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Semi-automatic export of electrophysiological metadata to NFDI4Health Local Data Hubs

Use case of microneurography odML-tables

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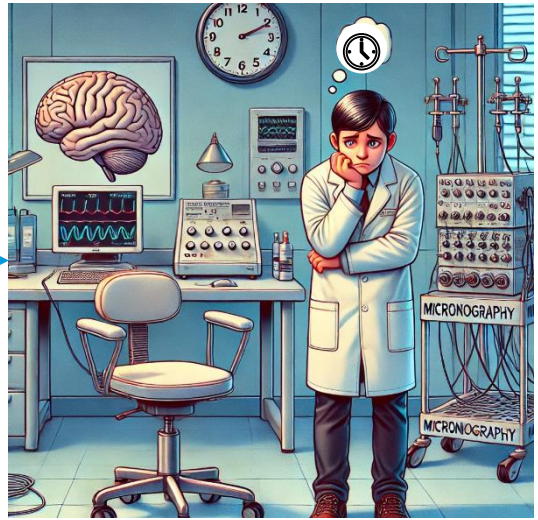
09.09.2024 GMDS 2024 | Mayra Elwes | Institute for Biomedical Informatics

Introduction – Motivation

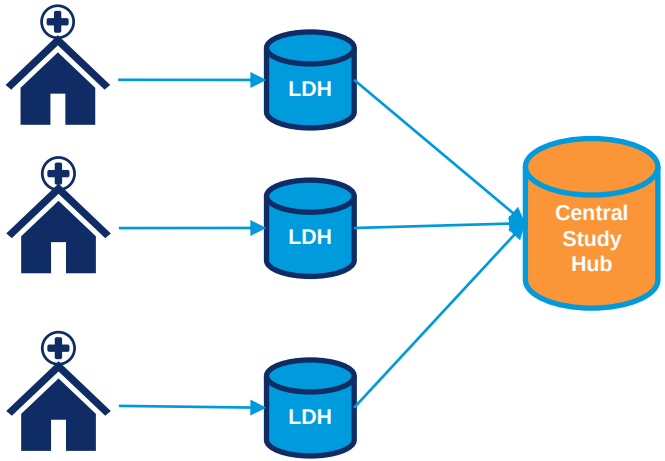


FAIR Data Sharing Platforms exist, but there is resistance due to uncertainty on how to map existing metadata to the platform and the high time investment for filling and uploading it.

Background – The Local Data Hub (LDH)

- Platform for research data based on **FAIRDOM-SEEK** by **NFDI4Health**
  - **Sharing of context of data collection locally**
- Provides hierarchical structure for meta-data
  - Based on Study Investigation Assay Structure
  - Project
  - DataFile

- Stream to **German Central Health Study Hub**



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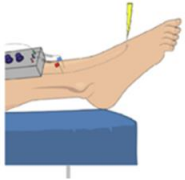
Use Case – Microneurography

Data creation
Data exchange



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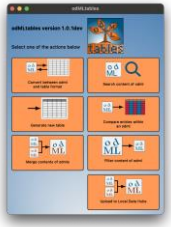
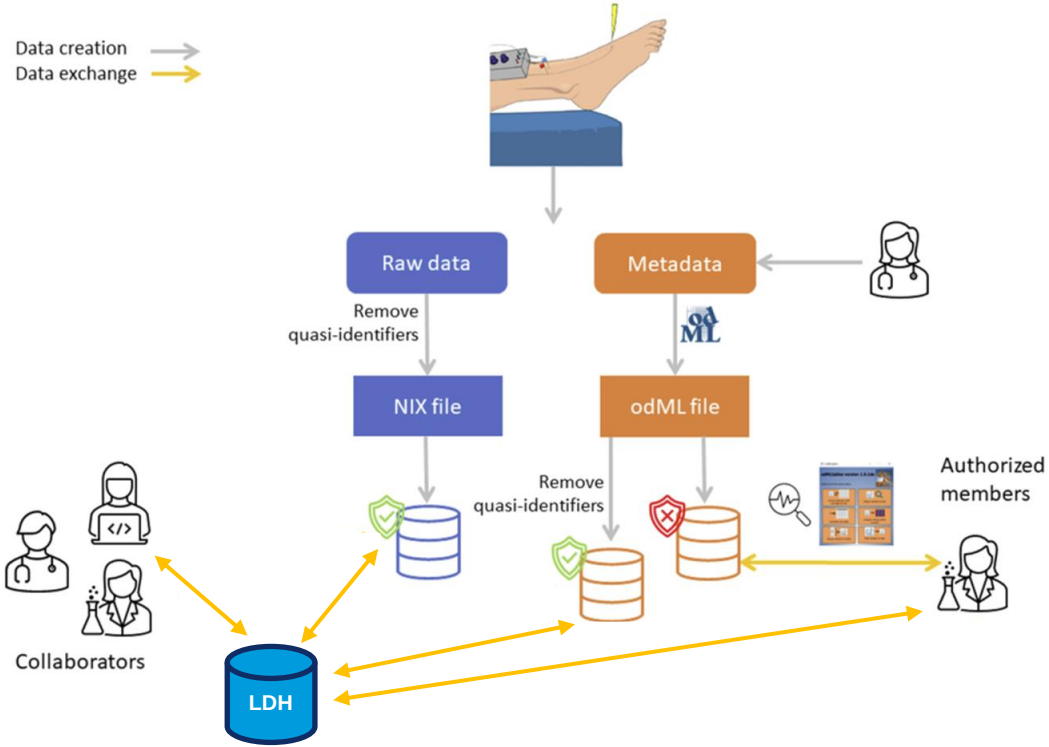


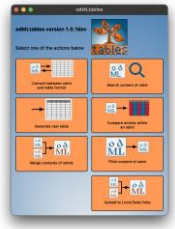
Fig 1:FAIRIfication of microneurography data – modified graphic from [1]

[1] Troglio A, Nickerson A, Schlebusch F, Röhrig R, Dunham J, et al. odML-Tables as a Metadata Standard in Microneurography; Stud Health Technol Inform. 2023;307:3-11.

Use Case – Microneurography



(XML)



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Structured Dataset Description

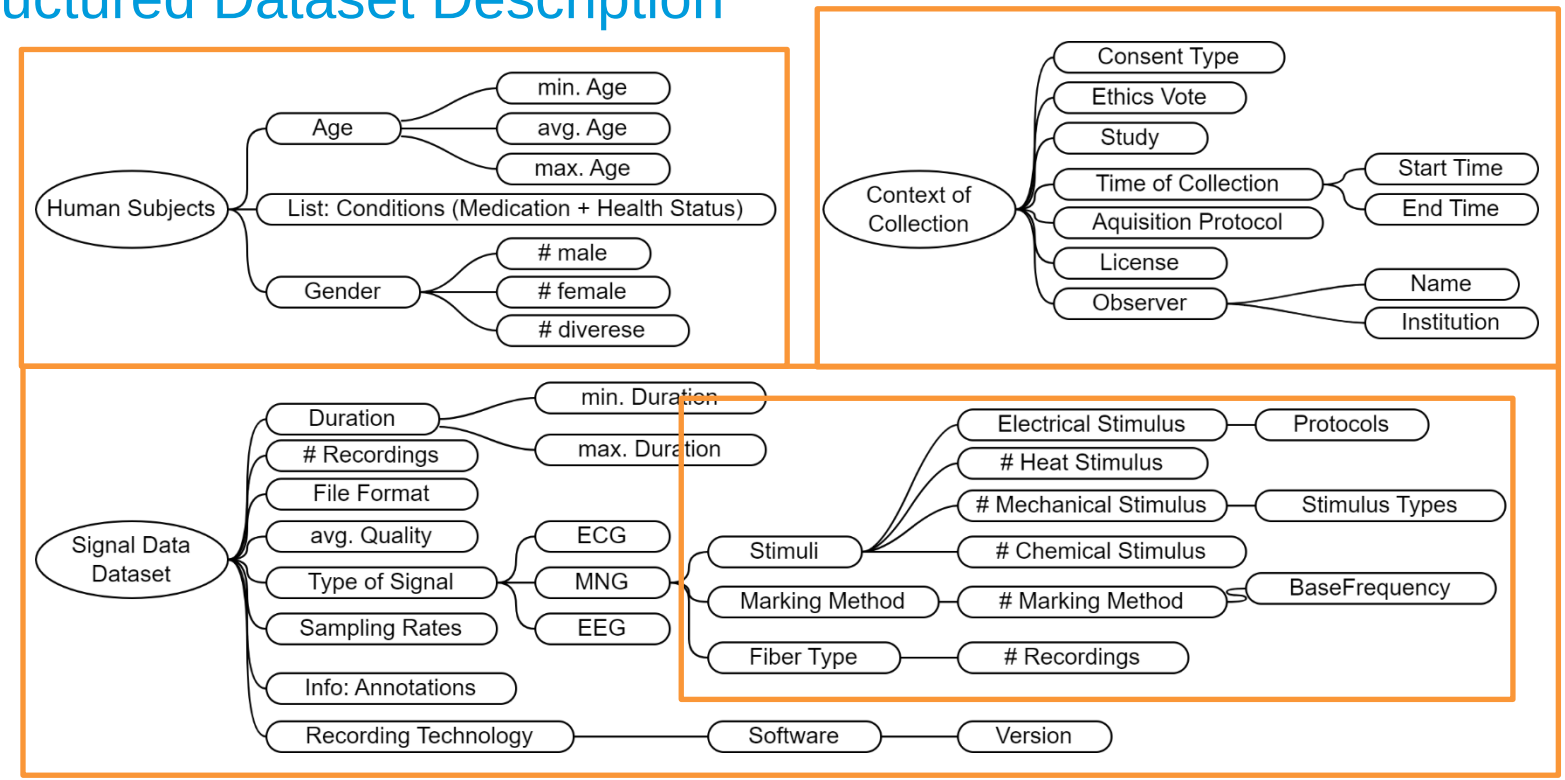

Fig 2:Information that should be contained in a dataset description. Based on [2] and discussion with microneurography researchers.

[2] Badawy R, Hameed F, Bataille L, Little MA, Claes K, Saria S, et al. Metadata Concepts for Advancing the Use of Digital Health Technologies in Clinical Research. Digit Biomark. 2019 Oct 7 ;3(3):116–32.

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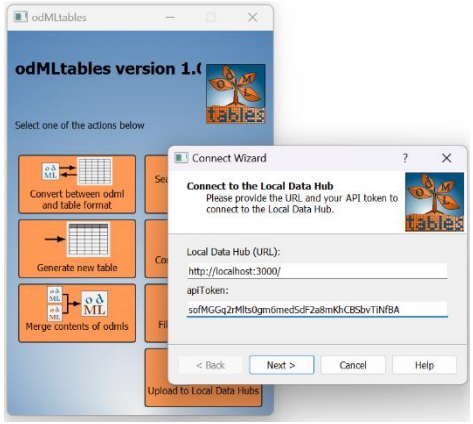
The Concept

metadata files



established metadata management tool

data sharing platform

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The Concept – Details

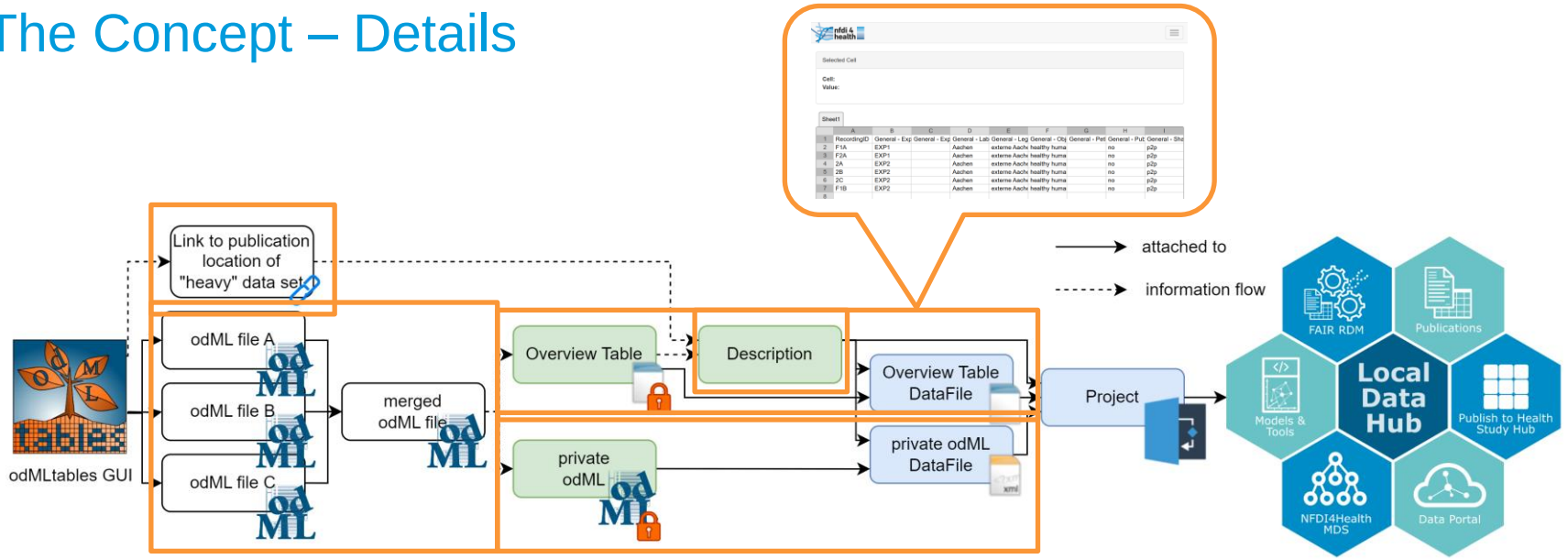

Fig 1: Concept on how the meta-data of the source odML file is represented in the LDH concepts and which information should be streamed from the odMLtables GUI to the LDH.

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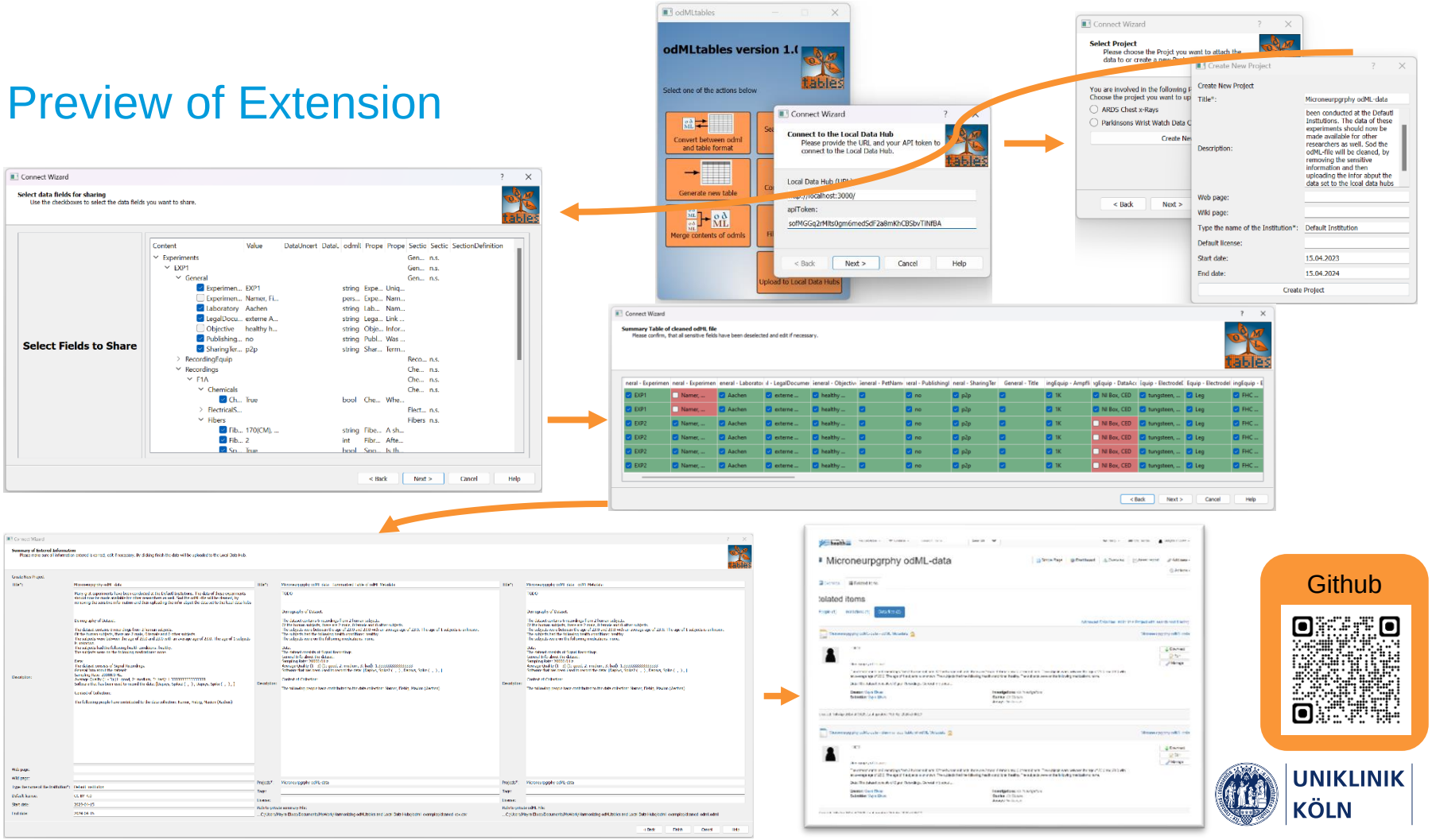
Preview of Extension



Github

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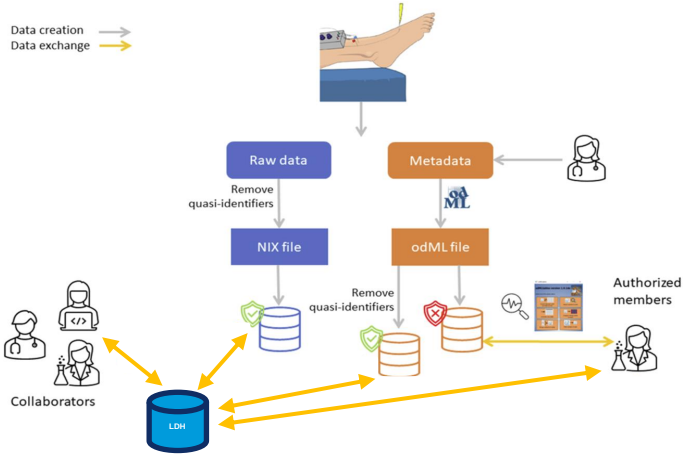
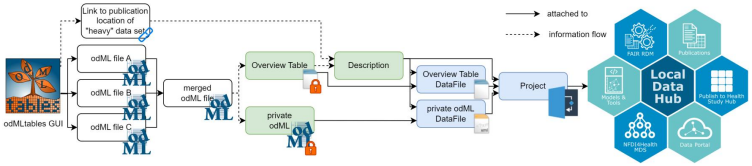
Conclusion





Outlook

- Reaching out to diverse data communities (Scientific Center for Neuropathic Pain Research Aachen) to collect
  - Established dataflows
  - Requirements for user acceptable upload

This work was done as part of the NFDI4Health Consortium and is published on behalf of this Consortium (www.nfdi4health.de).

Github

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