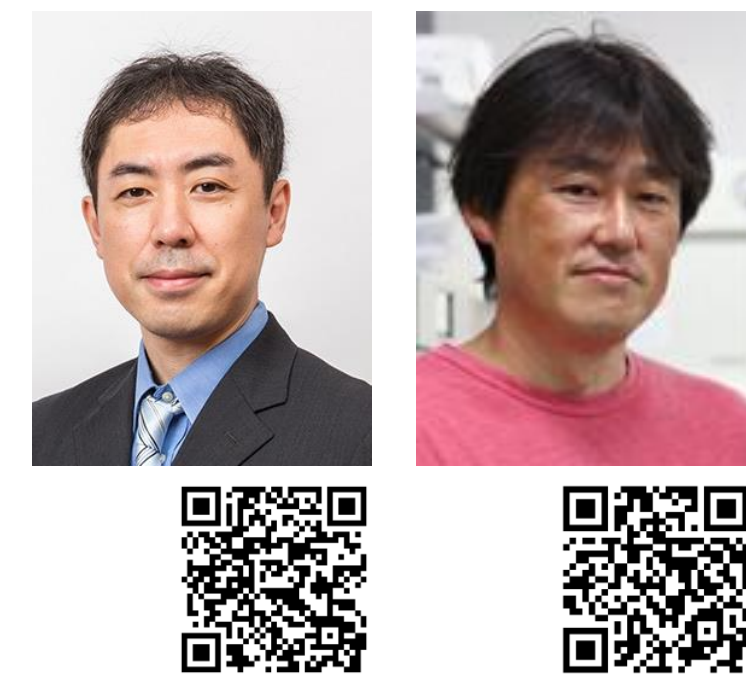


# SSBD: Global sharing of bioimaging data

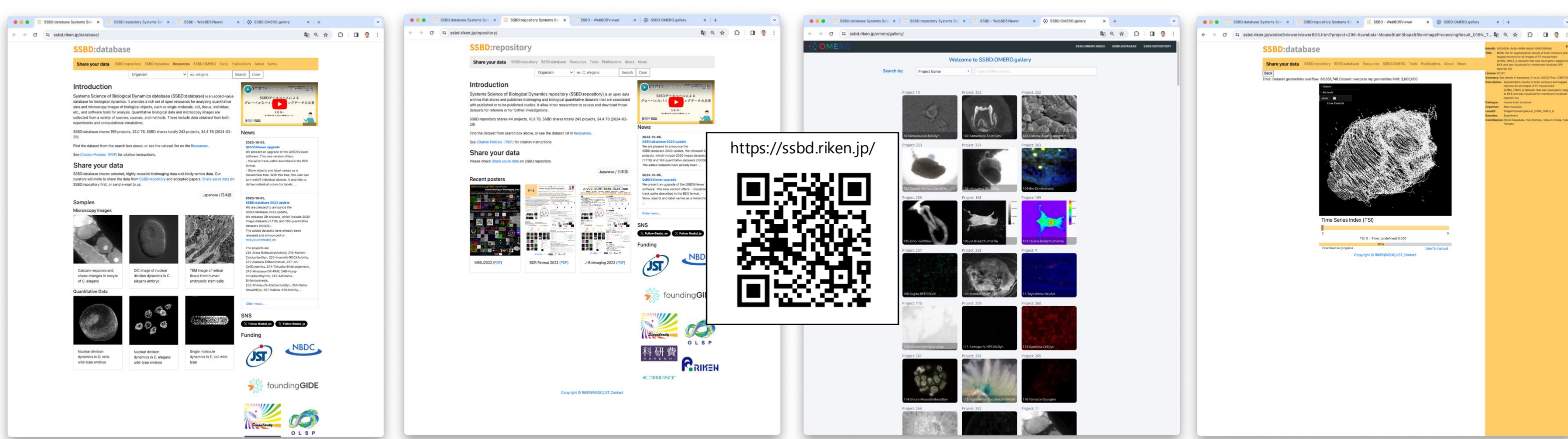
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- 4 Faculty of Information Science and Engineering, Ritsumeikan University, Japan

## Summary

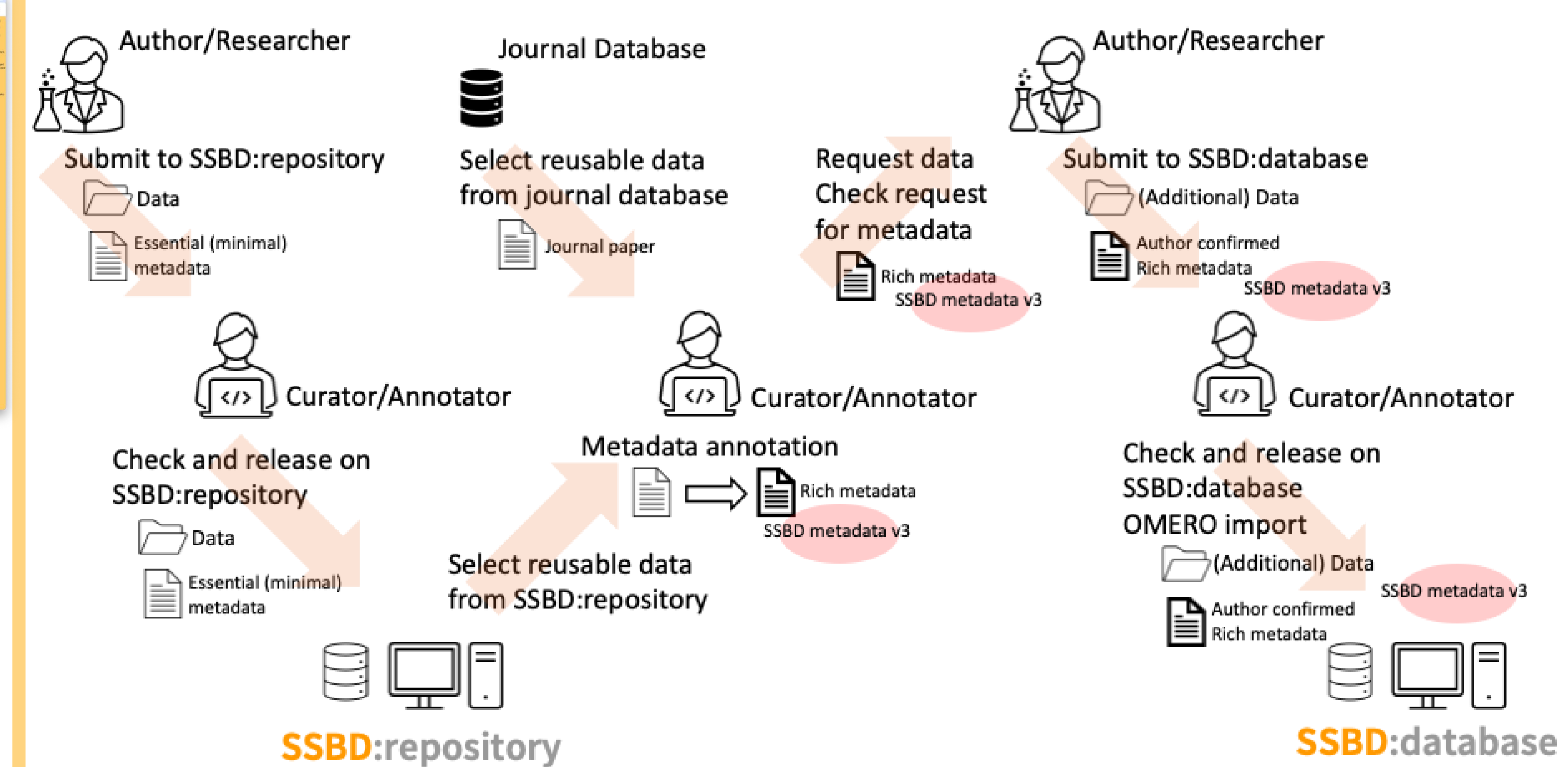
- **SSBD** (Tohsato et al. 2016) is a platform for sharing and reusing bioimages and biological dynamics data<sup>1</sup>
- **SSBD:repository** is a quickly sharing archive<sup>4</sup> for all kinds of bioimaging data for published or to-be-published papers, with essential metadata
- **SSBD:database** is an added-value database<sup>4</sup> for bioimages and biological dynamics data that are highly reusable, taken by state-of-art microscopy or large-scale data through systematic experiments, with rich metadata
- Developing a global sharing system among Japan, Europe, Australia and North America for sharing and reusing bioimages and their metadata



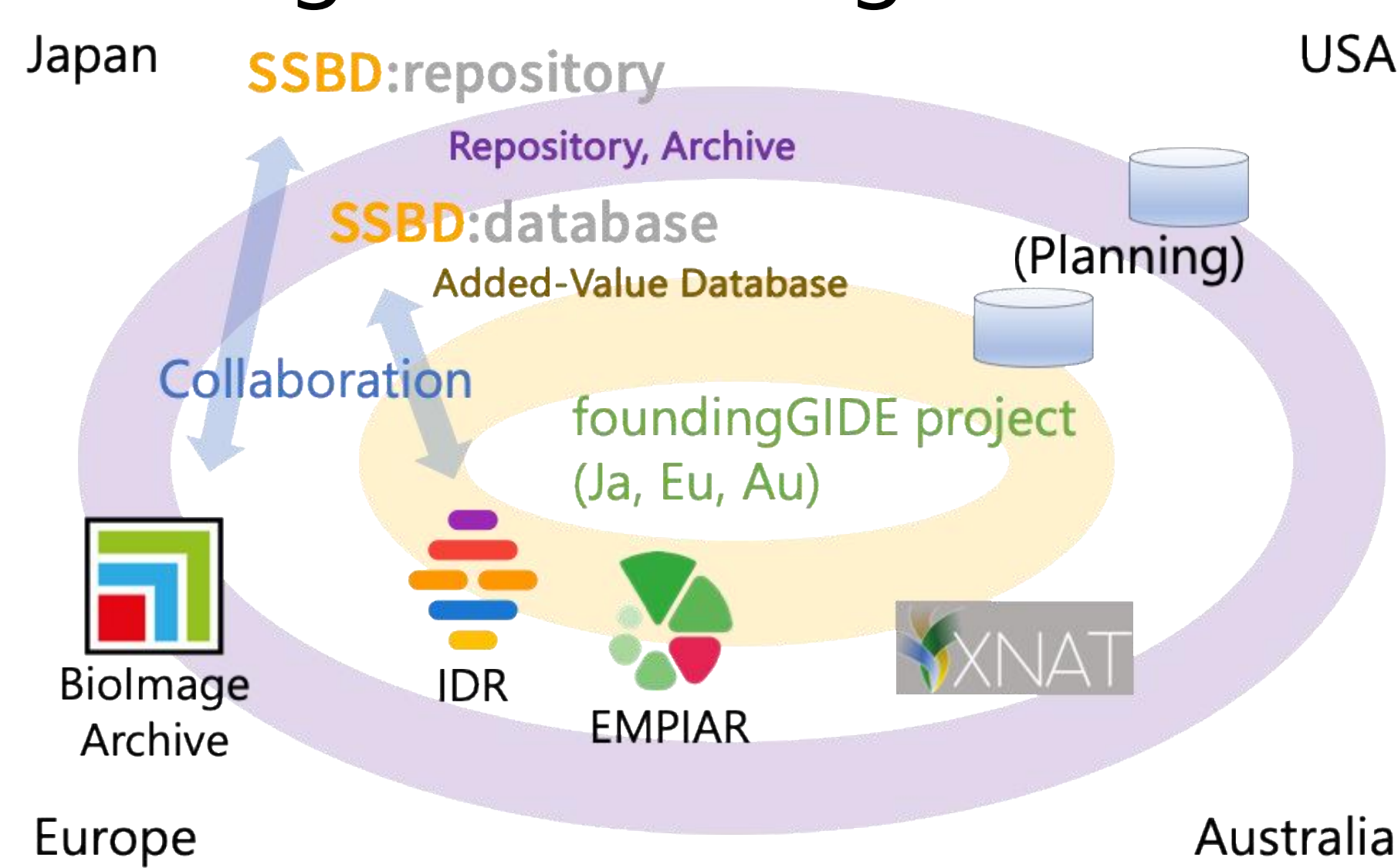
## Share your data on SSBD:repository

1. Request for data registration – e-mail to [ssbd-repos@ml.riken.jp](mailto:ssbd-repos@ml.riken.jp)
  2. Filling in essential metadata in MS Excel format
  3. Transfer of data and metadata via RIKEN Box, USB HDD, etc.
  4. Cite issued DOI (Digital Objects Identifier) for the dataset in your paper
- Automatic completion for ontologies and microscopy information
  - Registration via the Web system is coming soon

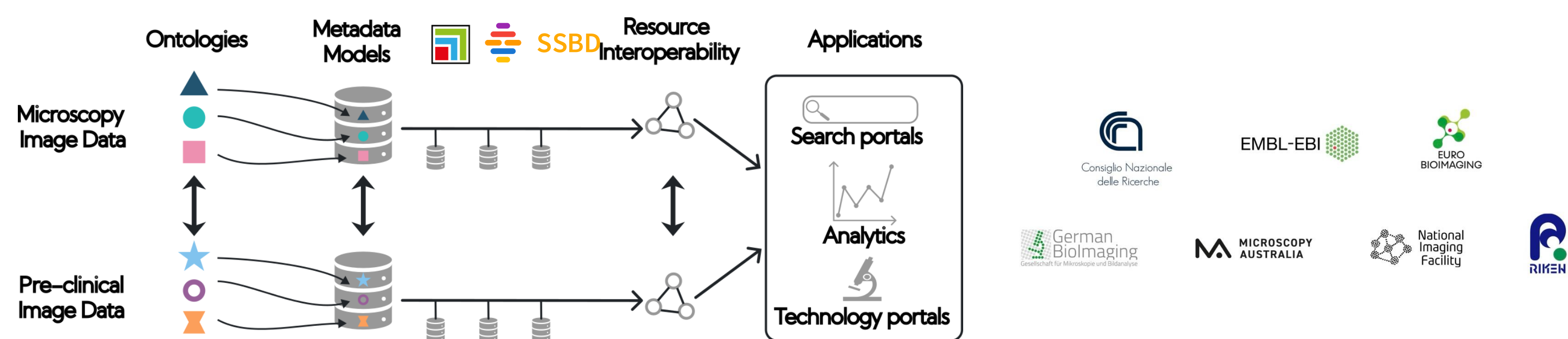
## SSBD data registration process



## Collaboration for global sharing



- **foundingGIDE** – Laying the foundations of a Global Image Data Ecosystem



- Collaboration with BIA (Biolmage Archive) and IDR (Image Data Resource)
  - Finding bioimaging data with metadata using a unified system
  - Accessing bioimaging data and metadata using a unified API
  - Interoperating bioimaging data with a unified format – OME-Zarr
  - Reusing bioimaging data with recommendations and linking



Meeting for collaboration with IDR and BIA @Kobe, Jul 2023

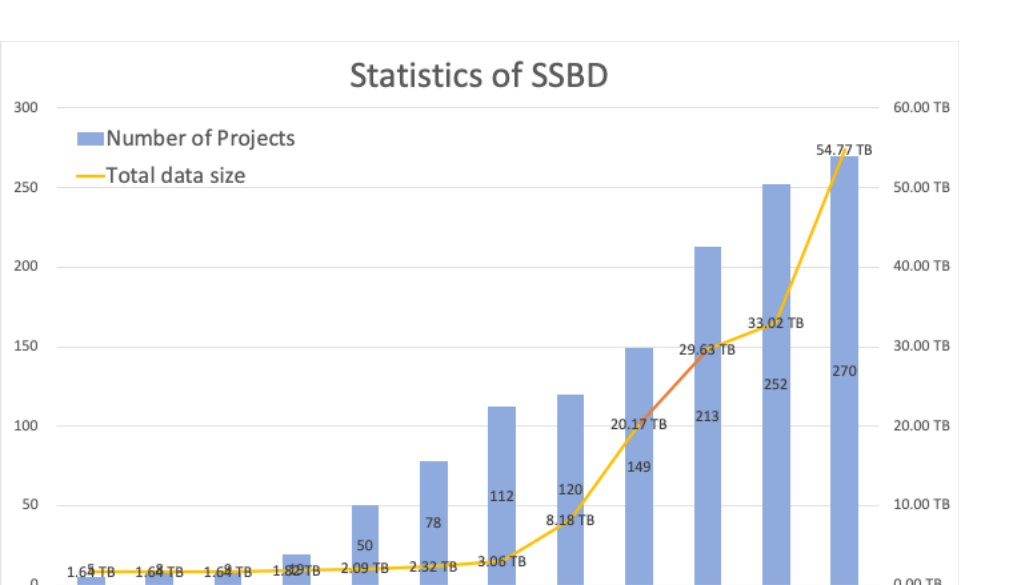


Meeting for collaboration with IDR/OME @Dundee, Jun 2024

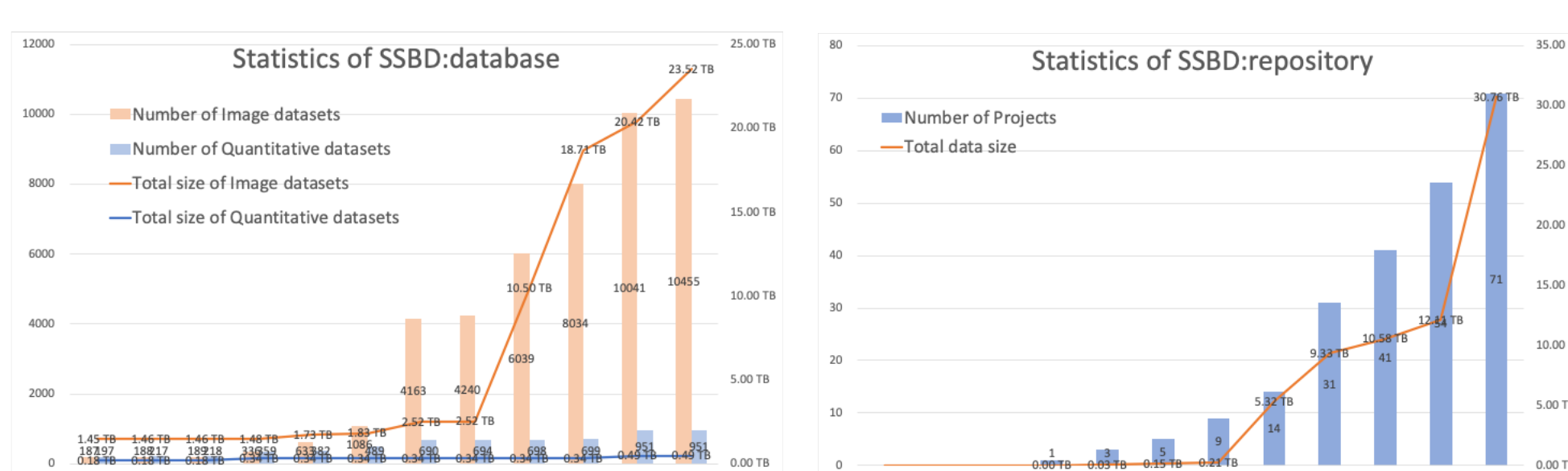
## Resources

- Bioimaging data – original, unprocessed data supported by OMERO/Bio-Formats
- Biological dynamics data – analyzed, quantitative (numerical) data with BDML<sup>2</sup>/BD5<sup>3</sup>
- Software tools, Workflows

### SSBD Statistics

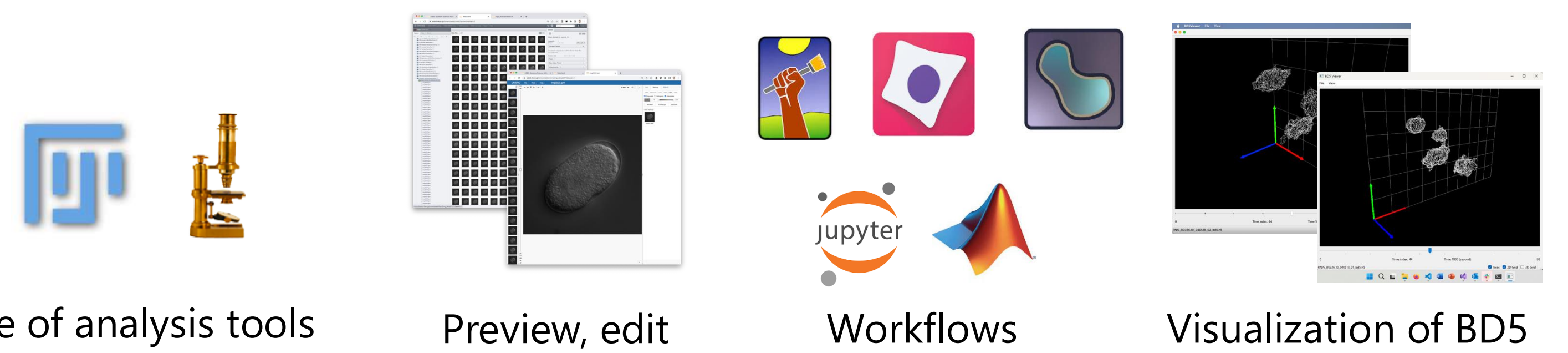
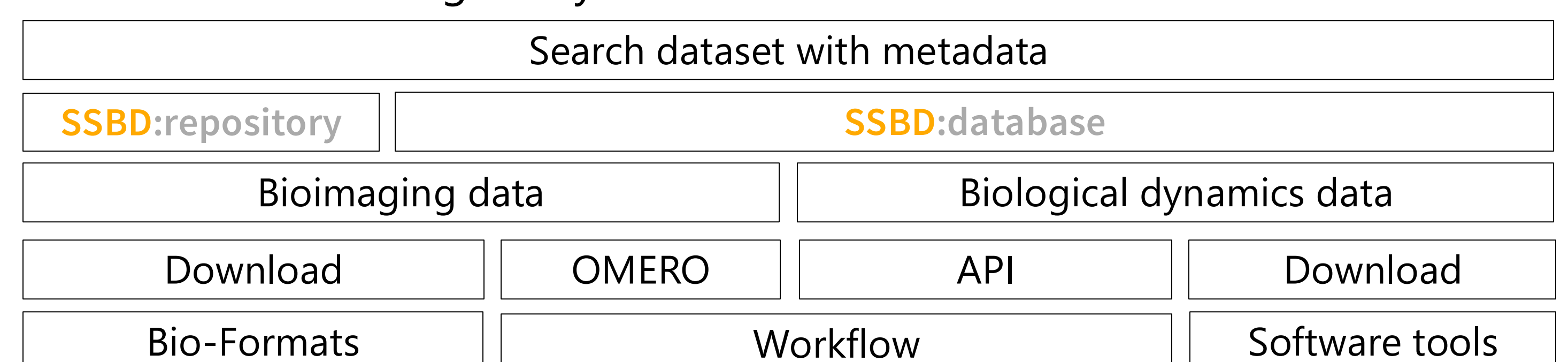


### Details in SSBD:database/repository



## Reuse of data

- Search dataset with metadata – biosample, paper, microscopy<sup>6</sup> info, ontologies
- Access data and metadata via API
- Preview and process of bioimages on web via OMERO
- Visualization of biological dynamics data on web



## Future works

- Easy data registration for SSBD:repository
- SSBD:database and SSBD:repository integration with SSBD metadata v3
- Cross-search system with SSBD-IDR and SSBD-BIA
- Integration to cloud systems
  - Support for **OME-Zarr**<sup>7</sup>, cloud-optimized bioimaging file format
  - Development of **BD-Zarr**, cloud-optimized biological dynamics data format
- Sharing workflows, Providing workflow engine

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