Workshop Agenda & Structure

Workshop: BioMed Metadata

Location: Cologne

Date: December 3–4, 2025

Chair: Sebastian Böhm

Document link: 📄 BioMed Metadata Workshop or https://tinyurl.com/BioMedMeta or

🎯 Workshop Objectives

1. **Map the Status Quo:** Understand current metadata handling across all 5 consortia and how we are currently interacting in BioMed

2. **Define Interoperability:** Elaborate requirements for alignment and explain the benefits of Metadata interoperability

3. **Draft the Roadmap:** Create a vision how the BioMed Metadata interoperability shall look like in the future

🧬 The General Benefit of Metadata Interoperability in BioMed

(Context Intro and to report)

Metadata interoperability goes beyond simple description and data tagging; it is the **connective tissue** that allows disparate systems to "speak" the same language. Metadata in general make your data FAIR. Interoperability is the primary driver behind the **Interoperable** and **Reusable** aspects of the FAIR principles.

1. Cross-Domain Integration & Data Fusion

Interoperability enables the seamless combination of heterogeneous data types.

- **The Mechanism:** By using shared ontologies (e.g., SNOMED CT, LOINC) and standardized Metadata schemas / -systems can link different data types with each other, as for example a genomic profile with clinical history, imaging data and others without manual mapping.
- **The Benefit:** This breaks down silos, allowing researchers to correlate distinct biological layers (e.g., genotype vs. phenotype) to uncover complex disease mechanisms and see/make connections that were not easily accessible before.

2. Machine Actionability & Semantic Consistency

For AI to function effectively, data must be structurally and semantically consistent.

- **The Mechanism:** Interoperable metadata ensures that e.g. a variable like "Blood Pressure" is defined exactly the same way across datasets from different sources.
- **The Benefit:** This allows **AI agents** to federate and analyze data across borders without needing human intervention to "clean" or interpret the fields, essential for training robust, unbiased algorithms.

3. Scalable Reproducibility

Interoperability transforms local findings into global knowledge.

- **The Mechanism:** When metadata follows global standards, the experimental context (e.g., assay types, machine settings) is universally understandable.
- **The Benefit:** This allows independent labs to replicate studies precisely or aggregate small datasets into massive cohorts (meta-analysis) with high statistical power, accelerating the validation of new treatments and enabling new findings.

📅 Session Schedule

Time	Activity	Details & Discussion Points
03 Dec 15:15 - 16:45	**Welcome & Alignment**	Brief alignment on the goals of the Workshop Log Metadata handling in die different consortia Explain current level of interaction regarding interoperability in BioMed
03 Dec 17:00 - 18:00	**Benefit & Scope**	What are the benefits of Metadata interoperability? What do we need to align?
04 Dec 09:15 - 10:45	**Vision & Mission**	Create a vision how the BioMed Metadata interoperability shall look like in the future Create a Roadmap on how to get there
04 Dec 11:00 - 12:30	**Wrap-up Session**	Wrapping up the above in a document, discussion of next steps

Meeting Minutes

📝 Minutes: BioMed Workshop "Metadata"

Date: December 3–4, 2025

Location: Cologne (BioMed Meeting)

Moderator: Sebastian Böhm

Minute Taker: [one of the numerous volunteers]

Participating Consortia:

- [ ] NFDI4Health
- [ ] GHGA
- [ ] NFDI4Immuno
- [ ] NFDI4Microbiota
- [ ] BioImage

---

1. Session: Welcome & Alignment

1.1 Alignment on the goals of the Workshop

1.2 Log Metadata handling in die different consortia

1.3 Explain current level of interaction regarding interoperability in BioMed

---

2. Session: Interoperability (Technical, Semantic, Legal)

2.1 What are the benefits of Metadata interoperability?

2.2 What do we need in order to align our system?

---

3. Session: The Vision (One-Stop-Shop)

3.1 Vision of Metadata interoperability in BioMed
- Must-Haves:
- Nice-to-Haves:

3.2 Roadmap to reach this goal

---

4. Session: Wrap up and closing session

4.1 What are the next action items for Metadata interoperability?

✅ Action Items / Next Steps

Task / To-Do	Owner (Consortium/Person)	Due Date