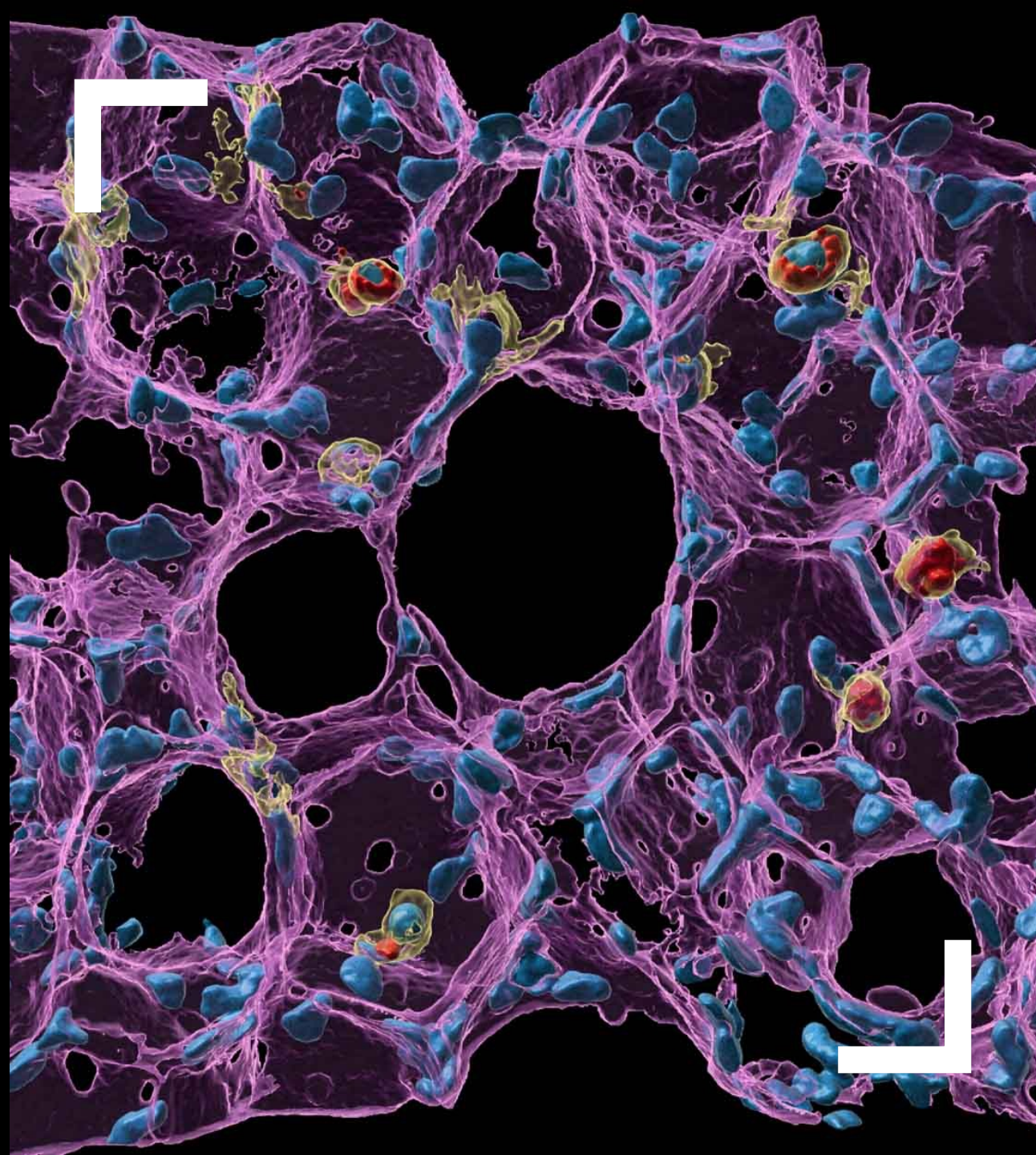


# Welcome to Helmholtz Imaging.

Philipp Heuser

 HELMHOLTZ  
IMAGING





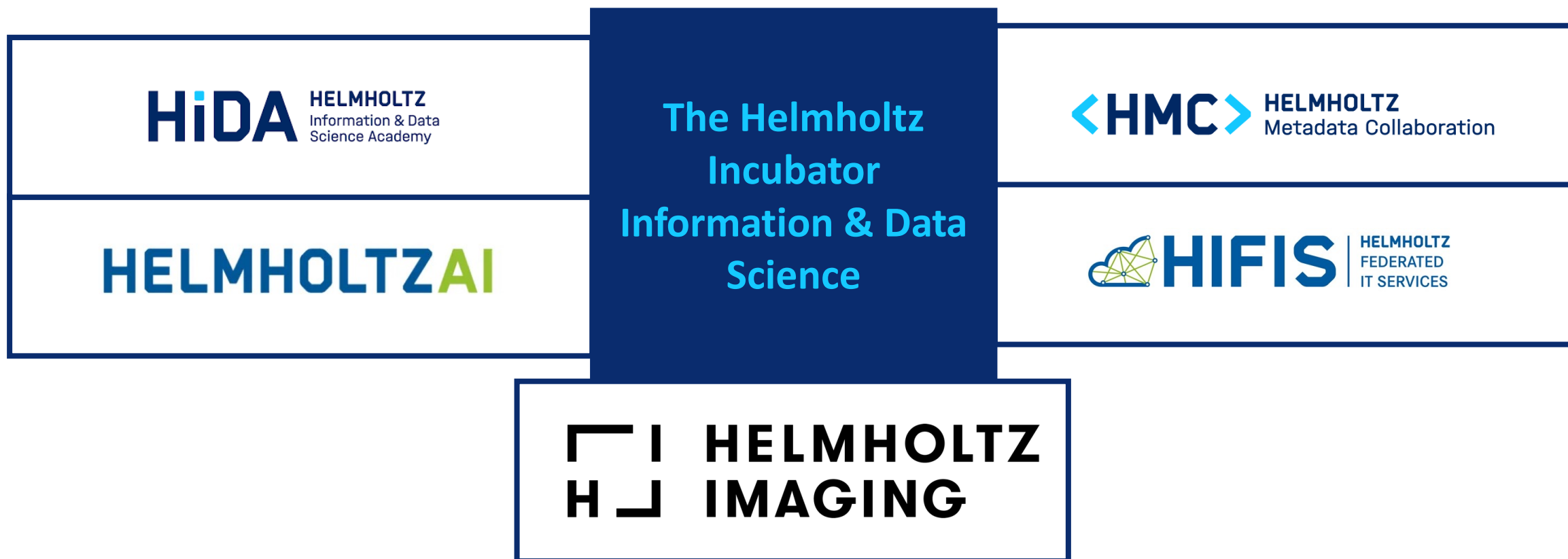


Г I HELMHOLTZ  
H J IMAGING





HELMHOLTZ  
IMAGING







# MISSION

Unlock the potential of imaging in  
the Helmholtz Association and  
beyond.



# H



## Goals

foster  
cross-field  
creativity

leverage  
synergies

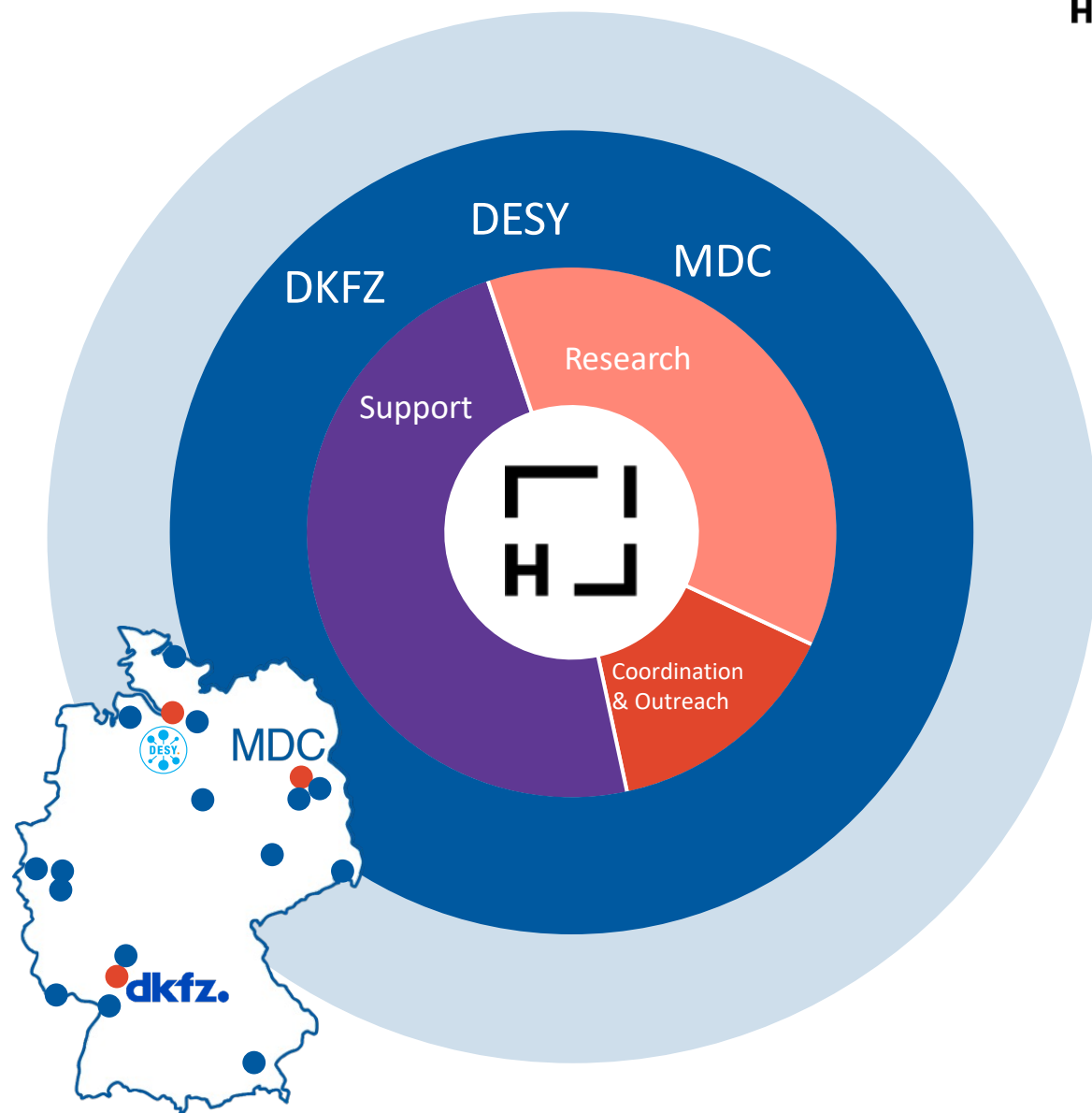
empower  
scientists

improve  
scalability &  
availability of  
methods

tackle  
imaging  
problems



**Internationally visible  
platform for Imaging Science  
within Helmholtz**





The background is a dark, textured field with a warm, orange-brown glow. Scattered throughout are numerous out-of-focus light spots (bokeh) in shades of orange, yellow, and green. A central cluster of these spots is more distinct, showing some green filamentary structures. Four white L-shaped corner brackets are positioned at the corners of the frame: top-left, top-right, bottom-left, and bottom-right.

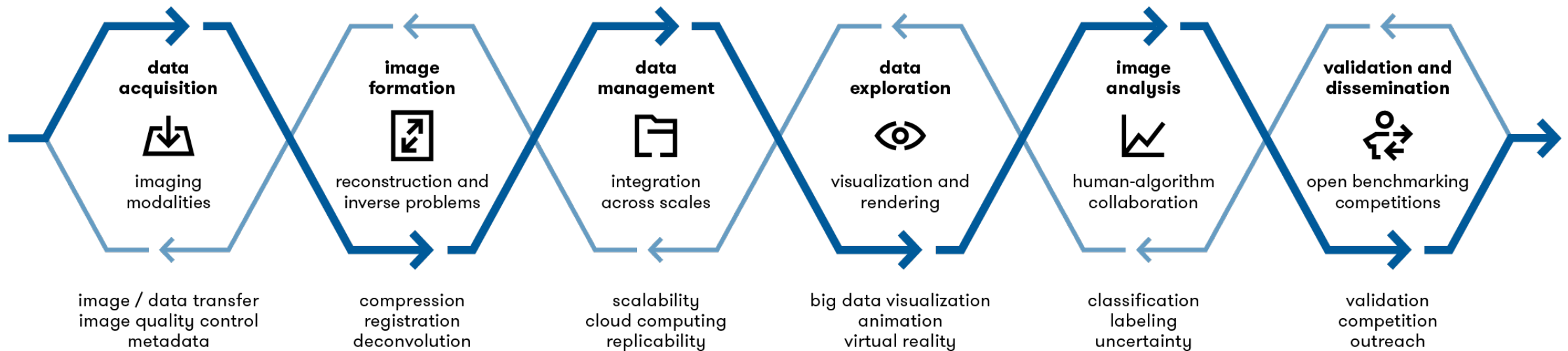
# Along the Pipeline



# Along the Imaging Pipeline



Supporting imaging from data acquisition to images to knowledge

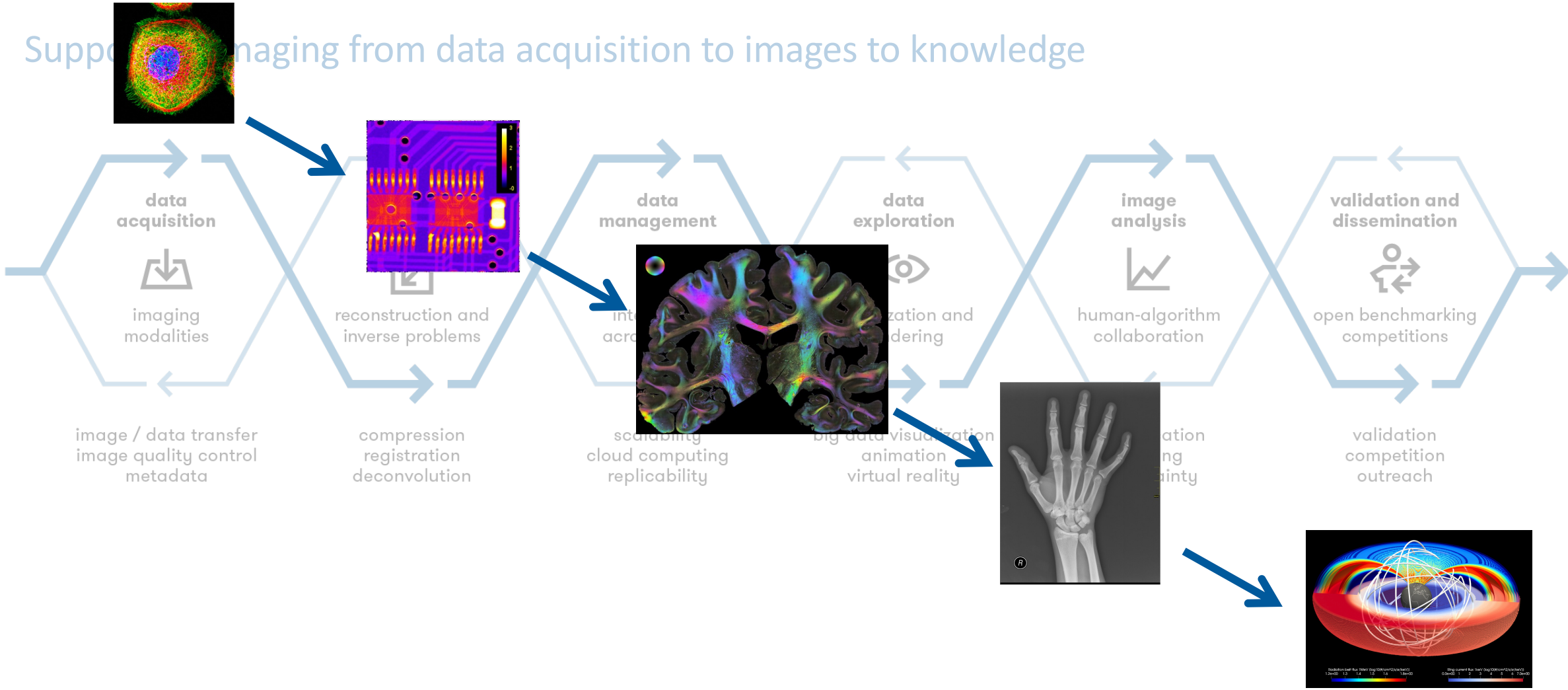




# Across Scientific Domains



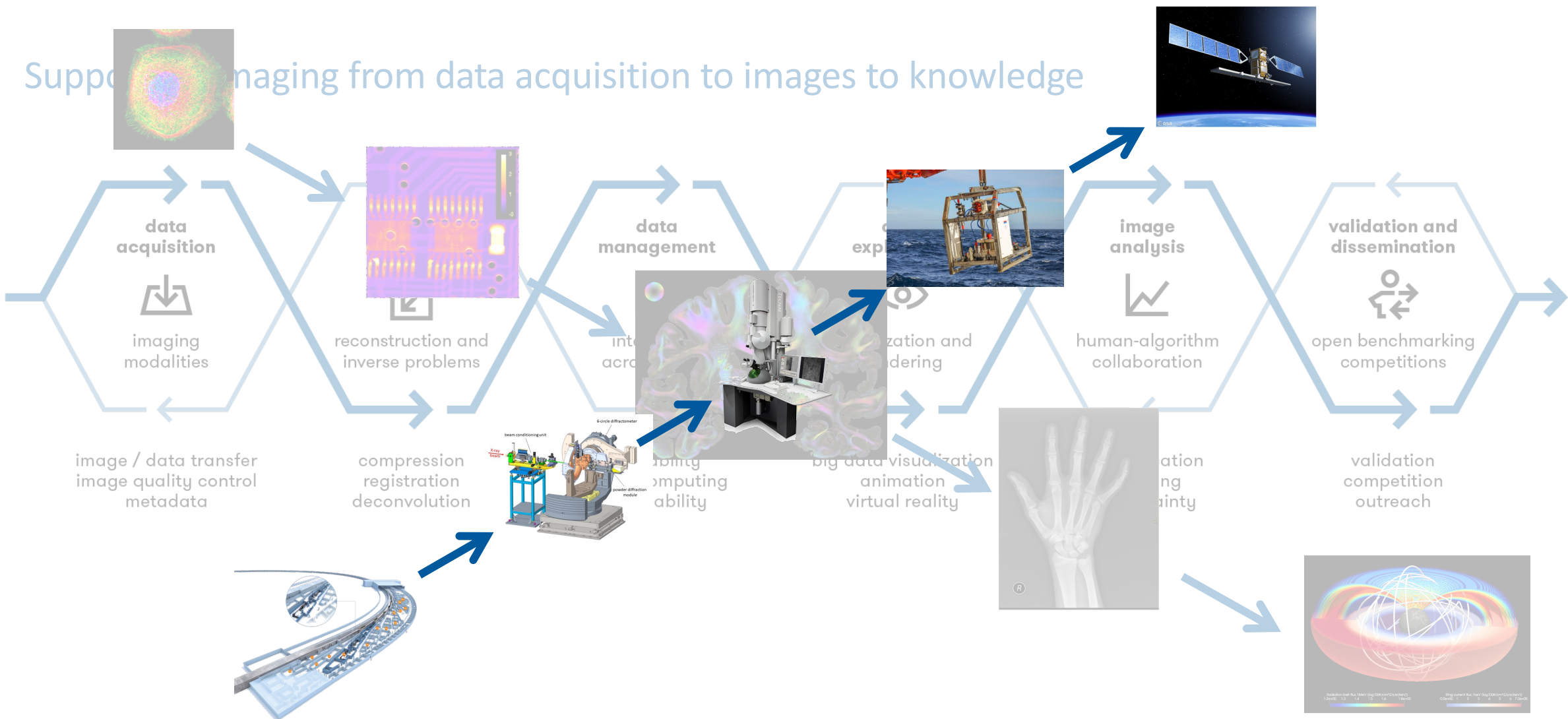
Supporting imaging from data acquisition to images to knowledge



# Across Imaging Domains



Support imaging from data acquisition to images to knowledge







# **Support and Services for your Projects**



# Support Portfolio



Development of Hl open  
source software  
solutions

The heart of the Helmholtz  
Imaging Network



CONNECT



Software



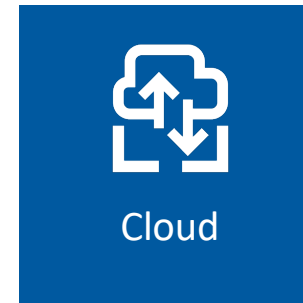
Solutions

Reusable results from Helmholtz  
Imaging activities

Your gateway for all imaging-  
related questions



Support Hub



Cloud

Leveraging remote  
computing resources

Let's solve your imaging challenge  
together



Collaborations



Training



Projects

Seed funding and  
community fostering



# Support for & Research with our Projects and the Imaging Community

- Support along the full imaging pipeline
- First contact for the projects for technical and scientific support
- Guide the projects towards a suitable Solution
- Organise support and expertise for projects within the Imaging network (on demand)

**Get in touch:**  
**[support@helmholtz-imaging.de](mailto:support@helmholtz-imaging.de)**



**Deborah Schmidt**  
Solutions

**MDC**



**Dr. Fabian Isensee**  
Support Hub  
& Applied Computer  
Vision Lab

**dkfz.**



**Dr. Philipp Heuser**  
CONNECT  
& Image Analysis

**DESY.**

## Inspiration, Support, Collaboration

### Helmholtz Imaging Projects ...

- are the heart of the **Imaging Network**
- work **on innovative approaches** to imaging problems
- are an important instrument to **connect Helmholtz Imaging and imaging experts**
- help to **identify community demands**
- should work in **close cooperation** with the HI Service & Science Units
- work on **cross-disciplinary challenges**
- **results** should be **reusable** and allow for transfer to other domains/industry/civil society/...

### Helmholtz Imaging offers ...

- **to make project results** available as Helmholtz Imaging solutions
- **collaboration** with the Service Units
- **project support** (scientific & administrative)
- **knowledge exchange** with Helmholtz Imaging and the Imaging Community
- participation in Helmholtz Imaging organised **trainings, seminars** etc.
- ... to become **part of the Imaging Network!**



# Community Events & Activities



## Events & Training

We offer conferences, workshops, lecture series, and hackathons.

Stay tuned –  
subscribe to our newsletter:  
[helmholtz-imaging.de/](https://helmholtz-imaging.de/)



**Don't hesitate to ask for support!**

[support@helmholtz-imaging.de](mailto:support@helmholtz-imaging.de)



**Helmholtz Imaging Conference 2024**  
bring your own imaging Challenge!

## Incubator Summer Academy 2024

September 2024

ML-based Image Analysis

Rendering 3d Datasets

Regularization in Image Reconstruction

ML for Instance Segmentation

## Best Scientific Image Contest

Image by Robert Luck from DKFZ

**Join the Network – CONNECT!**

<https://connect.helmholtz-imaging.de>

# Welcome 2024

## The new projects!

**CLARITY** - CineMR-guided ML-driven breathing models for adaptive Radio Therapy

**HYPER-AMPLIFAI** - Advancing Visual Foundation Models with Unsupervised Learning and Physics-based Explainability for Mult/Hyperspectral Image Analysis in Agriculture and Forestry Applications

**3DforestSIF** - Understanding the solar-induced fluorescence (SIF) signal of natural, complex tree canopies

**X-BRAIN** - Cross-modality representation learning for brain analysis and integration

**BrainShapes** - Laplace-Beltrami shape descriptors of brain structures: Comparative optimization and genetic dissection

**FAST-EMI** - Deep-learning assisted fast in situ 4D electron microscope imaging