Managing microscopy data "FAIRly" with OMERO

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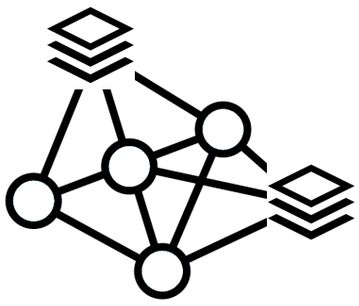
Scientific data is experimenting a profound transformation

- Larger datasets
  - Larger and faster cameras
  - New life imaging oriented techniques
  - Automation



- More complex datasets
  - Diversity of microscopes and acquisition metadata
  - Diversity of inter-linked techniques
  - More elaborated analysis pipelines

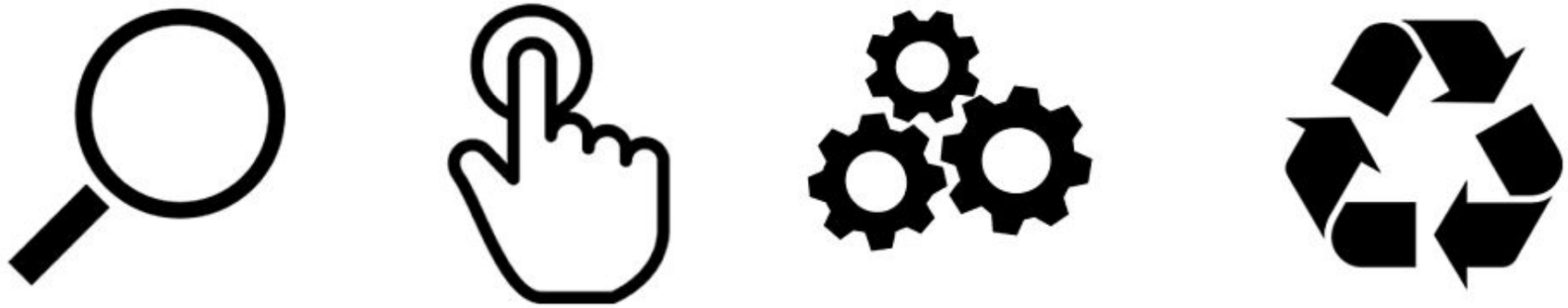
How do we store Scientific Image data today?

- Obscure organisation in endless trees of folders
- Not traced
- Experimental conditions often just saved in the path or the name of the file… Exp20211105_DAPI-PcFITC-Me3Cy3.tiff
- Loss of data
- No protection against fraud
- Not easily accessible metadata: not searchable
- Not shared and/or secured

What is proper data management?
FAIR a technical formalisation

- Guidelines to improve the data management practices
- Emphasis on the machine-actionability

Findable Accessible Interoperable Reusable



Wilkinson, M., Dumontier, M., Aalbersberg, I. *et al.* The FAIR Guiding Principles for scientific data management and stewardship. *Sci Data 3*, 160018 (2016). https://doi.org/10.1038/sdata.2016.18

https://www.go-fair.org

What is proper data management?
FAIR a technical formalisation

- Data and metadata [illegible] representations of [illegible] principles.
- [illegible] provenance.

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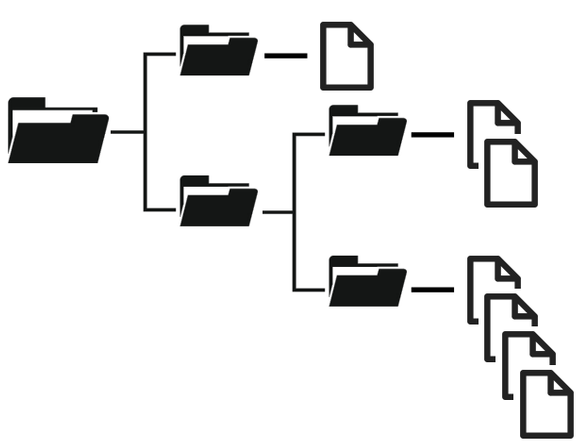
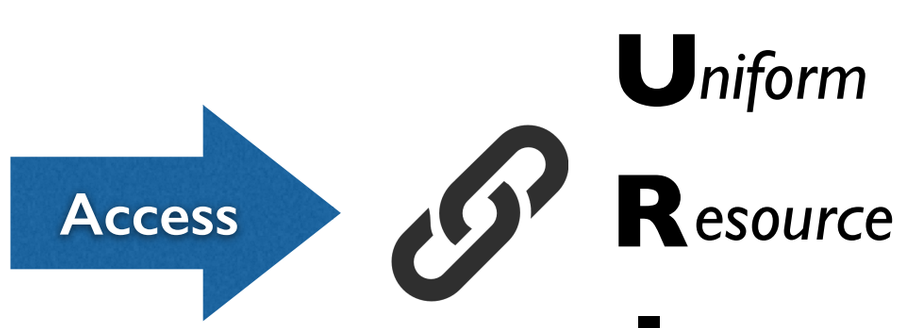




U*niform*

R*esource*

I*dentifier*

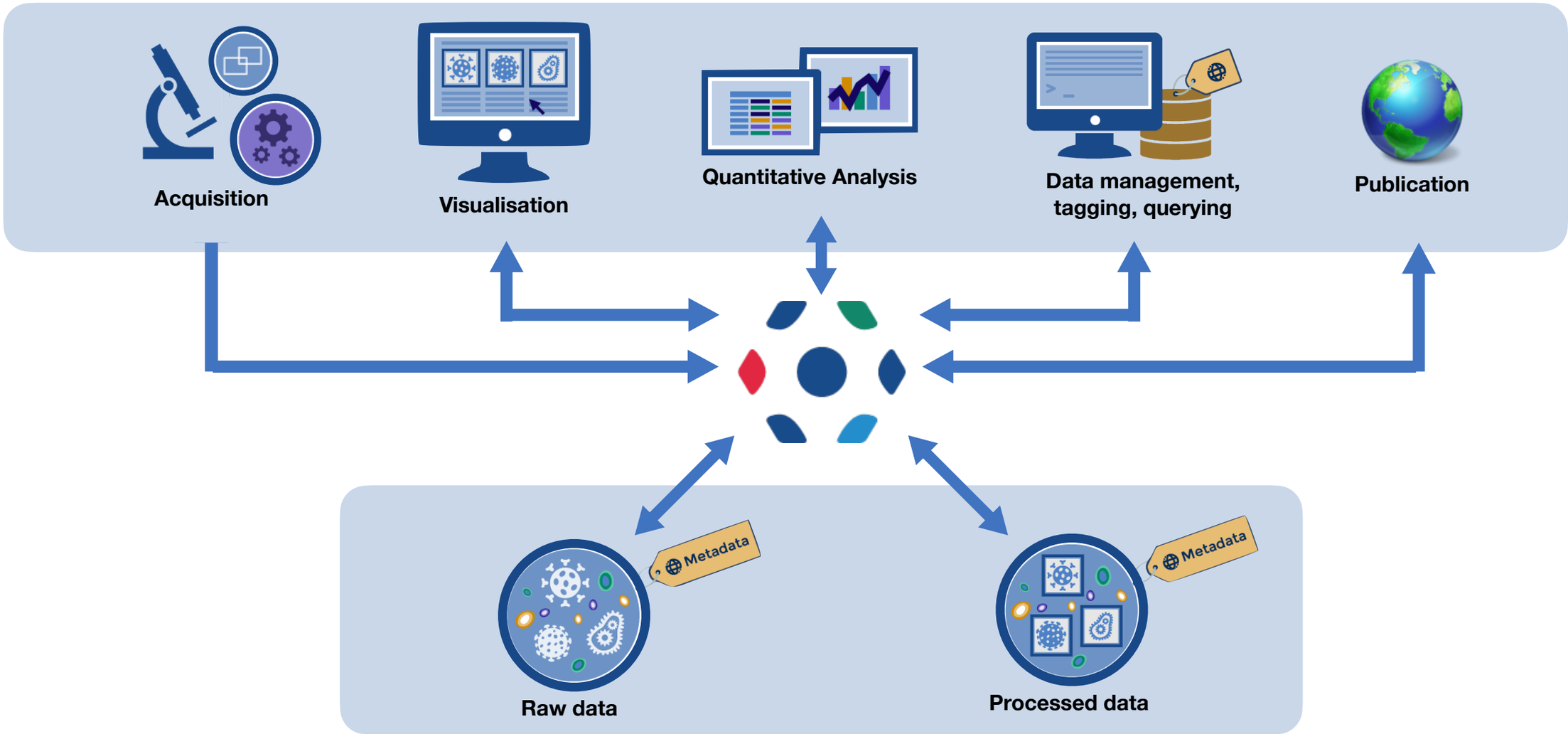
F:\MyData\Exp_20211106\Condition_A\…

https://my-omero.fr/webclient/?show=dataset-15656

OMERO
Open Microscopy Environment

www.openmicroscopy.org

Provides an integrated solution through the whole work flow



Planning

www.france-bioinformatique.fr

- Explore annotated images
- Making publication ready figures: OMERO-figure
- Making a dataset public
- Explore IDR, an OMERO-based public data repository
- Sharing analysis workflows