Competencies 4 NFDI

A NFDI Service for Education and Training in Data and Digital Literacy

Roman Gerlach, Ortrun Brand, Heike Neuroth and Emanuel Söding
On behalf of the consortium members
Expert Statements supporting the importance of Future Skills

EOSC „Turning FAIR into reality“, rec 11 (2018):
„Implement curriculum frameworks and training: A concerted effort should be made to coordinate and accelerate the pedagogy for professional data roles. To support uptake, skills transfer schemes, fellowships, staff exchanges and informal training opportunities are needed, as well as formal curricula.“

„Es sind die Köpfe, die durch Integration von Daten, Informationen und Wissen aus heterogenen Quellen und über Domänengrenzen hinweg für die Entstehung neuen wissenschaftlichen Wissens und damit für die Wertschöpfung aus den Daten sorgen.“

RDA Mission (since 2013):
„Building the social and technical bridges to enable open sharing and re-use of data.“
Lesson for the NFDI

To create Data Stewards and support the Data Scientists of the future, we need a better and more integrated Data and Digital Literacy Education as part of the NFDI.
CompeNDI Mission

CompeNDI’s mission is, to develop and deliver services and concepts enhancing people’s skills in dealing with research data.

CompeNDI integrates competence development across disciplines and in cooperation with its partners from different disciplines.

CompeNDI strives to expedite a cultural change in the area of teaching, education and lifelong learning with respect to research data management skills.
CompeNDI originates from ...

RDM projects, state initiatives, RDM-staff, members of NFDI consortia

The consortium was founded by
– Third party funded RDM projects
– State Initiatives for Research Data
– Members of disciplinary NFDI Consortia
– Teaching RDM Staff from Universities

We cover many disciplines already.
We offer ...

...to work for the NFDI as a whole:
• offer services, concepts and support
  conduct of Data Science implementation
• develop the Future Skills of the
  Scientific Community
• address every student through their
  curriculum

... to cover the demands of
• Researchers
• Lecturers
• Students (Ba-PhD)
• Technical-librarian staff
• Other personnel on professional training

<table>
<thead>
<tr>
<th>FAIR4S competences and capabilities (excerpt)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plan and design</strong></td>
</tr>
<tr>
<td>Plan stewardship and sharing of FAIR outputs</td>
</tr>
<tr>
<td>Model data structures and define database needs ...</td>
</tr>
<tr>
<td><strong>Capture and process</strong></td>
</tr>
<tr>
<td>Reuse data from existing sources</td>
</tr>
<tr>
<td>Manage databases ...</td>
</tr>
<tr>
<td><strong>Integrate and analyse</strong></td>
</tr>
<tr>
<td>Use or develop open research tools/services</td>
</tr>
<tr>
<td>Critical thinking and theory building</td>
</tr>
<tr>
<td><strong>Appraise and preserve</strong></td>
</tr>
<tr>
<td>Prepare and document data/code to make outputs FAIR</td>
</tr>
<tr>
<td>Data quality assurance using open standards</td>
</tr>
<tr>
<td><strong>Publish and release</strong></td>
</tr>
<tr>
<td>Publish FAIR outputs on recommended repositories</td>
</tr>
<tr>
<td>Access control and management</td>
</tr>
<tr>
<td><strong>Expose and discover</strong></td>
</tr>
<tr>
<td>Recognise, cite and acknowledge contributions</td>
</tr>
<tr>
<td>Metadata and persistent id. exposure</td>
</tr>
<tr>
<td><strong>Govern and assess</strong></td>
</tr>
<tr>
<td>Develop open research strategy and vision</td>
</tr>
<tr>
<td>Apply policies to comply legal requirements, ethical &amp; FAIR principles</td>
</tr>
<tr>
<td><strong>Scope and resource</strong></td>
</tr>
<tr>
<td>Secure funding for open science /support</td>
</tr>
<tr>
<td>Perseverance delivering diverse open research projects</td>
</tr>
<tr>
<td><strong>Advise and enable</strong></td>
</tr>
<tr>
<td>Lead good practice by example</td>
</tr>
<tr>
<td>Engaging with research users and stakeholders</td>
</tr>
</tbody>
</table>
We offer
...to support the NFDI-Consortia

CompeNDI
• will help you to organize your nationwide teaching
• will support you with didactic concepts
• will develop innovative teaching materials
• will educate your future customers
• will train your trainers

Note:
We will work with your Data Scientists / Data Advisors / Data Service Providers in your consortium!
The Service Hub Concept

Temporary Activities

- Implementation Project A
- Implementation Project B
- Implementation Project C

Permanent Service Activities

- **Community Hub**: Community building via an “architecture of participation”
- **Train-the-Trainer Hub**: Certificated trainers to roll out competencies
- **Curriculum Hub**: Reference Curricula with defined competencies
- **Didactics Hub**: New didactic concepts and digital methods
- **OER Platform Hub**: Development and publication of teaching materials
- **Infrastructure Hub**: Technical and communication infrastructure
- **Management Hub**: Coordination including Steering Committee, Advisory Board

**Competencies for NFDI – conveying Future Skills**
The Cultural Change needed will not just happen!

It has to be thoroughly embedded within the teaching of the future generation.

To join CompeNDI, contact info@compendi.org
Backup
Tentative Organizational Structure

- State Initiatives on Data Management advises Steering Committee
- NFDI Council for Competencies advises Steering Committee
- Technical Advisory Boards elects Steering Committee
- Members Assembly:
  - Founding & Implementing Members
  - Project Members
  - Associated Members
- Stakeholder Community
  - Universities, Institutions, Infrastructures
- Founding Institutions
- Advisory Board selects Management Hub
- Contracted Management Hub selects Funding
- Funding funds

Activities
- Implemented Services
  - Hub A
  - Hub B
  - Hub C
- Implementation Projects
  - Proj A
  - Proj B
  - Proj C

Competencies for NFDI – conveying Future Skills

National Research Data Infrastructure Conference 2019
13/14 May 2019, Maritim Hotel, Bonn
The Spirit of CompeNDI

• We provide ...
  innovative open structures, agile implementation of new partners etc., close cooperation with all disciplinary consortia, best practices/blueprints for disciplines and (applied) universities etc., link to international initiatives, results etc.

• We act ...
  flexible to implement projects on demand and to overcome certain obstacles (financial, structural etc.)

• We invite ...
  learned societies, (applied) universities, associations, legal bodies etc. to support and participate in CompeNDI
Target Groups, Demand and Motivation

- **Researchers** want
  - to comply to rules of good scientific conduct to successfully apply for research projects,
  - to improve documentation of their projects and data to improve collaboration in large scale projects,
  - to easily re-use or critically assess research results of others.

- **Lecturers** want
  - to offer their students the best possible education,
  - to make their discipline attractive by devising exciting new fields of research.

- **Students** want
  - a blueprint/simple instructions on how to deal with research data,
  - to learn how to develop their own data-driven (interdisciplinary) research questions,
  - to build up vocational competences within the framework of their degree program.

- **Technical-librarian staff and personnel on professional training** want
  - technical support and workflows for their laboratories / infrastructures,
  - better documentation of data and records of their own performance,
  - an understanding of rights and obligations with produced data.

- **Staff from the central institutions or the RDM team** would like to
  - provide the best possible (RDM) service to scientists and students,
  - enhance the use of own data infrastructure.
Umfeldbedingungen beachten: Die Verankerung von Forschungsdatenmanagement findet im Umfeld der „Replikationskrise der Wissenschaften“, der methodischen Ausbildung der Studierenden und der Befähigung von Bachelor- und Master-Studierenden für zukünftige Berufsfelder statt (future skills!).

Ohne die Praxis zu berücksichtigen, besteht die Gefahr, nicht die angezielte Breitenwirkung zu erzielen.

Umfragen zeigen den Bedarf an Schulungen / Trainings

more/better data scientists; enhance digital literacy

CompeNDI Praxis Statements

Competencies for NFDI – conveying Future Skills

National Research Data Infrastructure Conference 2019
13/14 May 2019, Maritim Hotel, Bonn
Interested in Advanced Training?

• Your consortium can **Support** CompeNDI!
  • Let’s work together in education and training
  • You can **join** CompeNDI!
  • If you are a person or Institution – either join, or provide a LOI to show your support!

• **We** will support **your** Consortium ...
  ... with an LOI if you install disciplinary structures for training we can connect to.

**Contact:** esoeding@uv.uni-kiel.de