NFDI4BIOIMAGE

An Initiative for a National Research Data Infrastructure for Microscopy Data

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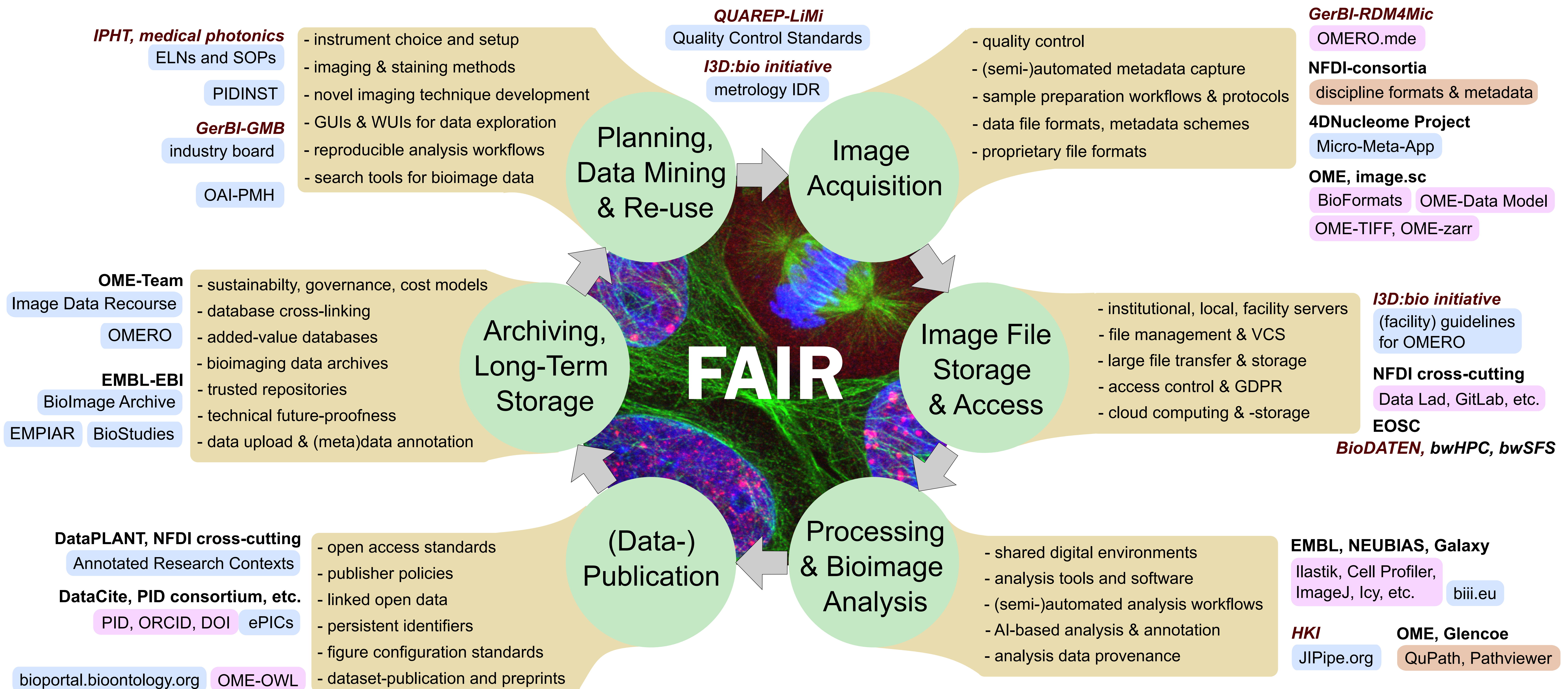
Aim: Align existing and establish novel services & solutions for data management tasks throughout the bioimage data lifecycle. Integrate with and harmonize community standards & discipline-specific needs and foster (inter-)national collaboration for bioimage data management.

Examples from *current projects and partners within the initiative* and **established projects and consortia for collaboration**

Planning, Data Mining & Re-use

IPHT, medical photonics
- ELNs and SOPs
- PIDINST

GerBI-GMB
- industry board
- OAI-PMH

- instrument choice and setup
- imaging & staining methods
- novel imaging technique development
- GUIs & WUIs for data exploration
- reproducible analysis workflows
- search tools for bioimage data

Image Acquisition

QUAREP-LiMi
Quality Control Standards

I3D:bio initiative
metrology IDR

- quality control
- (semi-)automated metadata capture
- sample preparation workflows & protocols
- data file formats, metadata schemes
- proprietary file formats

GerBI-RDM4Mic
- OMERO.mde

NFDI-consortia
- discipline formats & metadata

4DNucleome Project
- Micro-Meta-App

OME, image.sc
- BioFormats
- OME-Data Model
- OME-TIFF, OME-zarr

Image File Storage & Access

- institutional, local, facility servers
- file management & VCS
- large file transfer & storage
- access control & GDPR
- cloud computing & -storage

I3D:bio initiative
- (facility) guidelines for OMERO

NFDI cross-cutting
- Data Lad, GitLab, etc.

EOSC
BioDATEN, bwHPC, bwSFS

Processing & Bioimage Analysis

- shared digital environments
- analysis tools and software
- (semi-)automated analysis workflows
- AI-based analysis & annotation
- analysis data provenance

EMBL, NEUBIAS, Galaxy
- Ilastik, Cell Profiler, ImageJ, Icy, etc.
- biii.eu

HKI
- JIPipe.org

OME, Glencoe
- QuPath, Pathviewer

(Data-) Publication

DataPLANT, NFDI cross-cutting
- Annotated Research Contexts

DataCite, PID consortium, etc.
- PID, ORCID, DOI
- ePICs

- open access standards
- publisher policies
- linked open data
- persistent identifiers
- figure configuration standards
- dataset-publication and preprints

- bioportal.bioontology.org
- OME-OWL

Archiving, Long-Term Storage

OME-Team
- Image Data Recourse
- OMERO

EMBL-EBI
- BioImage Archive
- EMPIAR
- BioStudies

- sustainabilty, governance, cost models
- database cross-linking
- added-value databases
- bioimaging data archives
- trusted repositories
- technical future-proofness
- data upload & (meta)data annotation

FAIR

Overarching measures

Community Surveys and Community Integration · Trainings, Workshops, Conferences · Open Educational Resources · Data Management Plans · Communication and Outreach · Use Cases

We are thankful for contributions to the poster by Susanne Kunis, Monica Valencia-Schneider, Roland Nitschke and Marc Thilo Figge

Further established and planned collaborations
forschungsdaten.info · open-access.net · fdm.nrw · bw2FDM · Euro-BI · Global-BI

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