

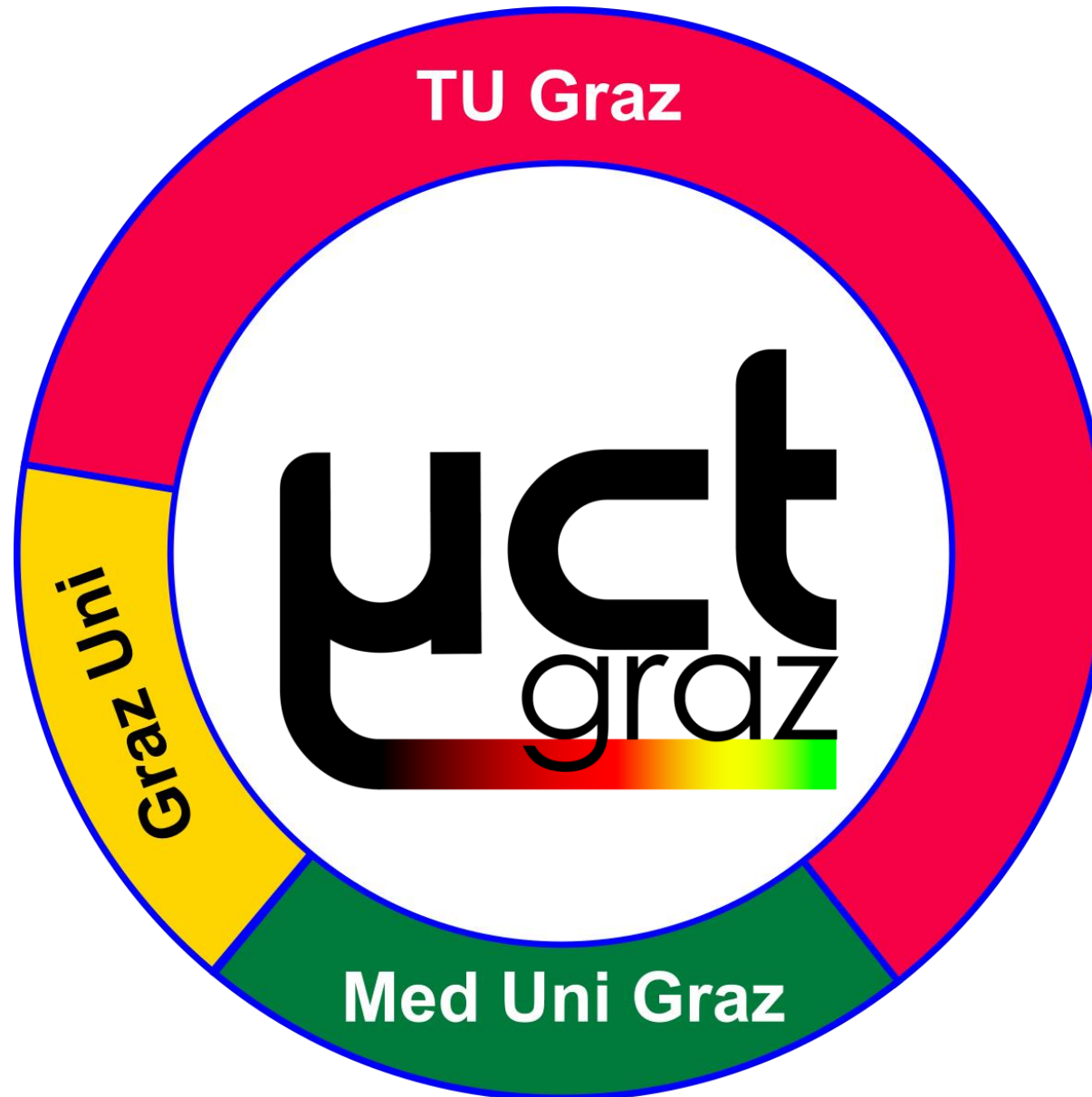
RDM for Graz μ -CT consortium:

Needs and challenges in a multi-university project

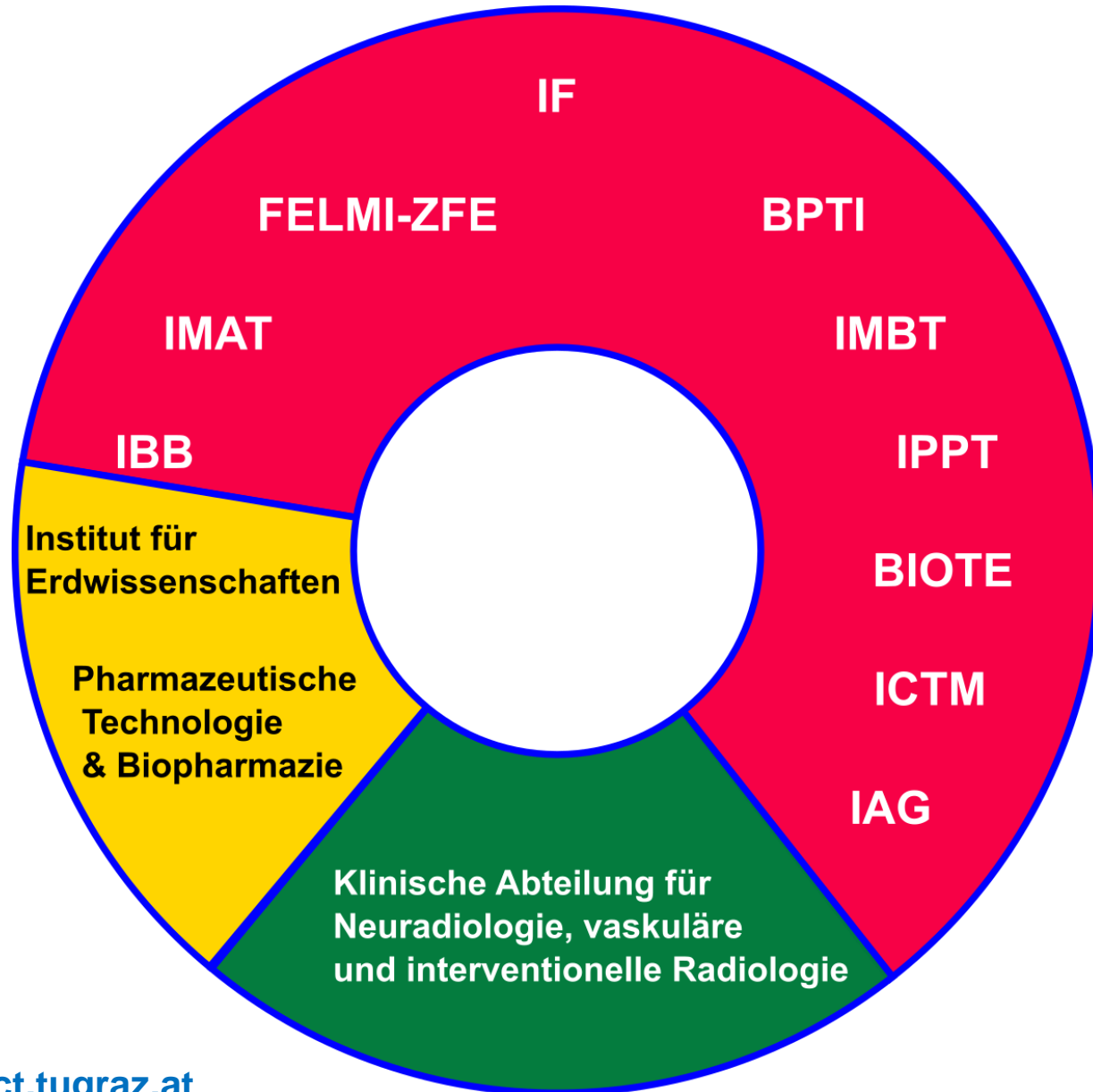
Eduardo Machado Charry

Institute for Solid State Physics, Graz University of Technology

December 2021



FFG



- Paper
- Pharmaceutical products
- Biomass
- Metals and alloys
- Rocks
- Concrete
- Batteries
- Medical devices



UniTOM HR

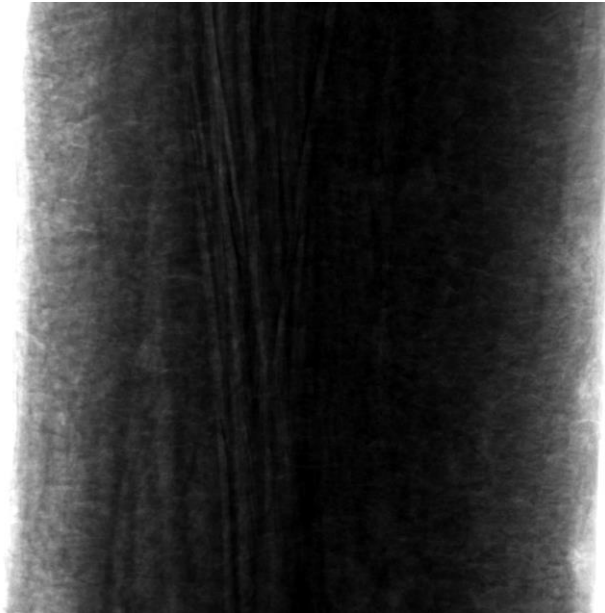
- **sub-micron spatial resolution**



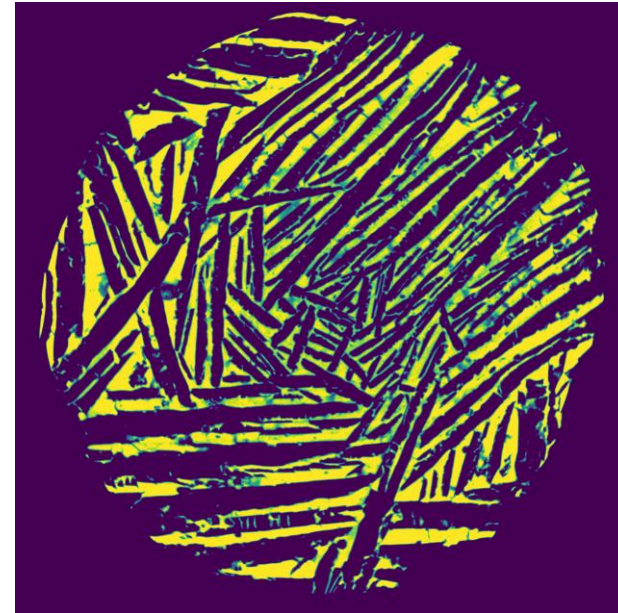
UniTOM XL

- **for high throughput, diverse sample types and flexibility**

- What kind of data are generated: **Images (TIFF files)**



Projection
(radiograph)



Reconstructed Slice



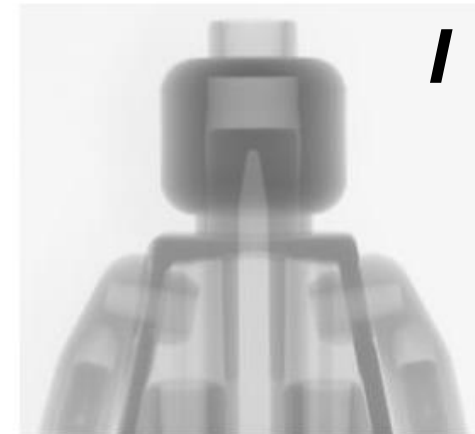
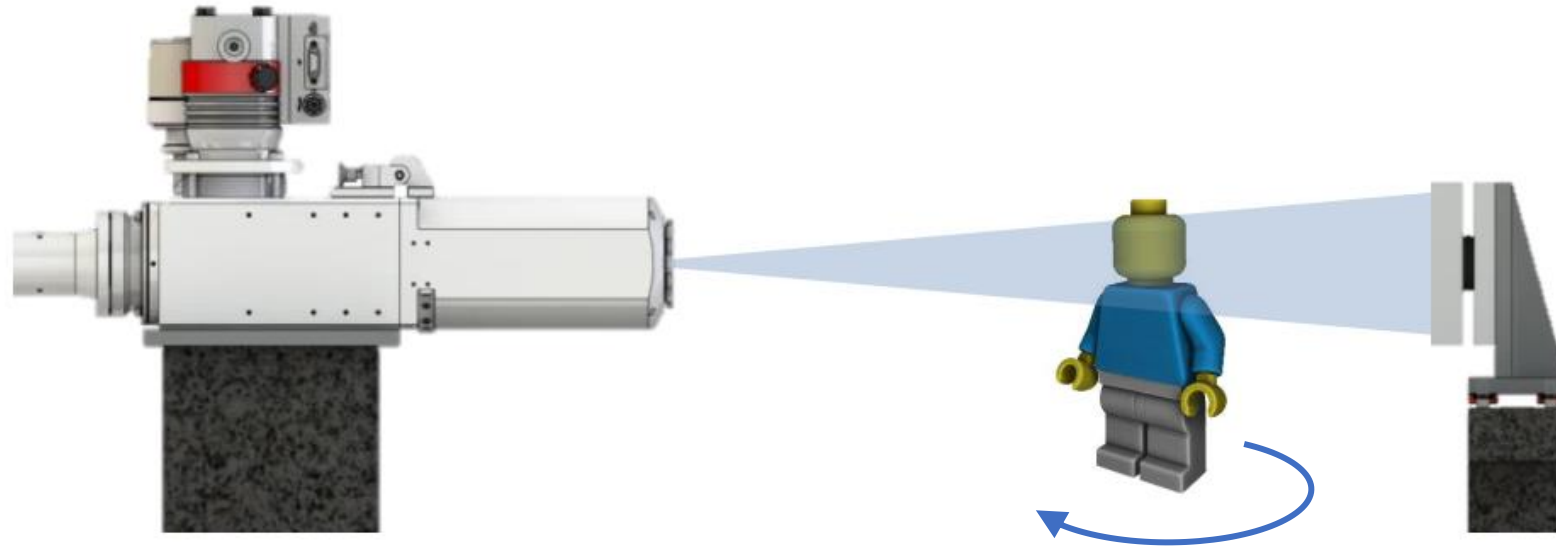
Z-Stack:

Structural descriptors

- How will data be generated:
- Metadata

Acquisition

Acquisition settings



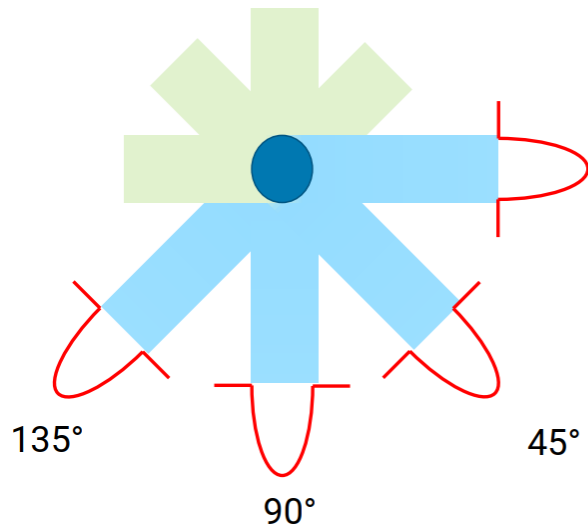
Large amount of data



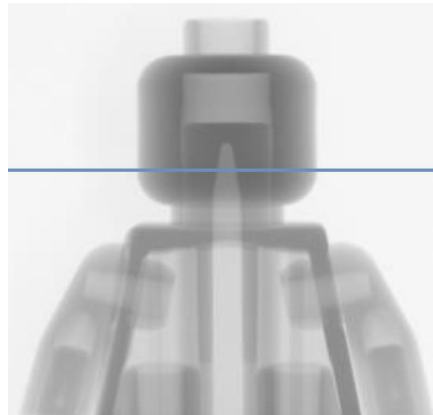
Projection
(raw data)

Image from TESCAN

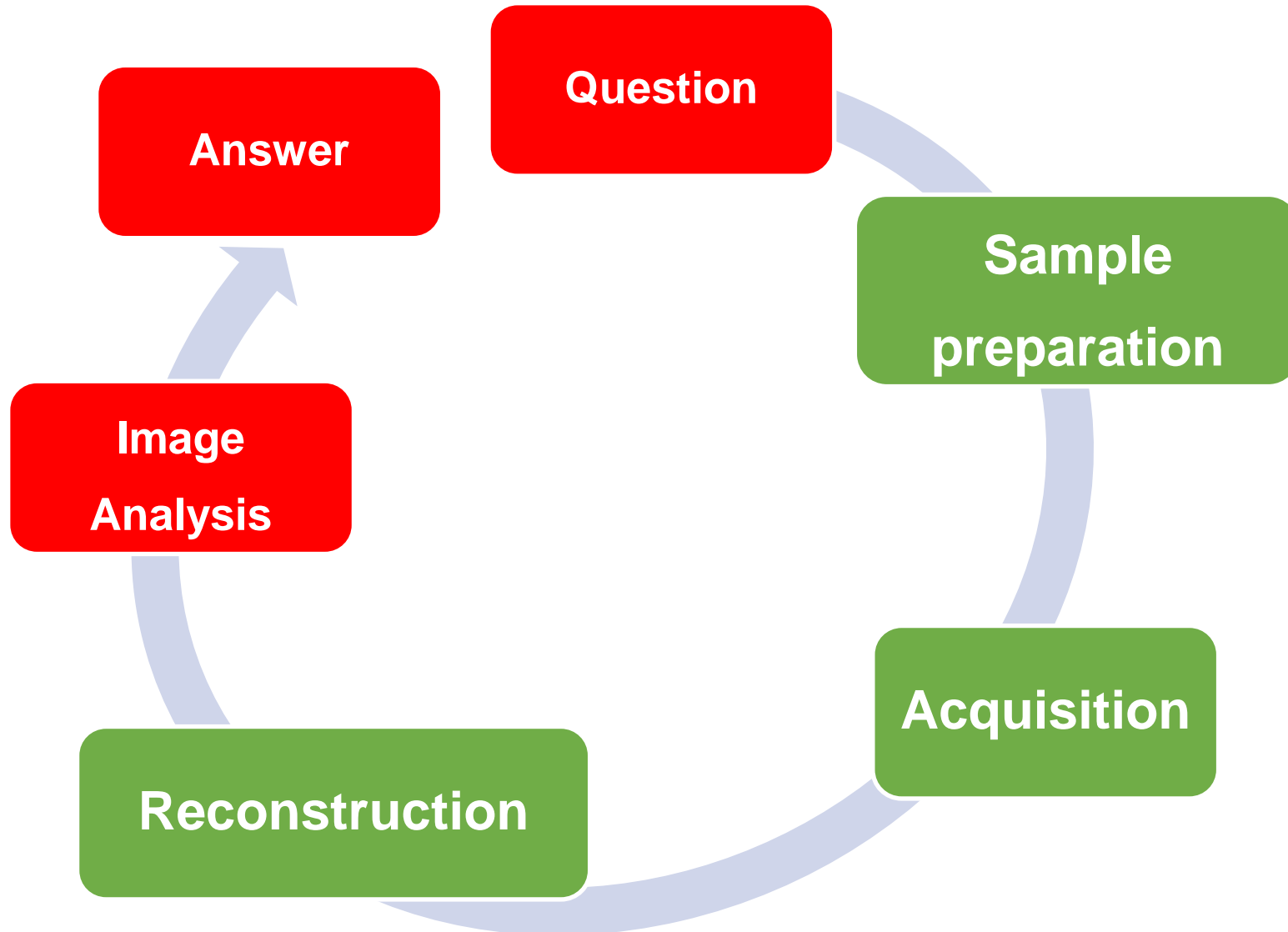
- How will data be generated: **Reconstruction**
- Metadata **Reconstruction settings**



0°



- It depends on the criteria selected, i.e., reconstruction settings
- Reconstruction quality
- Primary data for the user

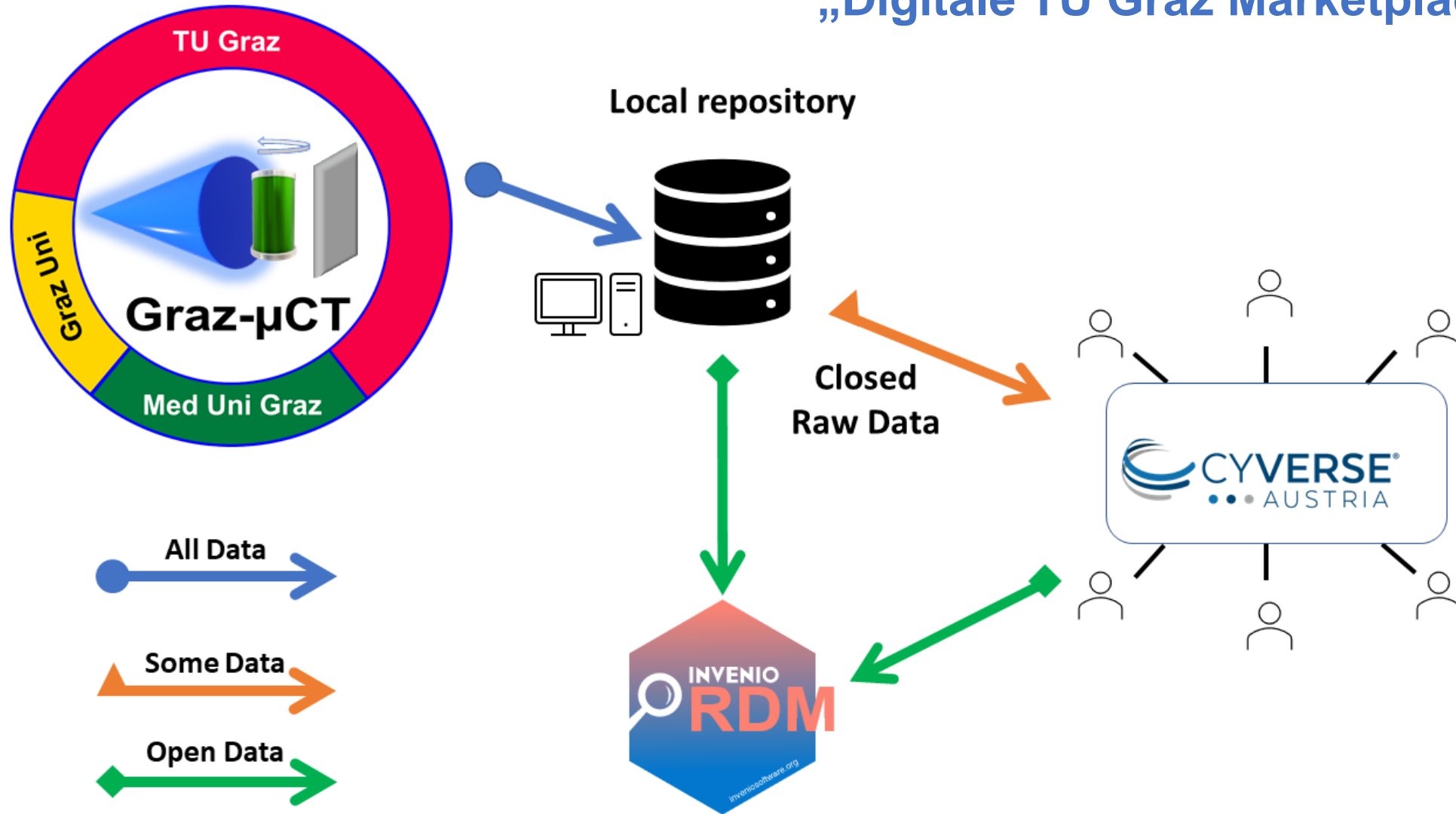


RDM

- **Protocols**
- **Images**
- **Metadata**
- **Database**

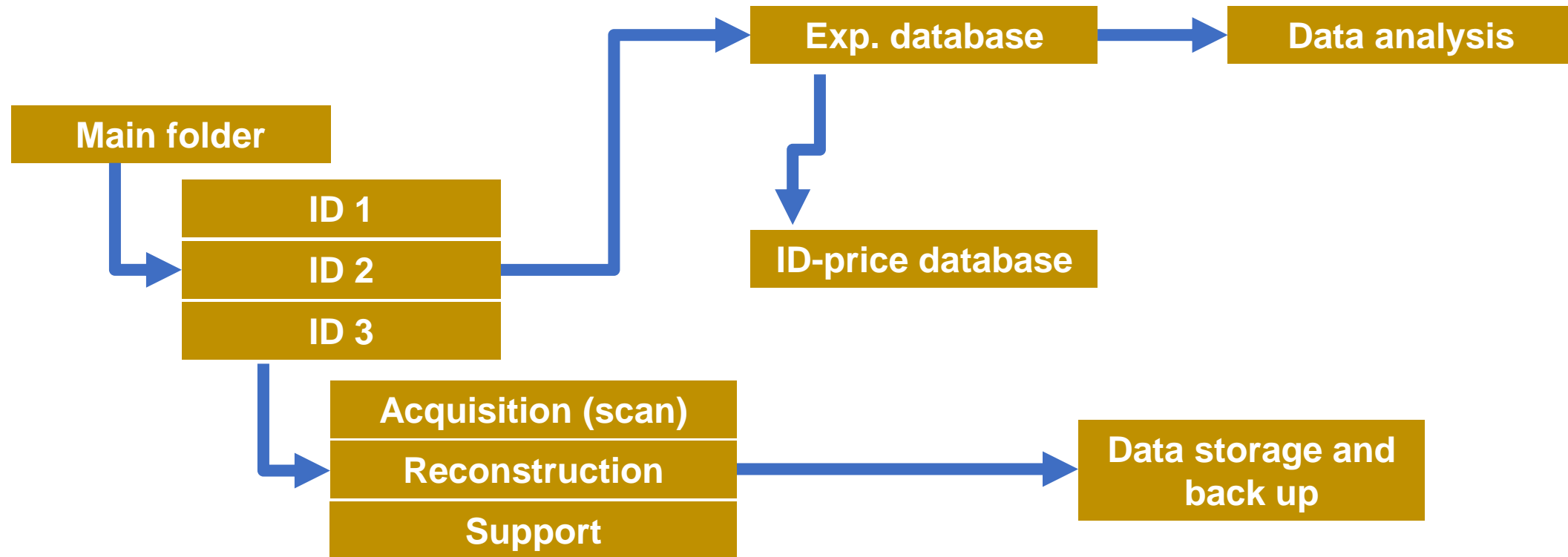
„Digitale TU Graz Marketplace“ 2020

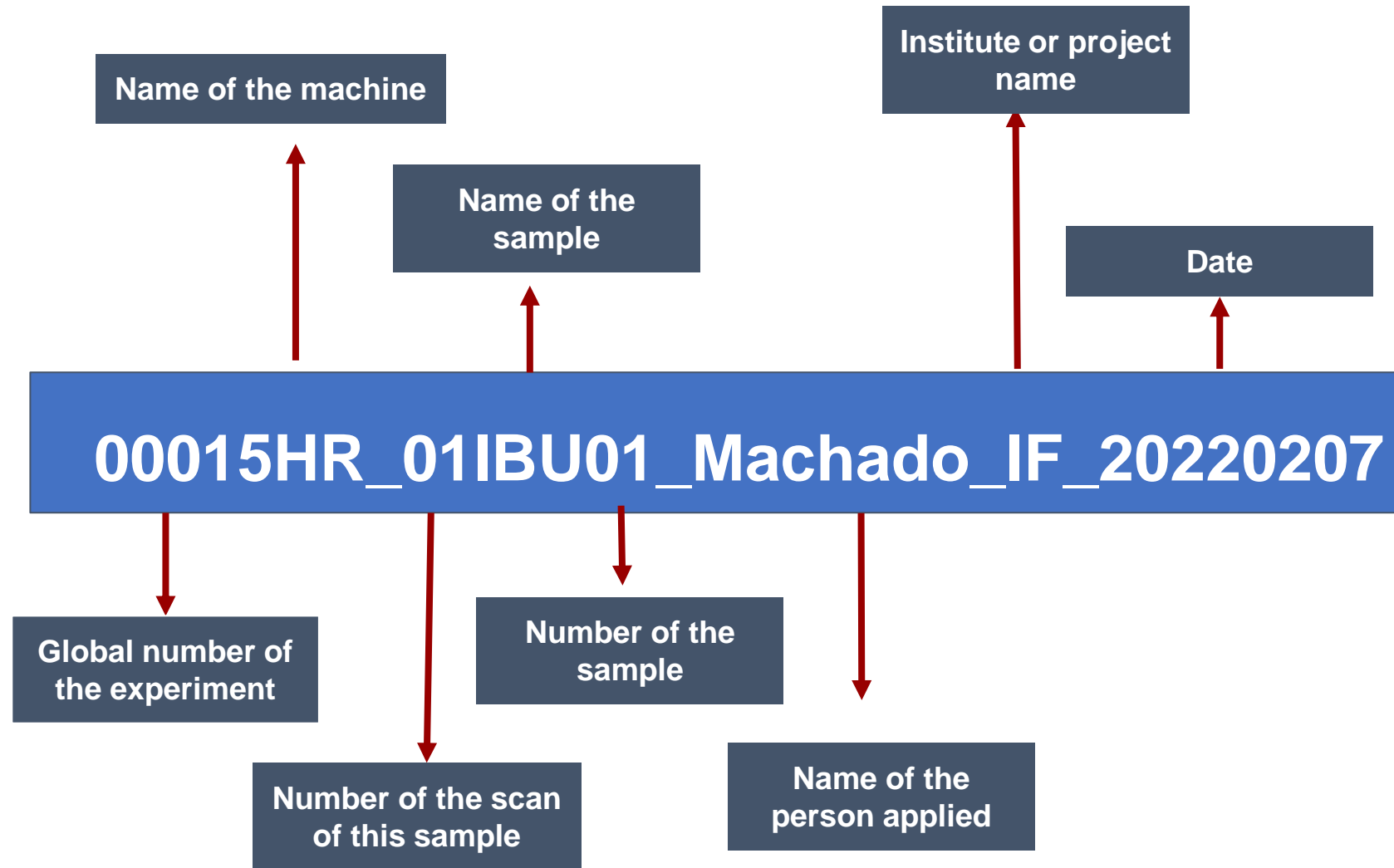
- NAS
- SPE

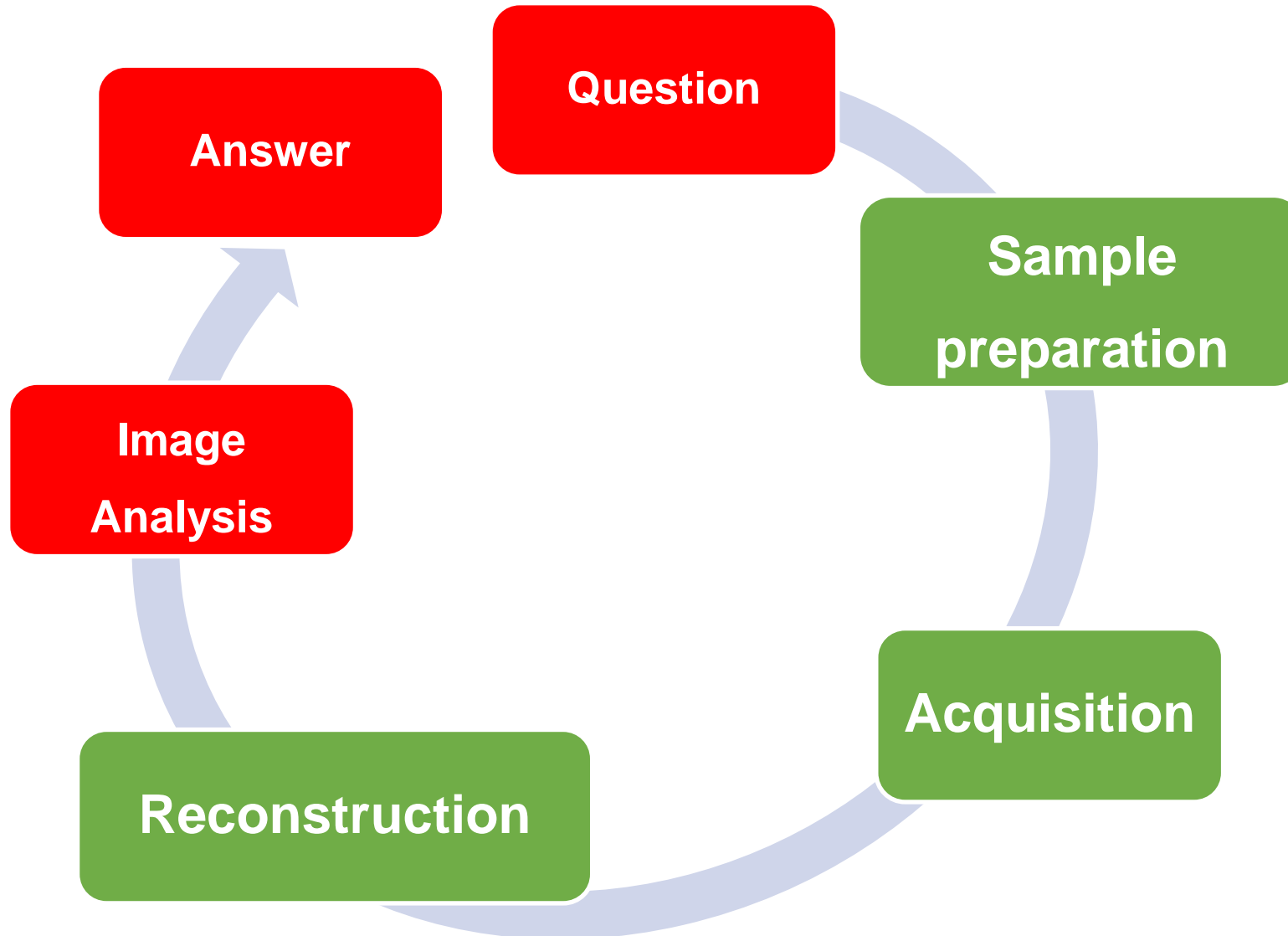


Main results:

- **Workflow for RDM in two machines**
- **ID generation.**
- **Automatic update of the database**
- **Automatic metadata retrieval**
- **Graz- μ CT Graz website**







Protocols

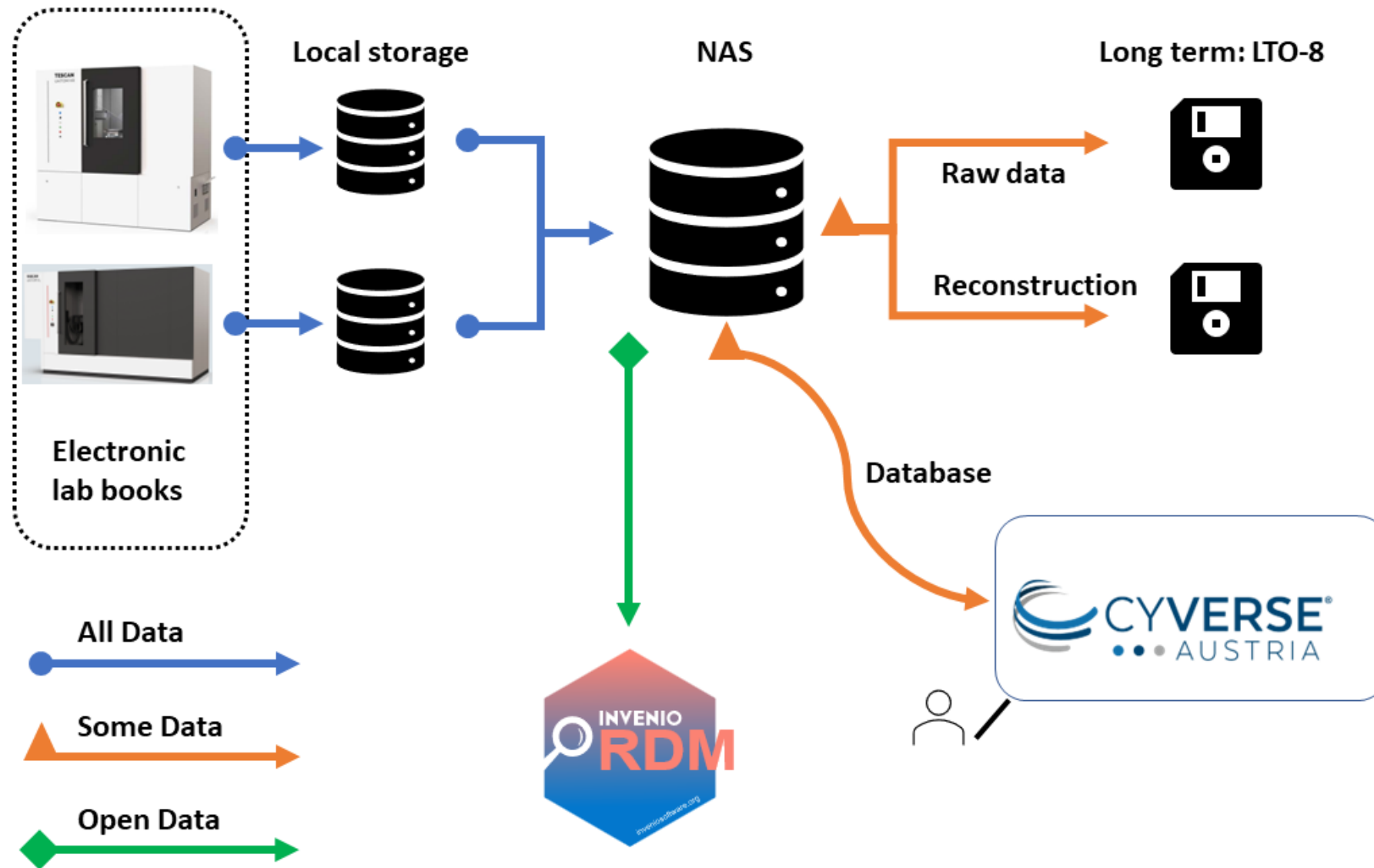
- **Need for standards**
- **Integration of Electronic lab books in the workflow**

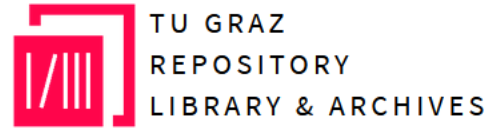


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LabNDB-Ext

Jakob Harden @TuGraz





SCIENCE
PASSION
TECHNOLOGY



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X-ray CT dataset of a secondary Li-ion Battery

2022-11-22

Dataset

 Open

Machado, Eduardo

X-ray CT scan of a secondary Li-ion Battery by Eduardo Machado, Technical University of Graz. The goal was to observe the impact of mechanical deformation on the layers. Specimen scanned during a laboratory training on March 30, 2002. Isotropic voxel size = 15.5 μm . Please acknowledge Graz...

X-ray CT Scan Data Computed Tomography

Uploaded on November 22, 2022

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- Standards?
 - www.ctlab.geo.utexas.edu
 - <https://www.digitalrockportal.org/>
- For other scan types?
- For Image analysis?

GENERAL INFORMATION

 Open Microscopy Environment Ontology (OME-OWL)

 [Awaiting DOI](#)


Type Terminology artefact

Registry Standard

Description The Open Microscopy Environment Ontology (OME-OWL) is a light microscopy imaging ontology that has been developed through translation of the OME data model. The aim of this ontology is to support multi-modal imaging technologies and integrate life-science metadata to enable comprehensive image analyses. The core concepts extracted from the OME Data model include project, experiment, instrument, image, screen, plate and region of interest. The ontology has been extended to include electron microscopy, X-ray computed tomography (CT) and magnetic resonance imaging (MRI).

Homepage <https://gitlab.com/openmicroscopy/incubator/ome-owl>

Year of Creation 2018

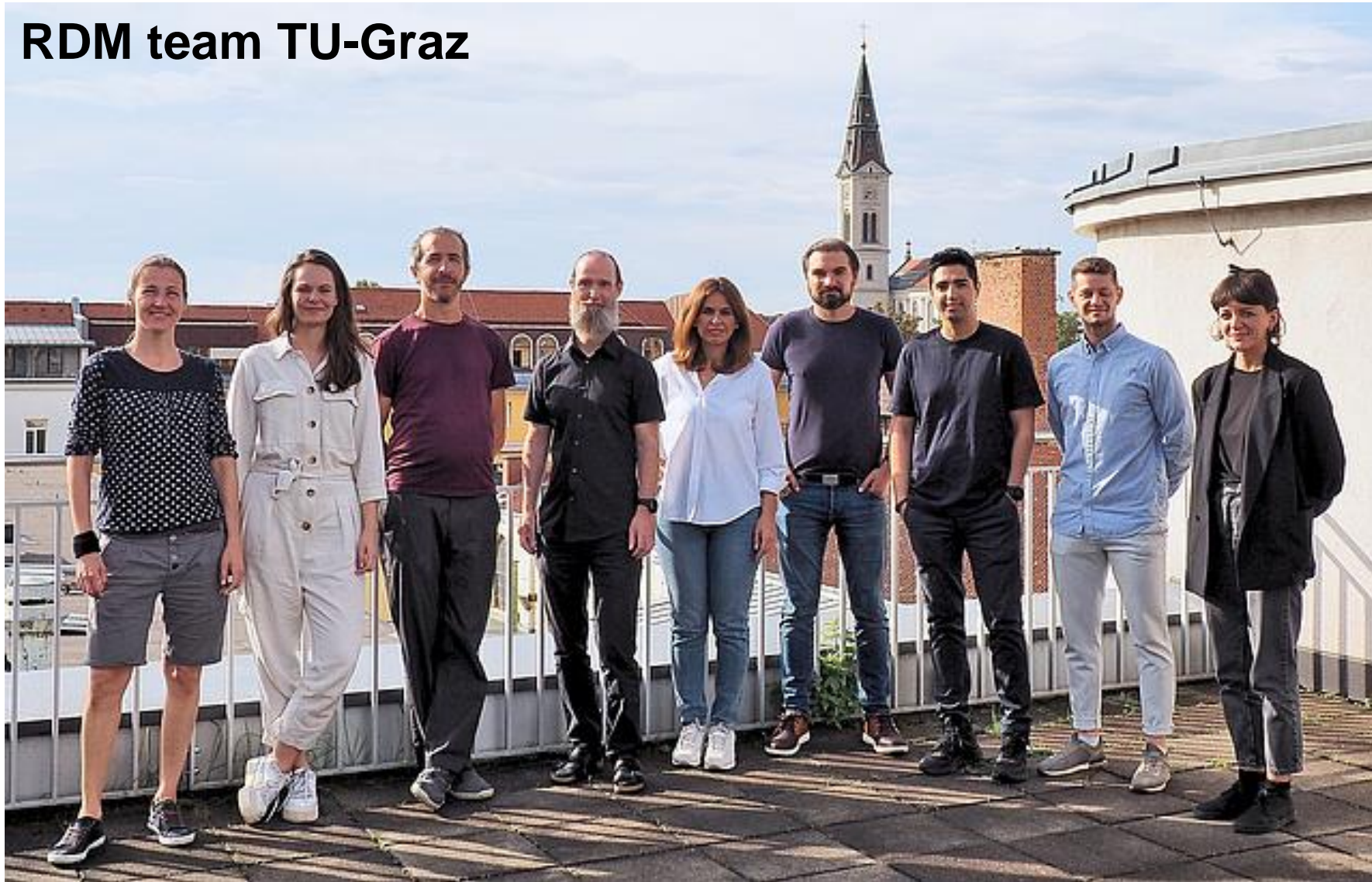
Maintainers [joshmoore](#) 

- Legal and security issues
- User agreement
- Bank of samples: Identifier
- Electronic book for experimental workflow
- In future: Image analysis server
- Make open the raw data: The ASTRA Toolbox

“..network to promote good research data management practice across all disciplines and to better meet the needs of researchers in this area” <https://www.tugraz.at/sites/rdm/support/data-champions>



RDM team TU-Graz



**THE END
QUESTIONS ?**

