NFDI4Earth – addressing the digital needs of Earth System Sciences

1st NFDI4Earth Plenary Meeting, 9th June 2022

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Structure

- Motivation: ESS and RDM
- A brief introduction to the NFDI4Earth
- An invitation to participate

Motivation: Earth System Sciences (ESS)

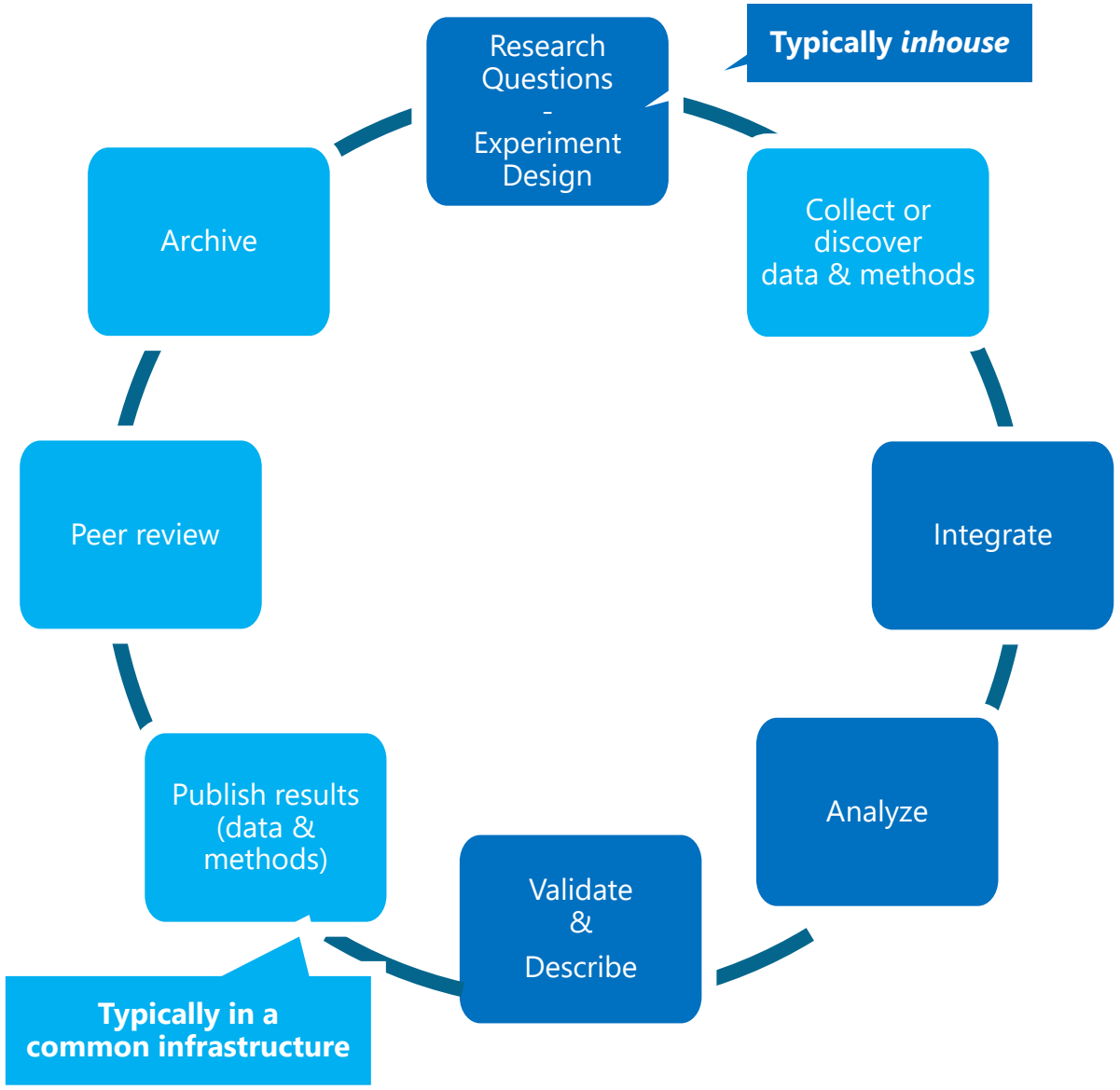
- Geosphere, Atmosphere, Biosphere, Hydrosphere, Cryosphere, Anthroposphere and all their interactions
- From Local Processes to Global Challenges
  e.g. earth systems dynamics, natural hazards, climate change, environmental pollution, water scarcity, land use change, scarcity of raw materials
- Observing, measuring, modelling, analyzing, predicting the Earth System
- In international and interdisciplinary settings using spatio-temporal data as the common reference

Motivation: Research Data Management (RDM)

The challenge of Research Data Management (RDM)

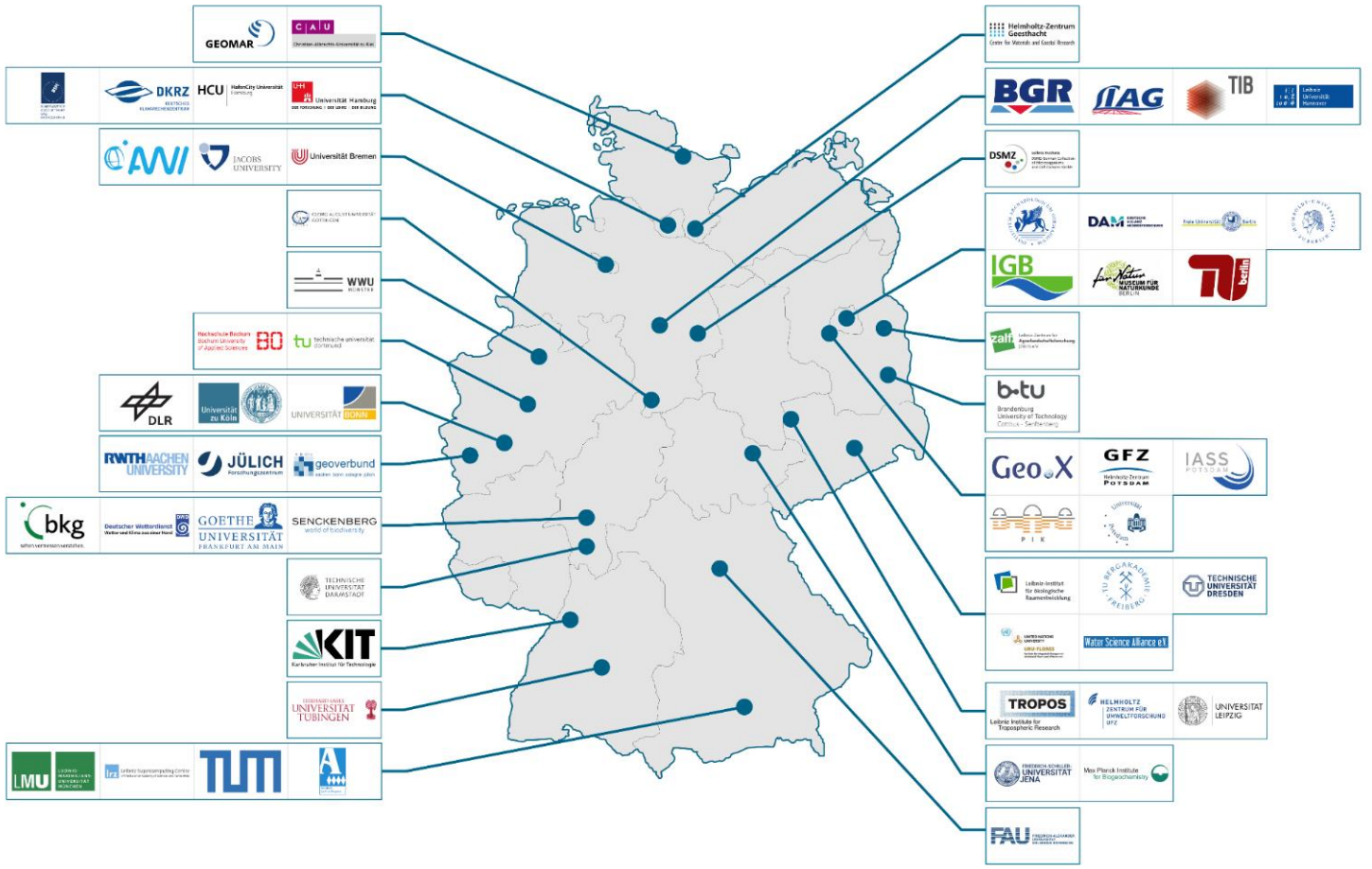
- Complex: Example of an idealised RDM cycle
- Philosophy: Includes research data and software
- Fact: A foundation for research (data science)

Aim: Dissemination and reproducibility of research results



Who we are

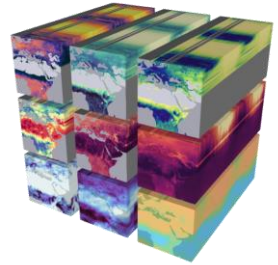
- 58 institutions (proposal) covering the breadth of Earth System Sciences (ESS)
  - Universities
  - Research Organizations
  - Infrastructure Providers
  - Governmental Institutions
  - Scientific Associations & Networks



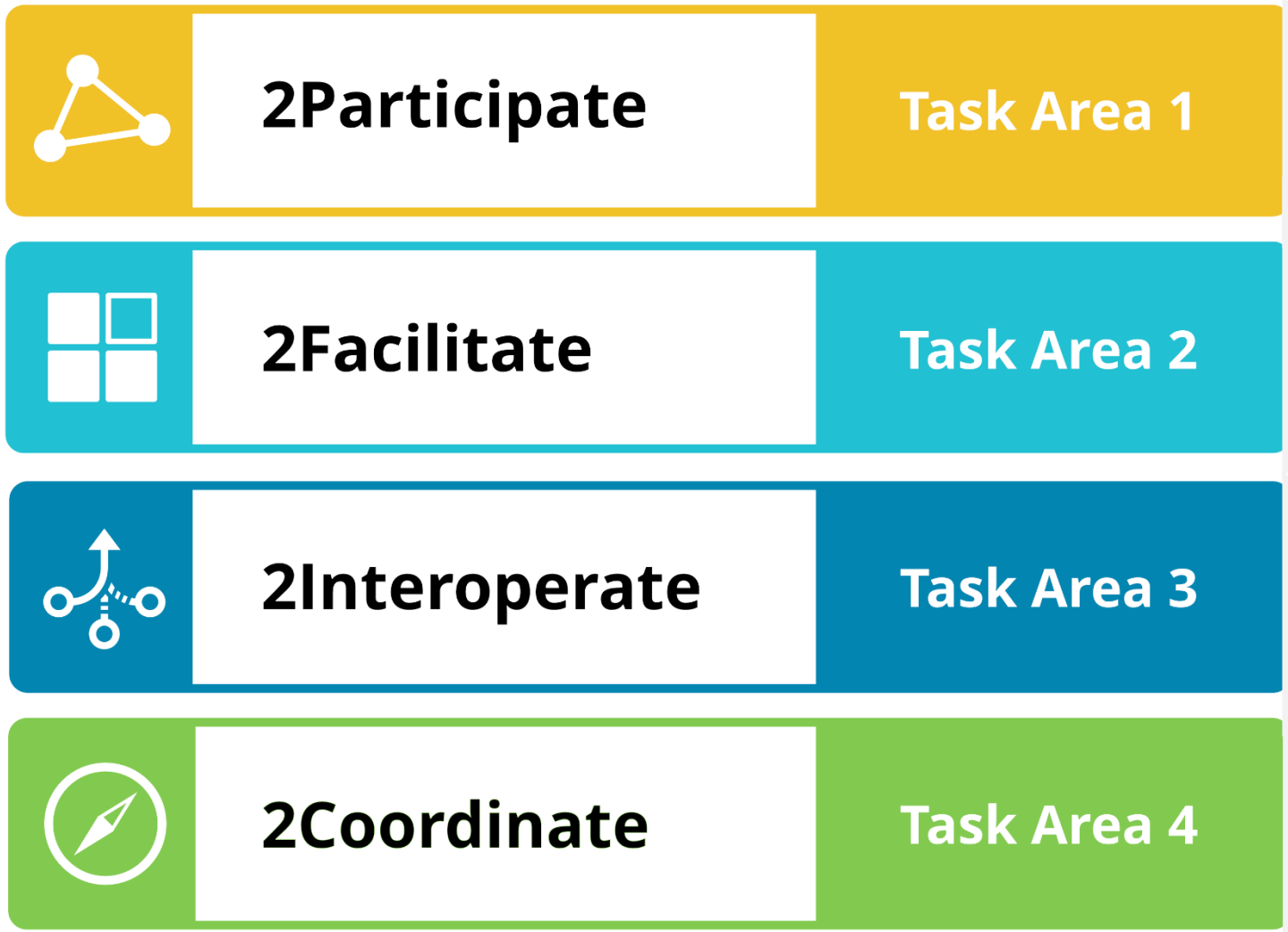
- Established 2018 as an **Open Consortium** and the ESS branch in the NFDI (funded since autumn 2021)

Key Goals

- *One Community* approach to sustainable, Open and FAIR Research Data Management in Earth System Sciences (ESS)
- Community driven agile development of innovative platforms for data integration and collaborative data analysis
- Qualification for people, data, tools and services as a basis for FAIR RDM and viability
- *OneStop4All* and *User Support Network* for ESS RDM as integral part of NFDI and International Infrastructures
- Key-driver of the build-up and operation of the NFDI



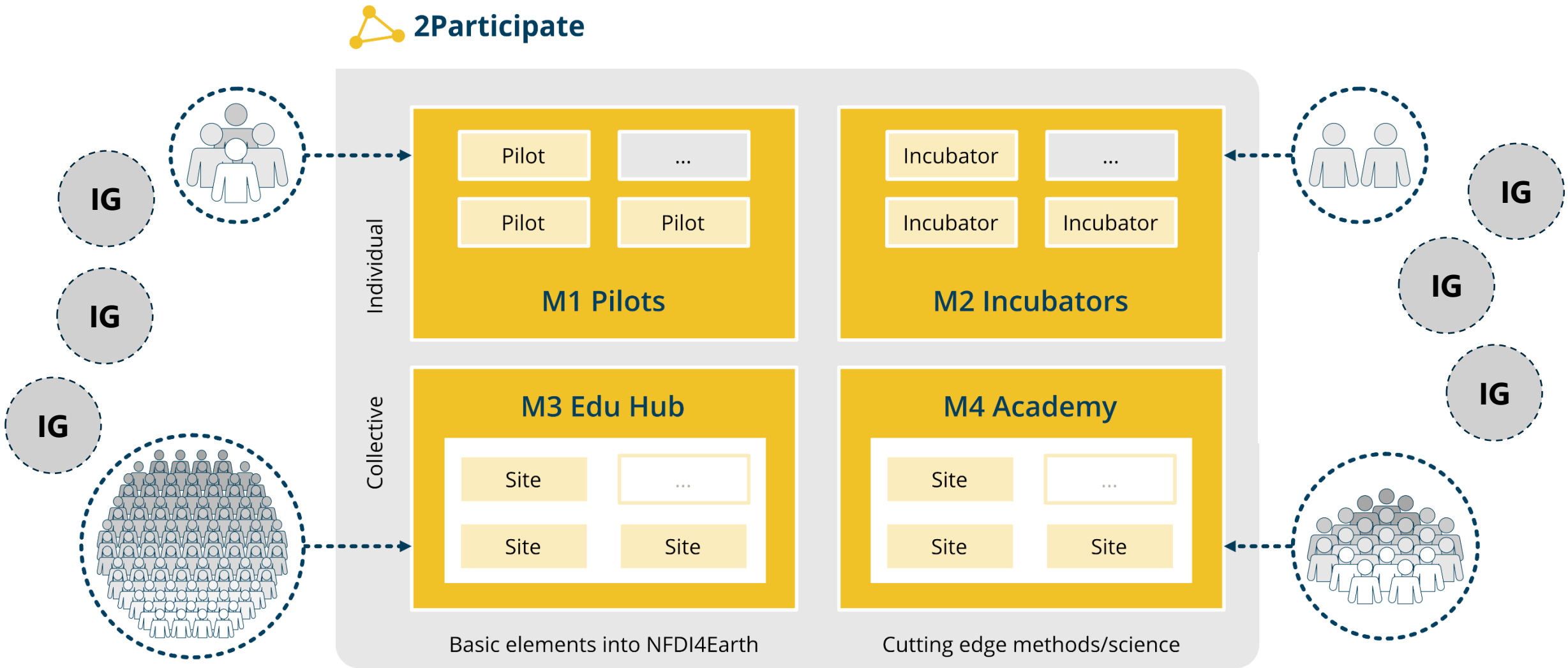
NFDI4Earth – Strategy 2021-26



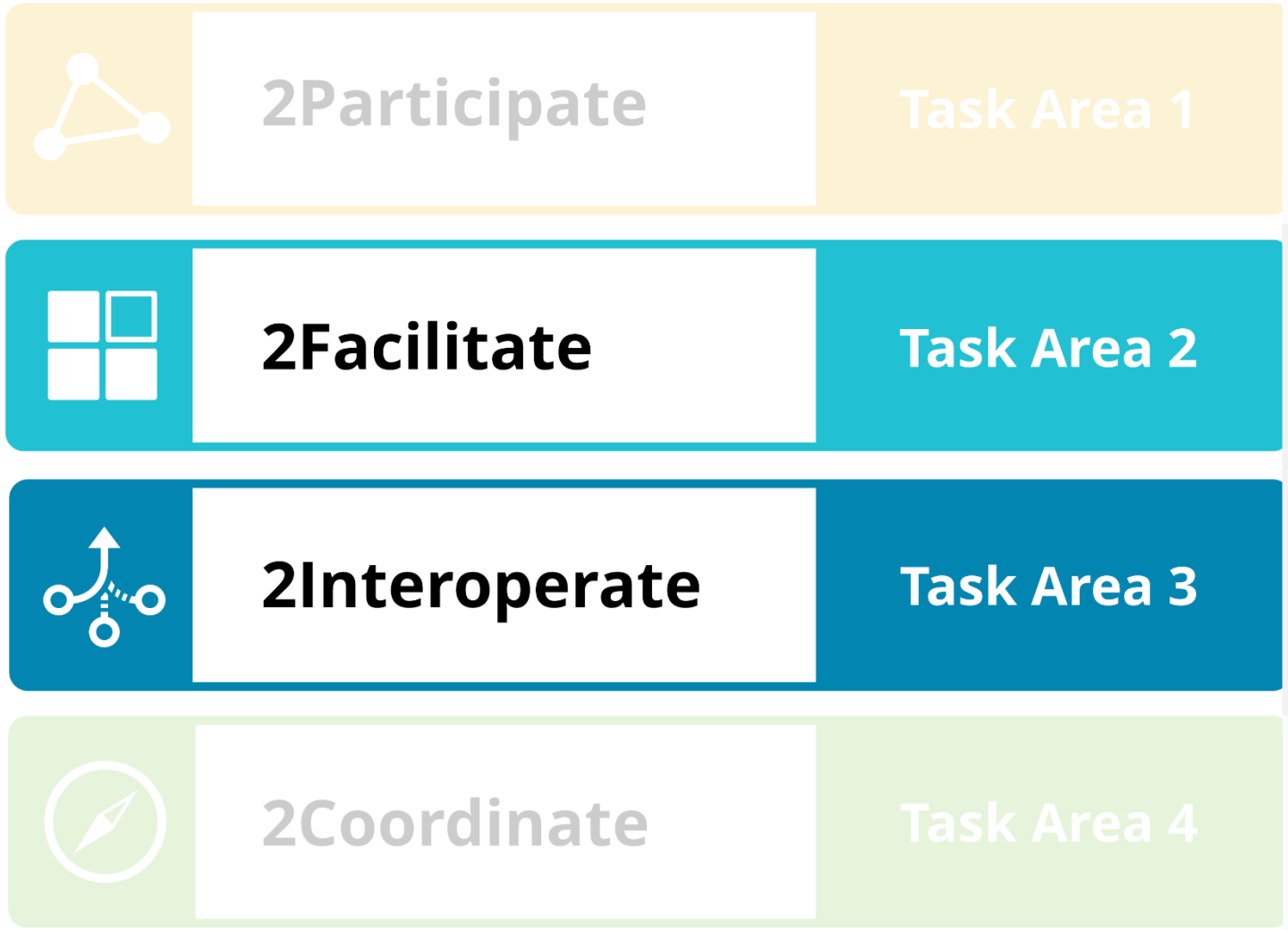
- Community Engagement
- Piloting Innovations
- User Perspective
- Infrastructure Perspective
- NFDI & International Integration
- Community Support

NFDI4Earth – Strategy 2021-26

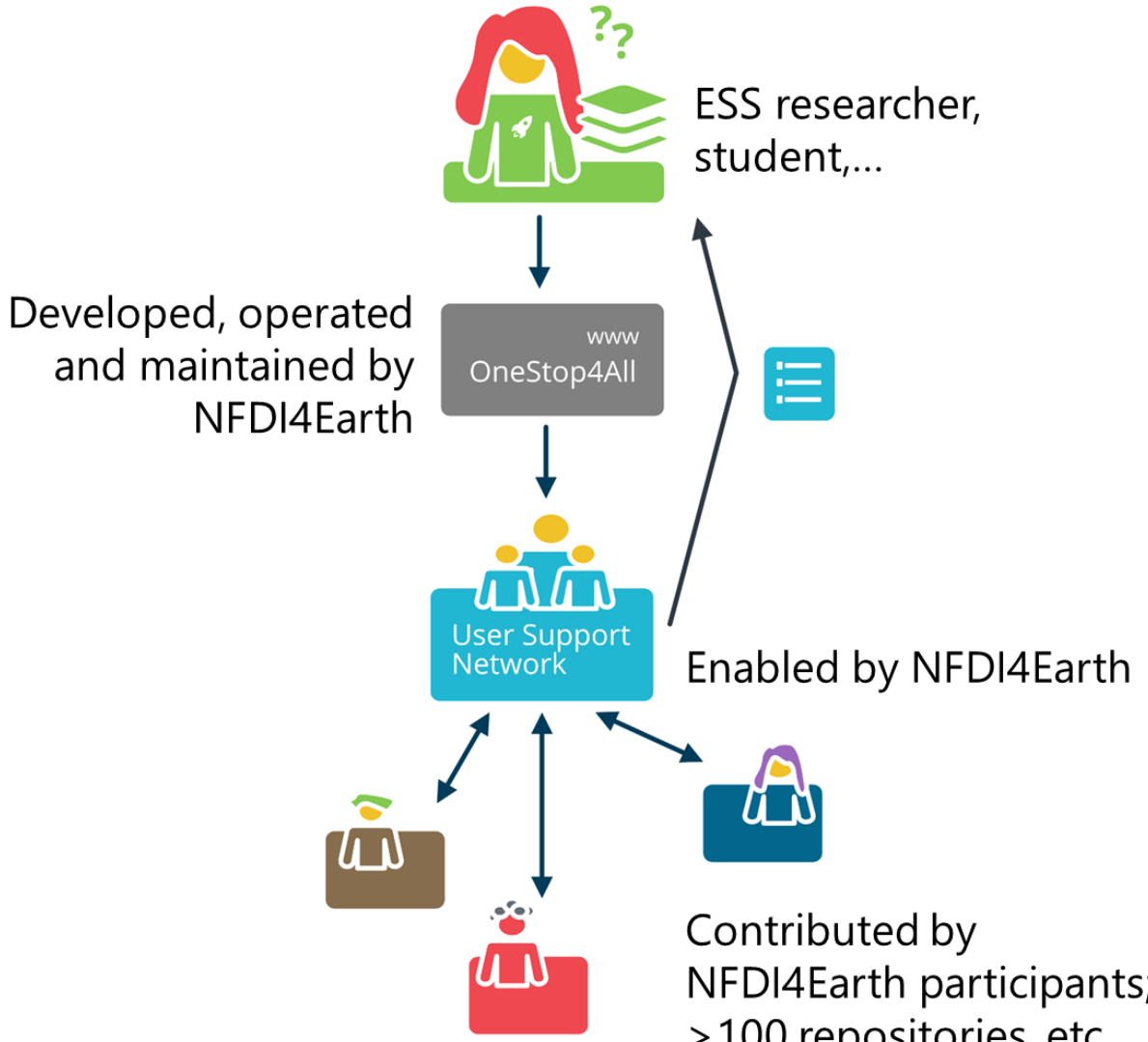
Engage with the community, foster innovation

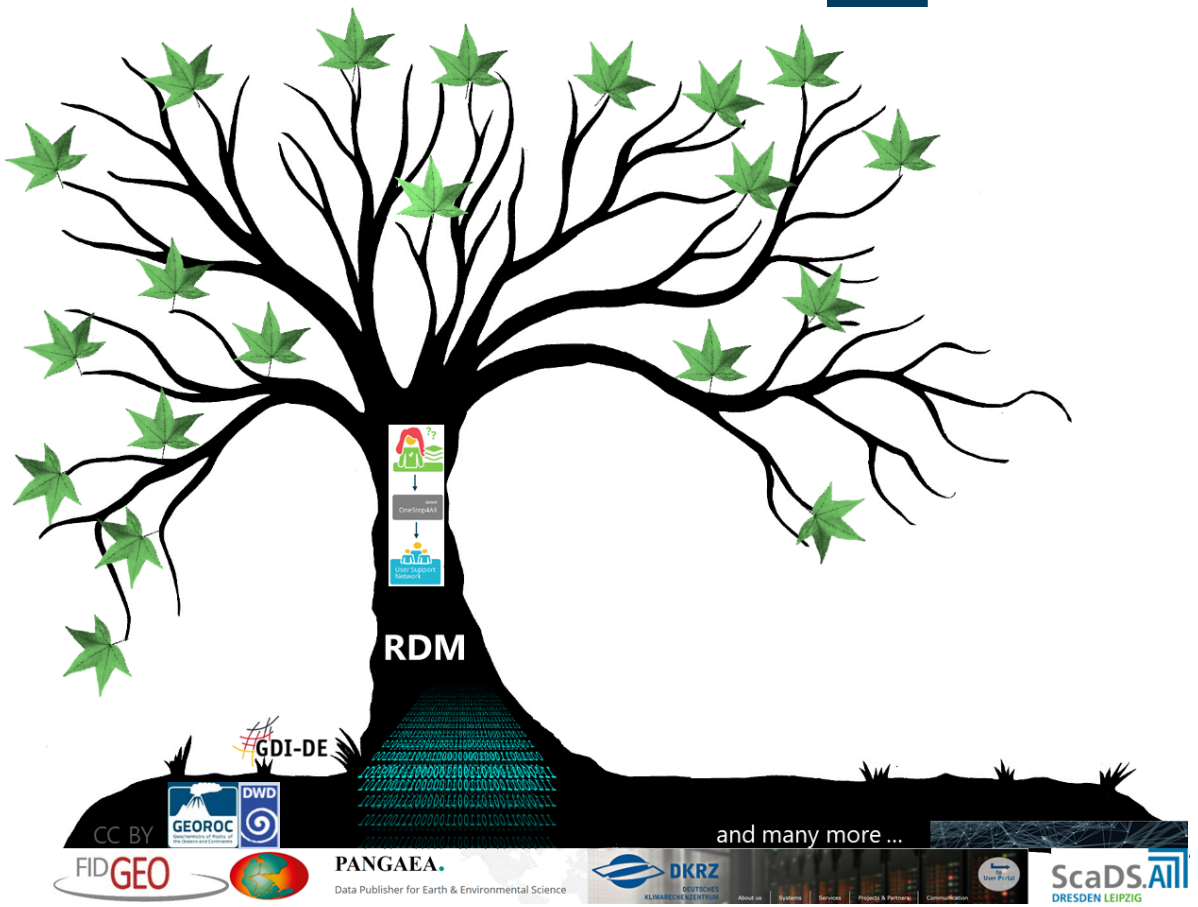


NFDI4Earth – Strategy 2021-26



User Perspective and Sustainable Infrastructure





NFDI4Earth tree: Individuals (**leaves**), communities/ disciplines (**branches**), common RDM strategy (**trunk**), infrastructure(s) (**roots - synthesized architecture** and **knowledge hub**

NFDI4Earth – Strategy 2021-26

Stronger Together!

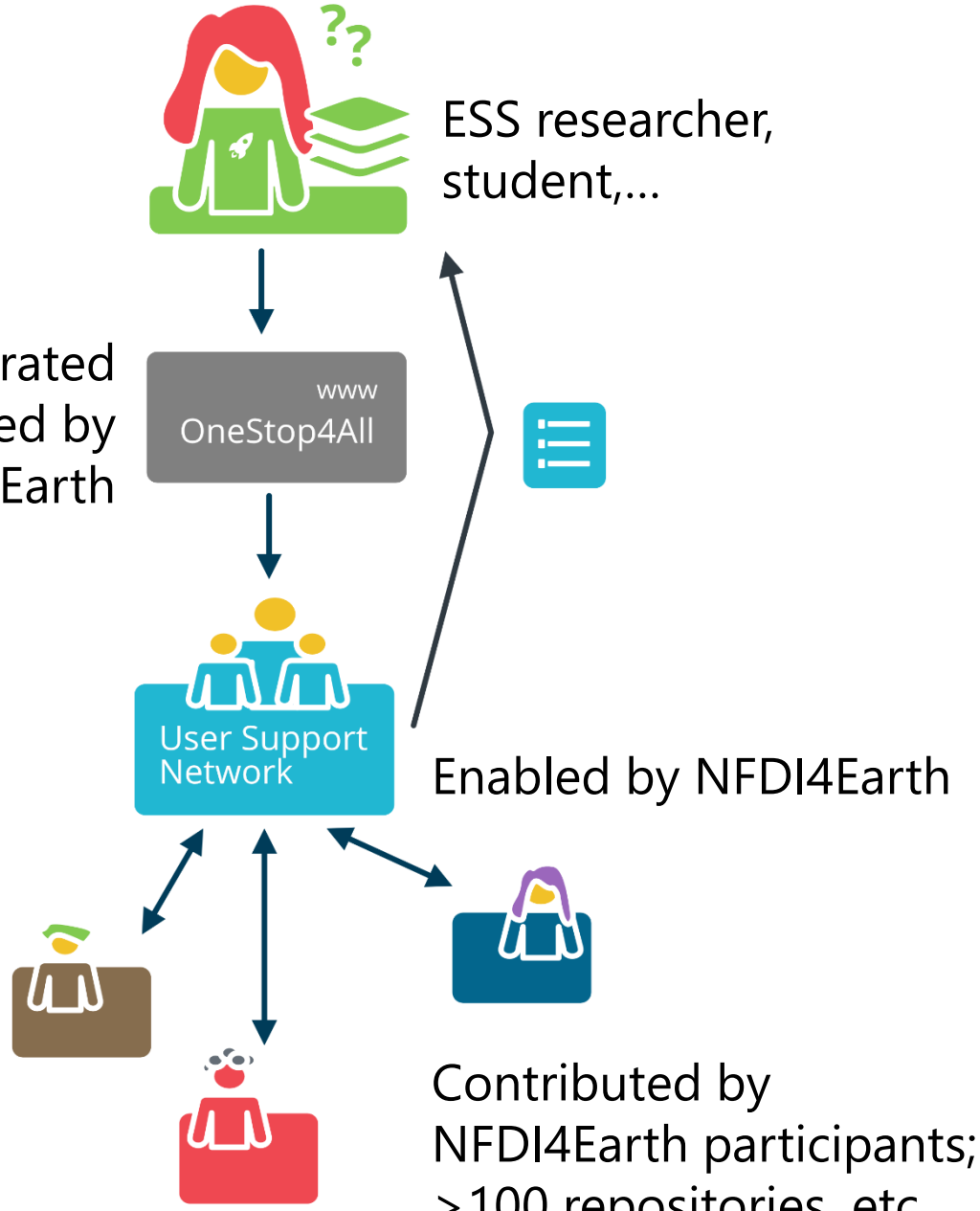
- **NFDI4Earth FAIRness and Openness Commitment**
  - Engage all ESS stakeholders (researchers, societies, infrastructures, publishers,…)
  - Foster incentives for Open and FAIR RDM in ESS and **trigger cultural change**
- Proceed as **one national ESS Community Effort**
  - Link into and benefit from related initiatives
    (e.g. Helmholtz Research Field Earth and Environment DataHub, GDI-DE,…)
  - Become **integral part** of NFDI, EOSC and international infrastructures
- Develop a **common long term operation model for NFDI4Earth services** building on partners' contributions
- Provide an **inspiring and vibrant environment for novel Earth System Data Science approaches**

Thank You !

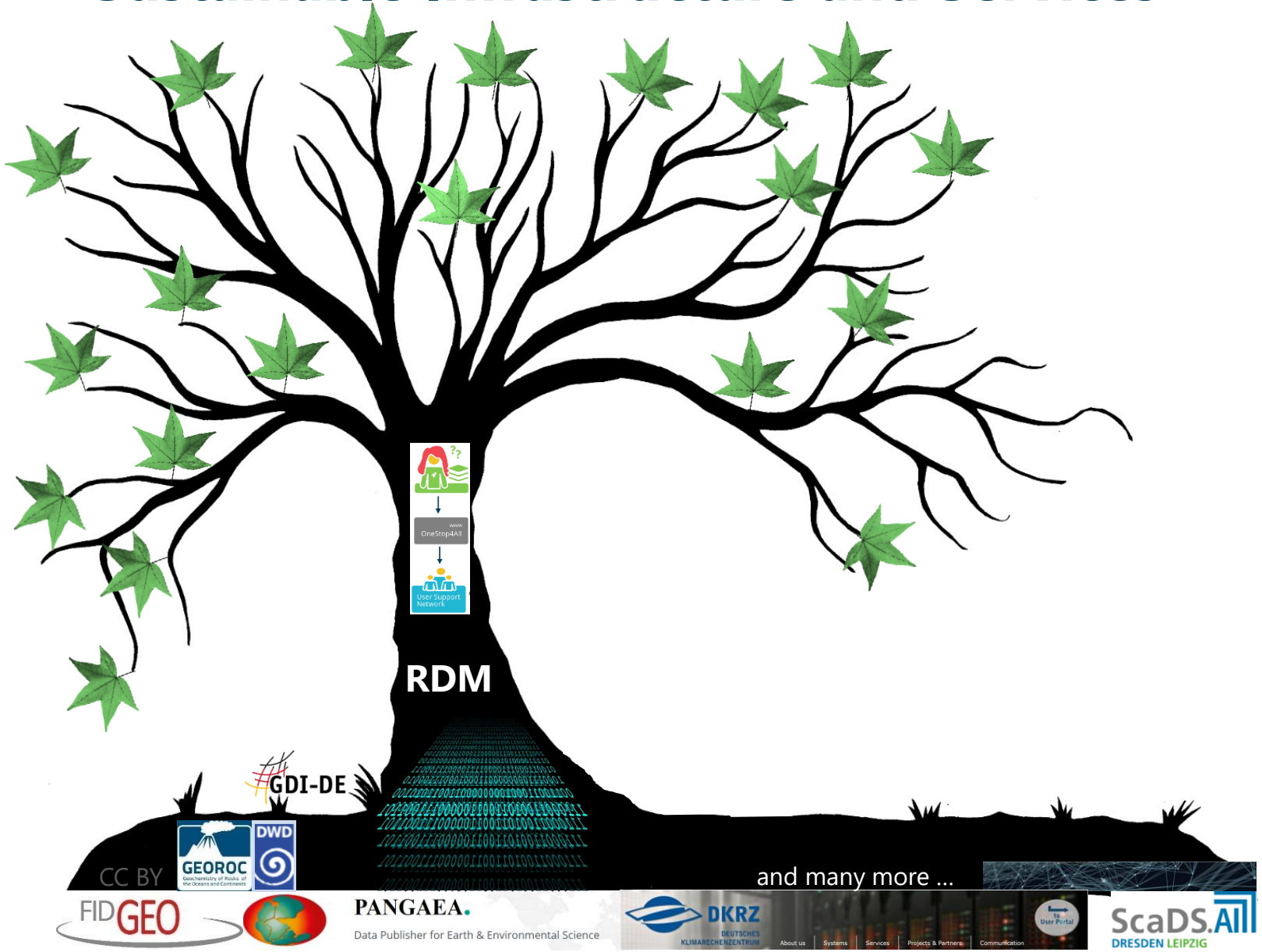
https://www.nfdi4earth.de/

Welcome to the 1st NFDI4Earth Plenary Meeting here in Dresden …
.. and join the fun!

Individual User Perspective on RDM Support



Sustainable Infrastructure and Services



NFDI4Earth

The NFDI4Earth tree

- **Leaf:** ESS Researcher, student, …
- **Branches:** Communities, disciplines, …
- **Trunk:** Common RDM strategy, facilitated by OneStop4ALL and User Support Network
- **Roots:** Repositories, infrastructure provider, high level networks, …
- The root system will develop into a **Synthesized Architecture** by intensively interacting with each other

Information regarding the architecture are maintained in the **Knowledge Hub**