BRIDGE4NFDI

»Bridging boundaries among national research data infrastructures«

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Goals

Interoperability
- Avoid fragmentation and data silos
- Establish shared infrastructures and principles
- Find a “common ground” regarding technical, social, cultural and economic aspects

Multidisciplinarity
- Increase discoverability and effective use of domain-specific research data
- Enable multidisciplinary research and data-driven innovation
- Connect experts from different disciplines and domain communities

Collaboration
- Involve discipline-specific NFDI consortia
- Join efforts in a bottom-up, integrative and non-descriptive approach
- Provide technical as well as non-technical support

Reuse
- Build on standards and practices that exist in the scientific communities
- Reuse existing solutions from different disciplines, generalize them where possible and transfer them from one discipline to another

Build a network of generic and domain-specific research data systems and services
Overview

A horizontal meta-infrastructure to complement the vertical NFDI initiatives
Technical Foundation

- Multidisciplinary scientific knowledge graphs
- **Semantic Web and Linked Open Data**
  - vocabularies and mappings
  - RDF triples (subject, predicate, object)
  - SPARQL (RDF query language)

→ Close the gap between Open Data and research data worlds
→ Use Open Data standards to facilitate FAIR research data infrastructures

Vocabulary level:

- Disease
- Symptom
- Drug

Data level:

<table>
<thead>
<tr>
<th>Disease</th>
<th>ICD-10</th>
<th>Symptoms</th>
<th>Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td>J10</td>
<td>Fever</td>
<td>Amantadin</td>
</tr>
<tr>
<td>Cancer</td>
<td>C00-C97</td>
<td>Bleeding</td>
<td>Chemotherapy</td>
</tr>
</tbody>
</table>

Influenza
- Fever 1000
- Amantadin
- ...

Cancer
- Bleeding 30
- Chemotherapy
- ...

13.05.2019 - NFDI Conference 2019
Planned Research Data Infrastructure

Goals of NFDI
- Build a distributed yet cooperating network of scientific data management systems

Goals of BRIDGE4NFDI
- Provide a (meta-)infrastructure for research data
  - Access point to the (meta-)data of the NFDI consortia and other existing infrastructures
    - Harmonized interfaces for human and machines
  - Offer a variety of **generic services** that can be used by the other NFDI consortia
Planned Research Data Infrastructure

Generic services

● Harvesting service, metadata management service, visualization service, (long-term) preservation service, monitoring service, licensing service, provenance & sovereignty service, terminology & ontology service, (...)

● Prepare for (meta-)data analysis and machine learning & AI

● Propagate common APIs and existing standards

Measures for user participation and involvement

● Requirements analysis, collaboration, awareness & community involvement, governance processes, education & training, ethics discussion, methodologies & standards
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