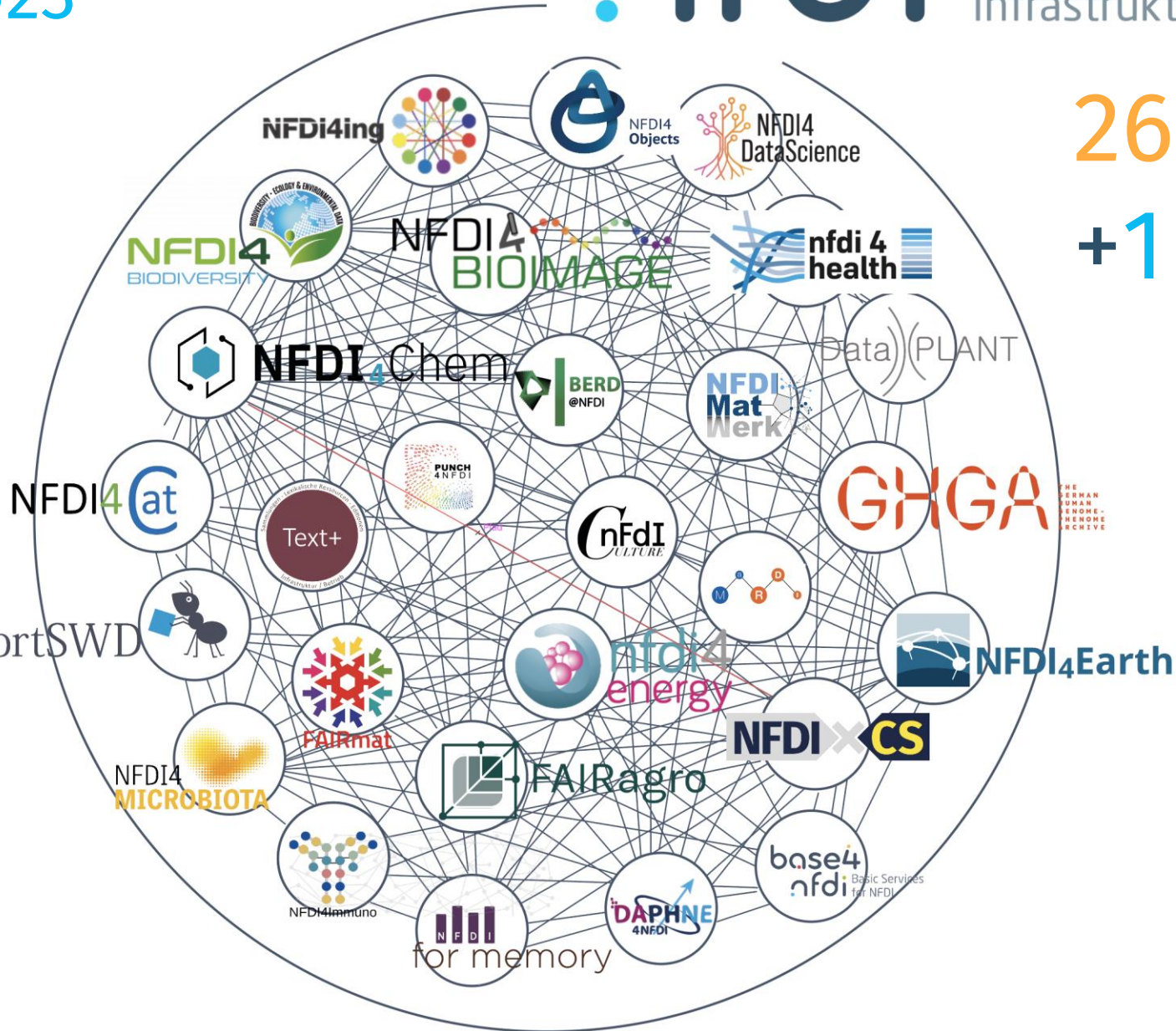Franziska Fritzsche
Gesis – Leibniz Institute of Social Sciences

In the name of S. Schimmler; R. Altenhöner; L. Bernard; J. Fluck; A. Klinger; S. Lorenz; B. Mathiak; B. Miller; R. Ritz; T. Schörner-Sadenius; A. Sczyrba; R. Stein
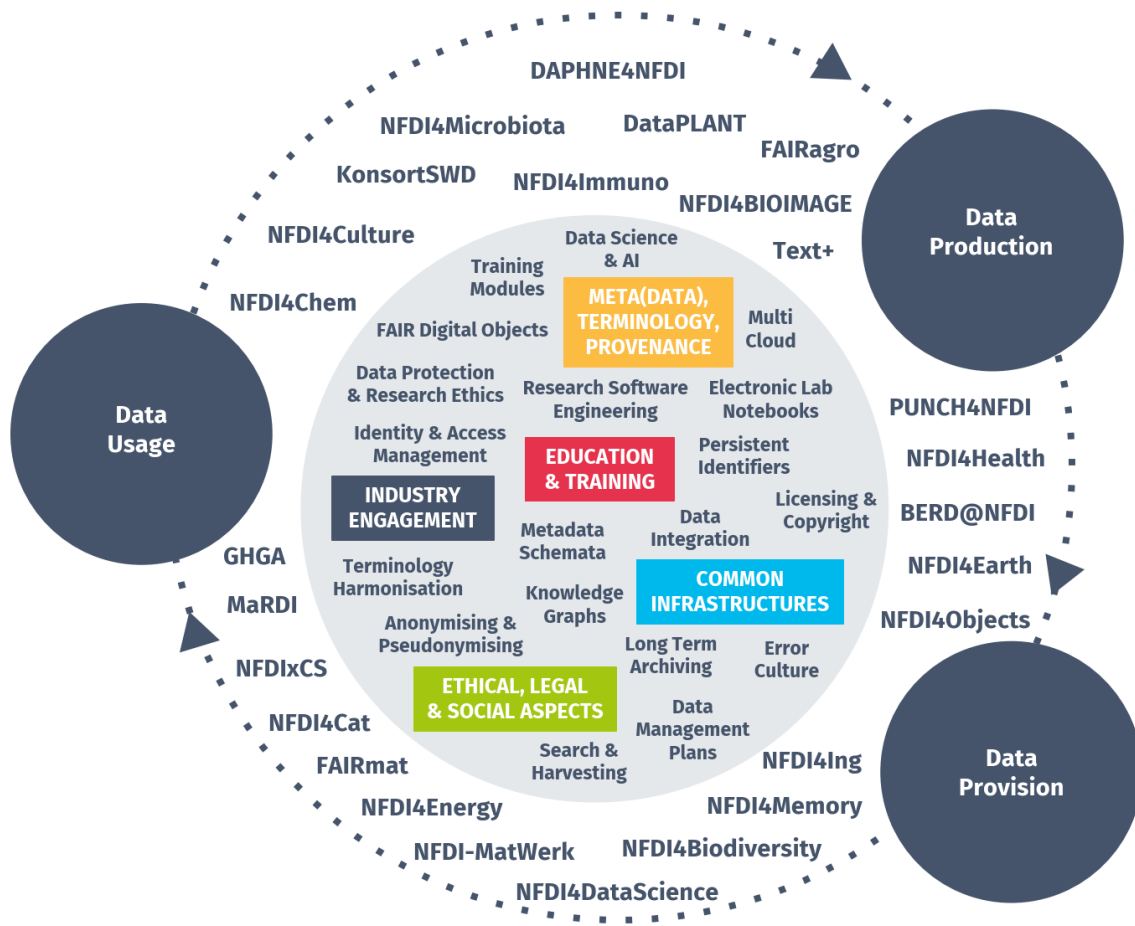
23.10.2023, 9th bwHPC Symposium

Since March 2023

nfdi — Nationale Forschungsdaten Infrastruktur

26 Consortia
+1 Proposal

How Base4NFDI works
Translate needs & topics in basic services

- **Sections of the NFDI Association** are the places to identify cross-cutting needs of consortia

- Combine **infrastructural & technological expertise** and **domain knowledge**

- Provide expertise, blueprints, and resources for development processes

- Act as **incubators for continuously identifying potential basic services**

Why NFDI needs Basic Services

- Consortia represent their specific domains and their infrastructural expertise including domain-specific basic services
- Interoperability and cost-efficiency in NFDI however, requires NFDI-wide basic services

What is a Basic Service

- A **service** is a technical-organisational solution, which typically includes storage and computing services, software, processes and workflows, as well as the necessary personnel support for different service desks.
- A **basic service** shall create added value for the consortia and their users. Typically based on bundling existing services. It is characterized by scalability and sustainable operating models, which require a certain degree of technicality. A basic service must be effective over time and in terms of usage, and must be trackable by KPIs.

How Base4NFDI works
Key deliverables

- **Framework** for user-driven and quality-assured basic service development

- **Agile process** to establish a NFDI-wide basic service portfolio

- **Establish basic services** starting with
  - Identity and Access
  - Persistent Identifiers
  - Terminologies

- **Building** on **existing solutions** and **complementing EOSC**
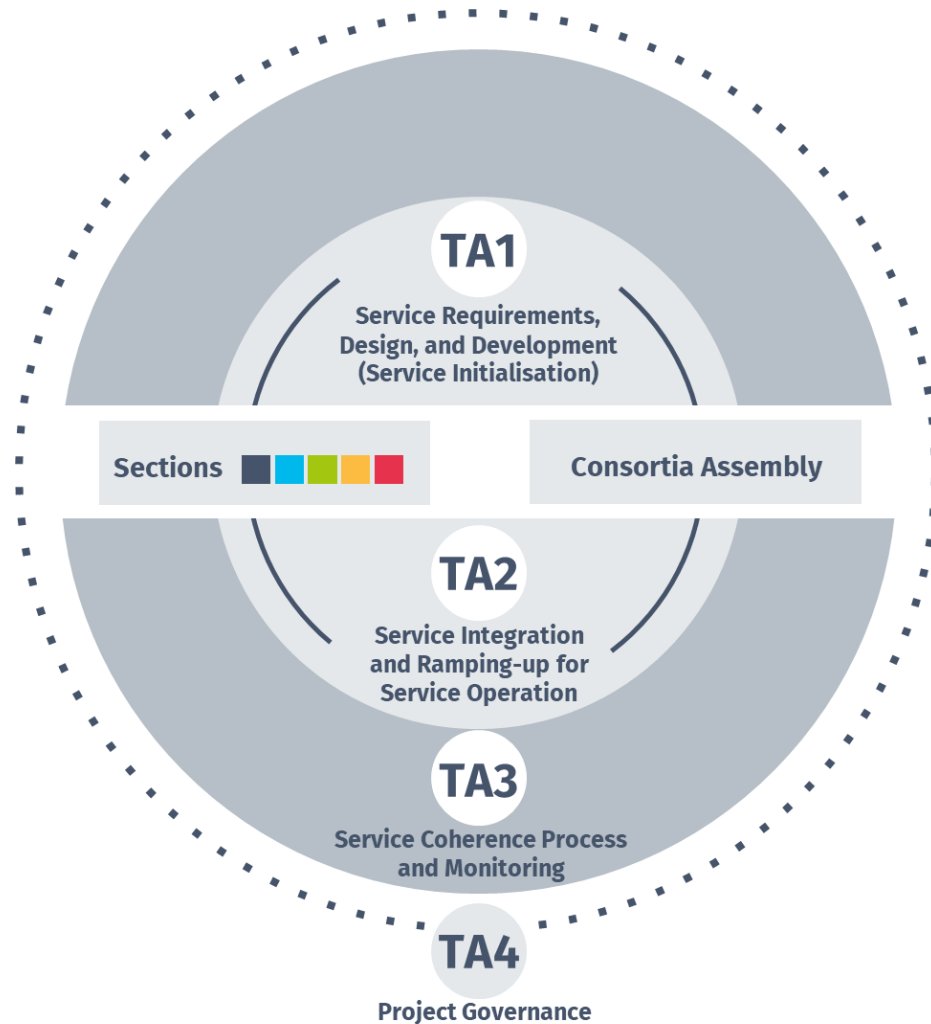
How Base4NFDI decides
Tightly embedded in the NFDI Association

- Each development step is subject to evaluation and joint agreement on next steps

- Proposals are initiated and coordinated by NFDI Sections

- Proposals are evaluated by Technical Expert Committee (TEC), Consortia Assembly and Scientific Senate
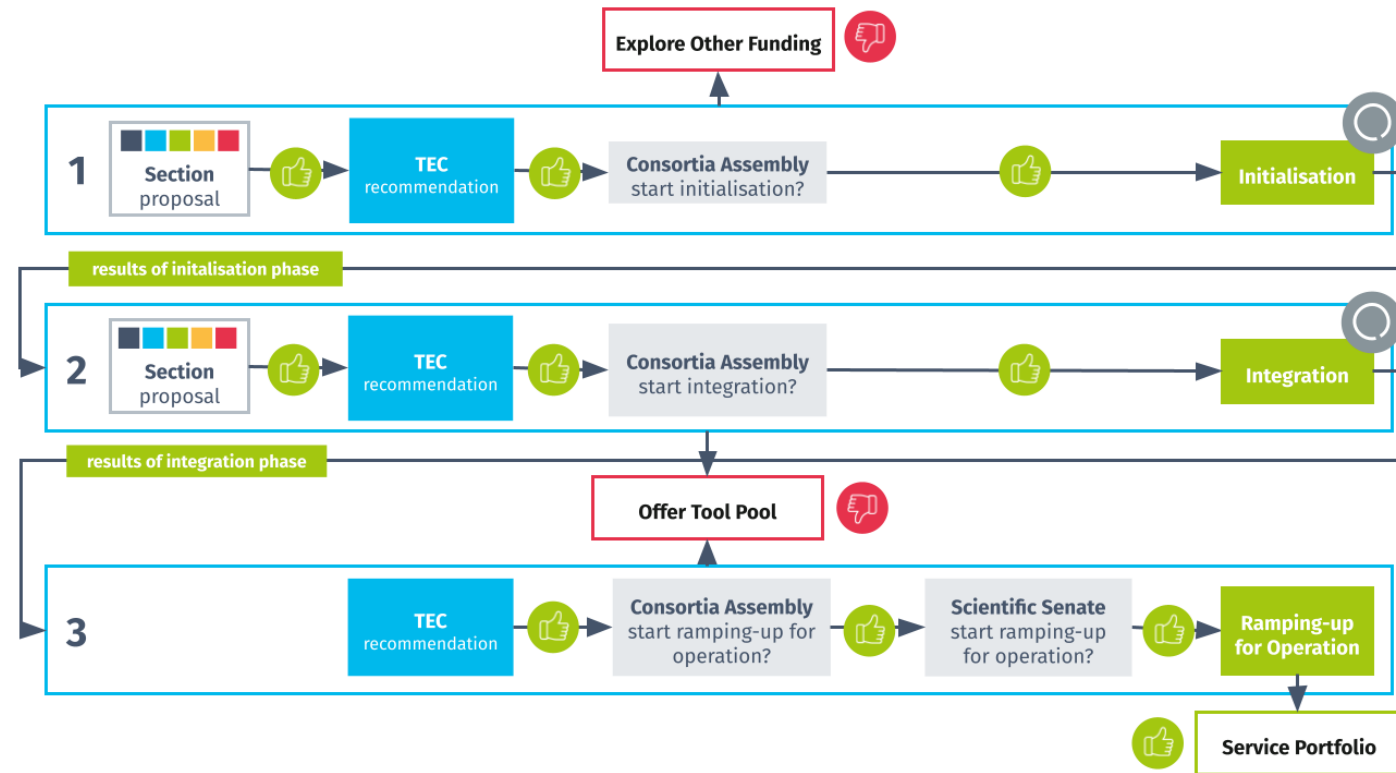
How Base4NFDI works
Work program

- TA1: Service Requirements, Design and Development (Service Initialisation)

- TA2: Service Integration and Ramping-up for Service Operation

  - maintaining basic service portfolio

- TA3: Service Coherence Process and Monitoring

  - providing a framework

  - monitoring and evaluation

- TA4: Project Governance

  - transparent allocation of flexible funding

November 2023: Currently 3 Basic Services in Development

IAM4NFDI

Identity & Access Management
Initialization Phase
Supported by:
NFDI Section Common Infrastructures

IAM4NFDI is concerned with connecting and expanding existing and emerging Identity and Access Management (IAM) systems in a way that researchers from different domains and institutions are able to access digital resources within NFDI as easily as possible, including access to and exchange with external infrastructures and resources like the European Open Science Cloud (EOSC).

PID4NFDI

Persistent Identifier Service
Initialization Phase
Supported by: NFDI Section Common Infrastructures

Persistent identifiers (PIDs) are central to FAIR research data management. PID4NFDI will design a work programme to build an **NFDI foundation service on established PID infrastructures**.

TS4NFDI

Terminology Services
Initialization Phase
Supported by: NFDI Section Metadata, Terminologies, Proveniance

Terminology Services for NFDI (TS4NFDI) is a **cross-domain service for the provision, curation, development, harmonization and mapping of terminologies**. The service seeks to integrate and converge individual solutions into a standardized, interoperable, and sustainable service suite with service wrapper, API gateway, mapping service and reusable GUI widgets.

Basic Service Proposals under Review
Proposals submitted in 2023

RDMTraining4all (Initialisation Phase)

Supported by: Section Training and Education

RDMTraining4all aims to develop **modular teaching concepts and materials** that can be used to create training programmes and courses in research data management (RDM). Experts in RDM training will furthermore support training responsibilities in the consortia in transforming these modular concepts and materials into discipline-specific training programmes and running and certifying the corresponding training activities.

Jupyter4NFDI (Initialisation Phase)

Supported by: Section Common Infrastructures

Though Jupyter notebooks are widely used across scientific disciplines, their deployment through individual JupyterHubs results in access barriers to computational and data resources. Jupyter4NFDI aims to unify these efforts by offering a **centralized service**, simplify access, support the import of projects and extend the reach of Jupyter to a broader audience.

nfdi.software (Initialization Phase)

Supported by: Section Common Infrastructures

nfdi.software will implement a **central research software marketplace** to enable access to a large portfolio of research software relevant to researchers and research software engineers. nfdi.software will integrate information on relevance and adoption of software in communities and connect research software to publications, data, services and more.

IAM4NFDI (Integration Phase)

Supported by: Section Common Infrastructures
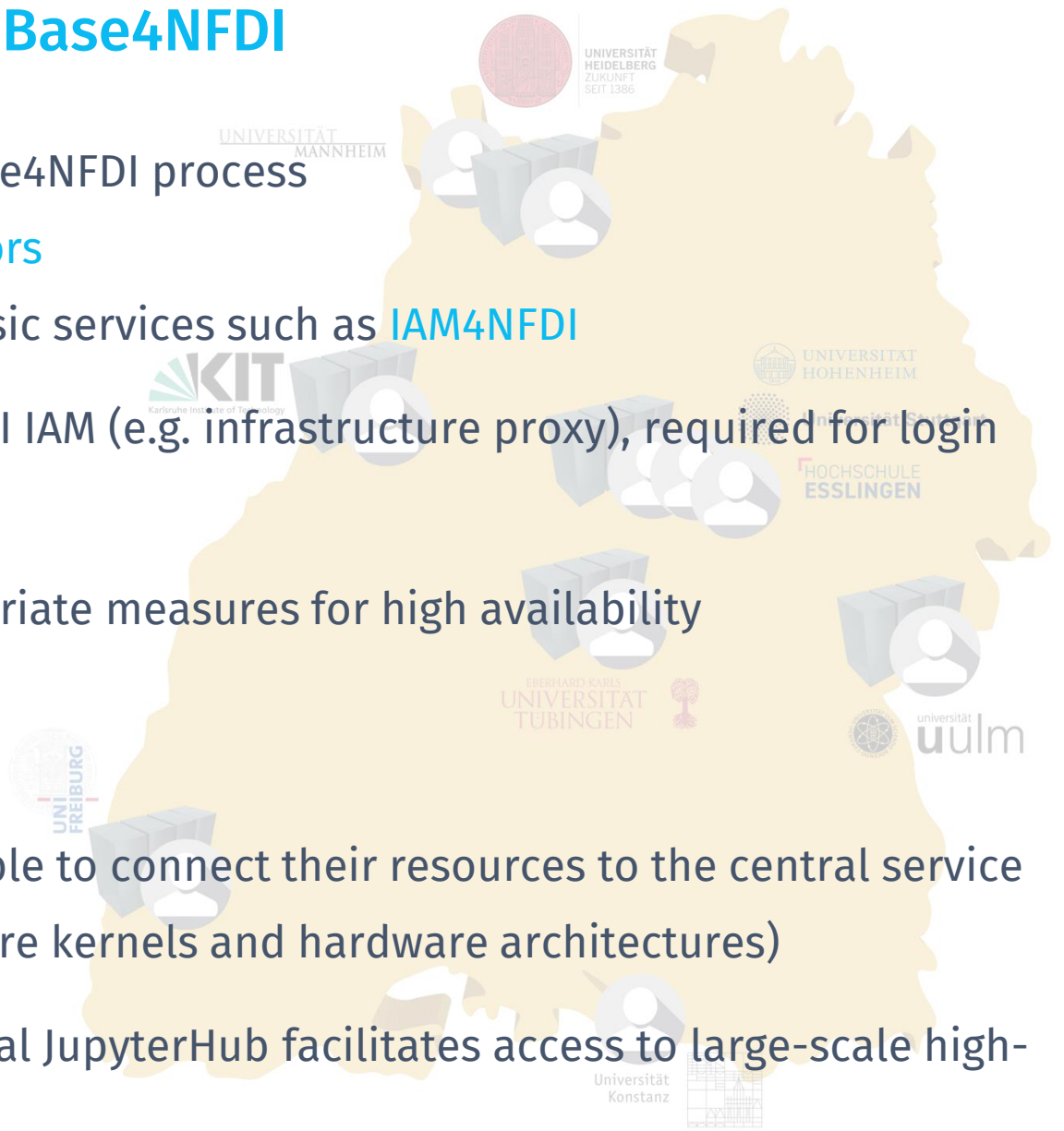
Base4NFDI looking forward
Proposals in 2024

2024

| 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 |

Submit Proposal
Recommendation TEC
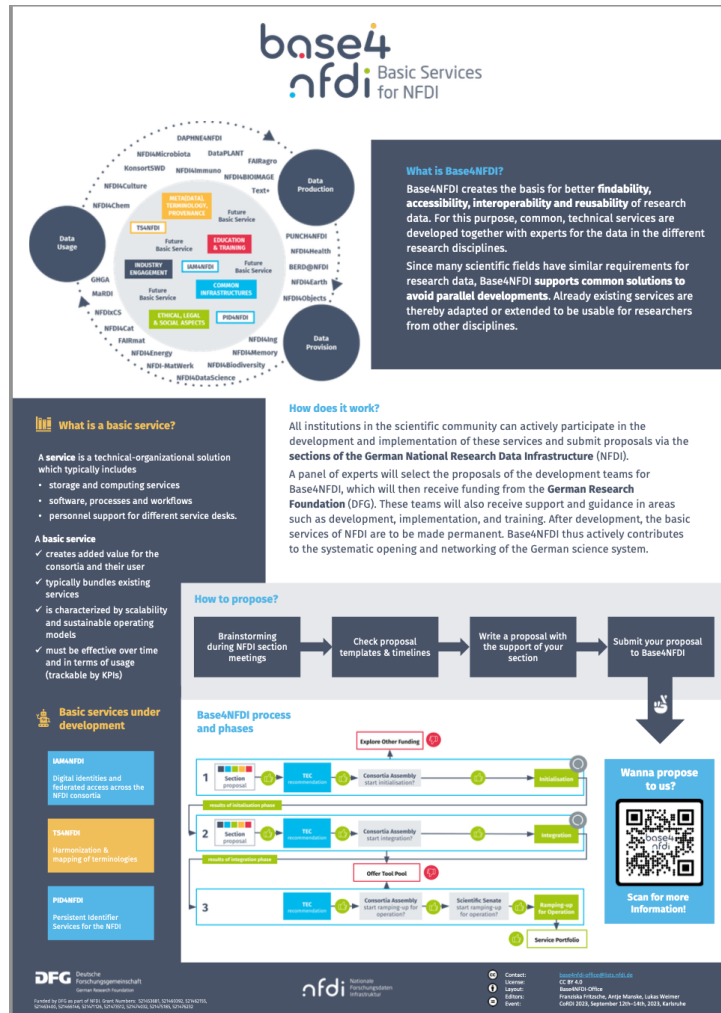Decision Consortia Assembly
Begin Funding

2025
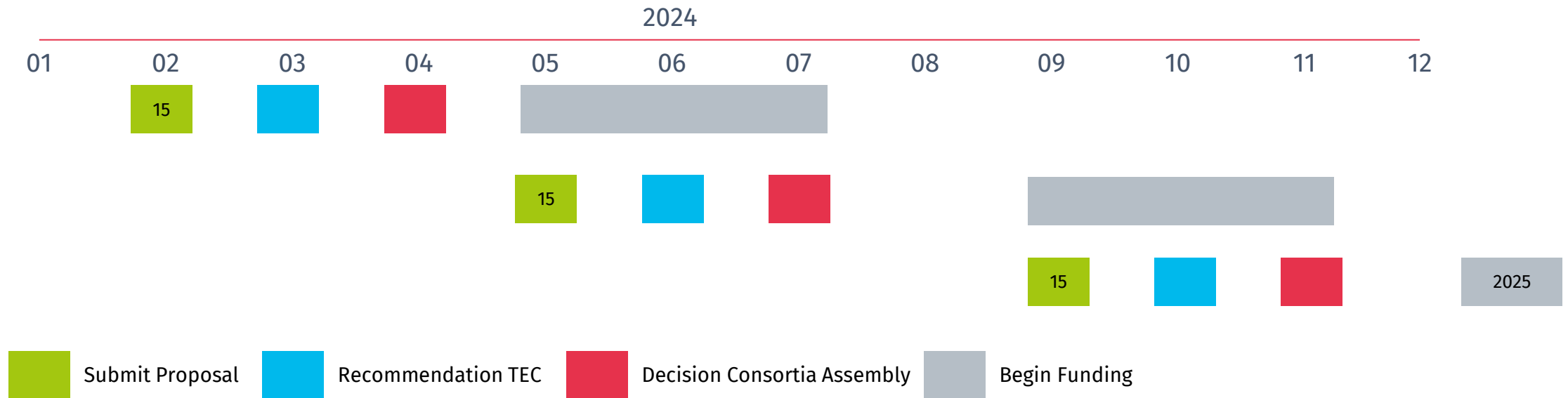
- **Templates** for applications are available through **base4nfdi.de**

Why the bwHPC Cluster is important to Base4NFDI

- Computing centers are necessary players in the Base4NFDI process

- Operation Stage needs approved & reliable operators

- This concerns in particular currently developing basic services such as IAM4NFDI

  - Providing and enabling components of the NFDI IAM (e.g. infrastructure proxy), required for login and use of the service for NFDI users

  - Feedback for implementation to design appropriate measures for high availability (support/cooperation with computing centers)

- Or planned services such as Jupyter4NFDI

  - Participating infrastructure providers will be able to connect their resources to the central service (access to the full spectrum of available software kernels and hardware architectures)

  - Basic service will exploit the fact that the central JupyterHub facilitates access to large-scale high-performance computing (HPC) systems

Base4NFDI at 9th bwHPC Symposium

- If you have **any further questions, visit** our poster in the poster session!

- More information
  - Webpage: base4nfdi.de
  - Proposal: doi.org/10.5281/zenodo.8329192
  - Contact: base4nfdi-office@lists.nfdi.de

Base4NFDI

Basic Services for NFDI

Creating NFDI-wide basic services in a world of specific domains

Franziska Fritzsche (Gesis – Leibniz Institute of Social Sciences)

In the name of S. Schimmler; R. Altenhöner; L. Bernard; J. Fluck; A. Klinger; S. Lorenz; B. Mathiak; B. Miller; R. Ritz; T. Schörner-Sadenius; A. Sczyrba; R. Stein

23.10.2023, 9th bwHPC Symposium

Thank You !
Questions ?