German EuroBioImaging – The Medical Perspective

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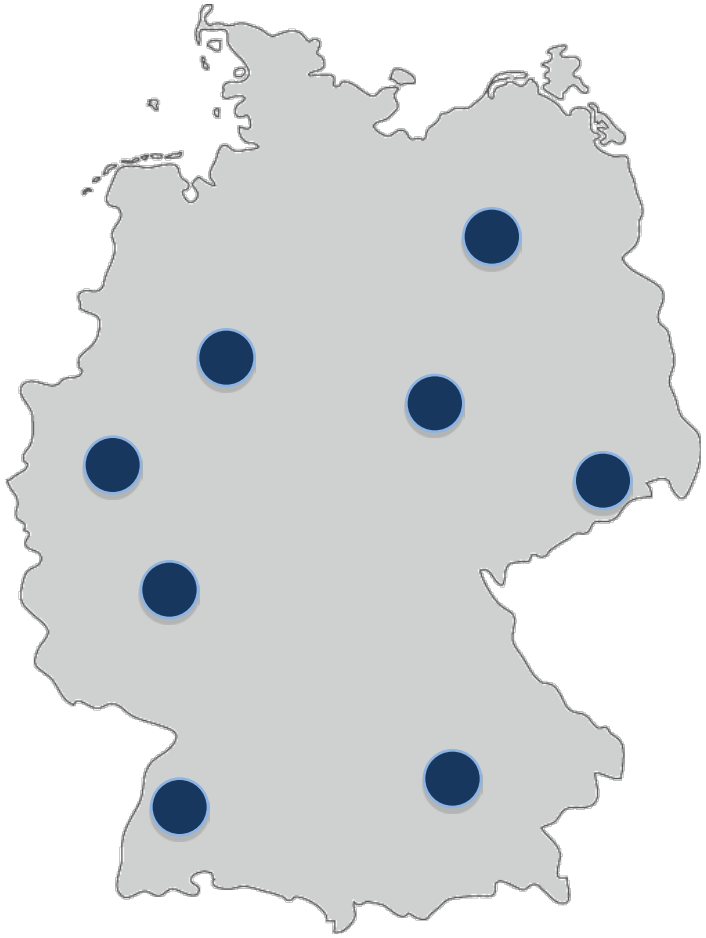
Current status of medical Imaging in Germany



- Imaging is performed at single sites
- No/barely no open access to infrastructure
- Infrastructure mainly clinically driven
  - Turf battles between different departments
  - Turf battles between different disciplines
  - Turf battles between societies (ESOI, ESGAR, CIRSE, …)

Typcial day of a German Clinical medical researcher

- 7.30am-8am – prepare patient files
- 8am-8.30am – morning lecture/ conference
- 8am-19pm – see patients, ward rounds, read cases, phone calls

- After-hours / week-ends - research

History of Medical Imaging In Germany

- Infrastructure follows the money
- Funding requires previous experience
- Patients create money

➔ Large academic centers outperform smaller sites

- Infrastructure not opened for external use
- Scientific cooperation only by personal exchange / knowledge

➔ Poor accessibility and availability of imaging equipment

- Imaging infrastructure more complex (µPET, GMP)
- Imaging infrastructure more expensive(7T, MR-PET)

➔ Financial and logistic constrains for widespread availability

Heterogeneity of Medical Imaging in Germany I

- Various disciplines participate
  - Radiology
  - Neuroradiology
  - Nuclear Medicine
  - Cardiology
  - Neurology
  - Psychiatry
  - Medical Physics
  - Experimental Radiology / Molecular Imaging
  - Physiology

Heterogeneity of Medical Imaging in Germany II

Various types of institutions

- Clinical departments
- Preclinical departments affiliated with hospitals
- Basic physics research affiliated with hospitals
- Large research centers
  - Helmholz-Gesellschaft
  - Max-Planck-Gesellschaft

Potential solutions for open access

- New installation of research facilities
- Comprehensive / translational nodes
- Single center solutions

<u>Limitations</u>

- Cost
- Federal structure of Germany
- Distributed knowledge with high levels of focal expertise
- Distance to be travelled with animals/humans

Potential areas for open access

Limiting factors: cost, experience

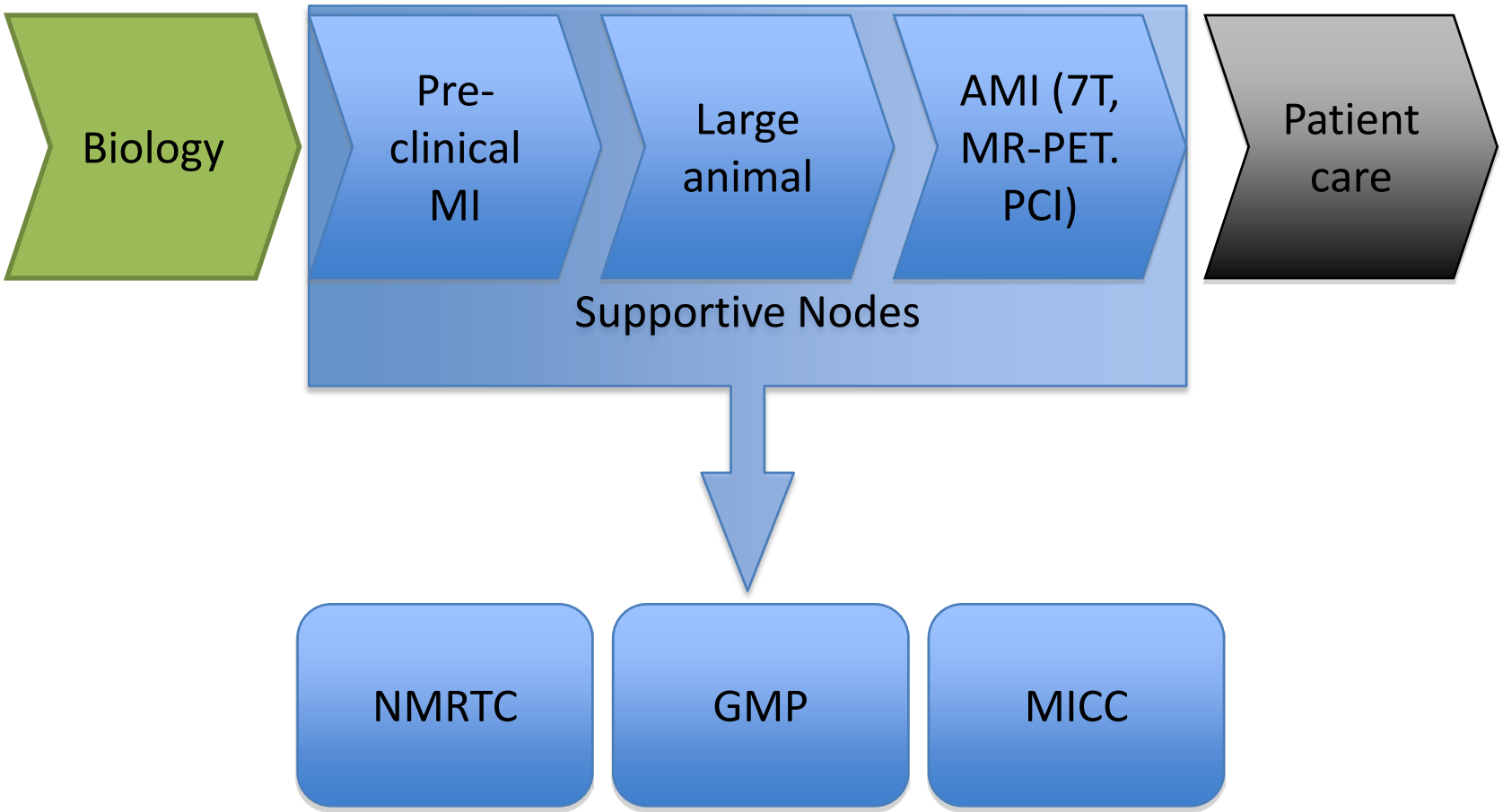
- Large scale equipment – MR / MR-PET / PCI
- GMP facilities
- Large animal imaging
- Small animal imaging MI
- Data handling and storage

List of participating sites

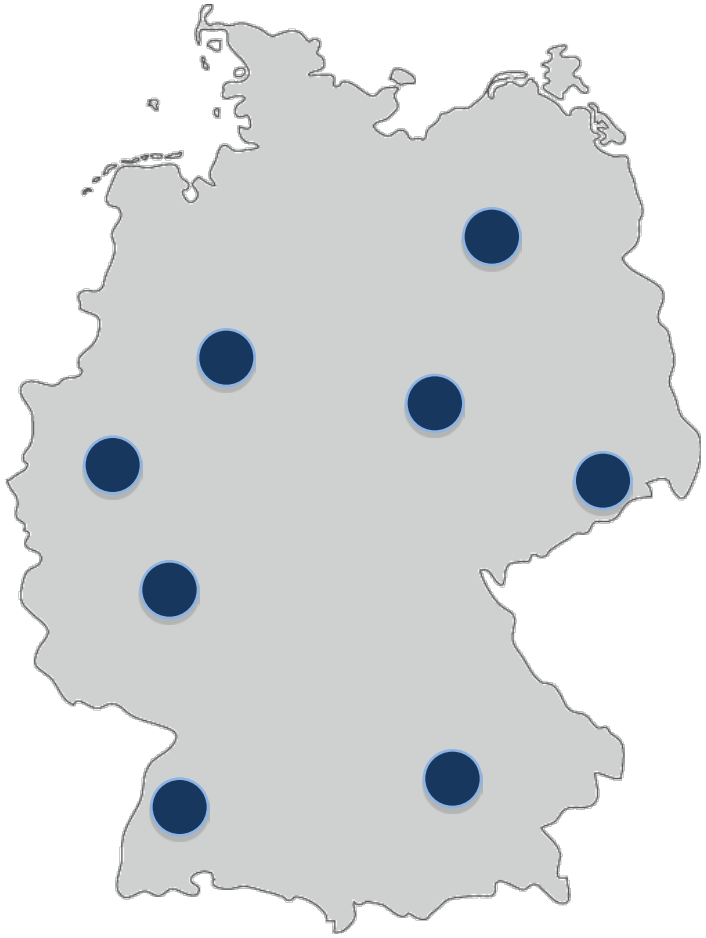
- Bremen
- Magdeburg
- Leipzig
- Göttingen
- Münster
- Mainz
- Mannheim
- Heidelberg
- Freiburg
- München
- Essen
- Jülich
- Erlangen
- Tübingen
- Kiel
- Jena

GEBI Structure

- Complete medical research imaging structure from mouse to man
- No disease specific nodes, all nodes distributed



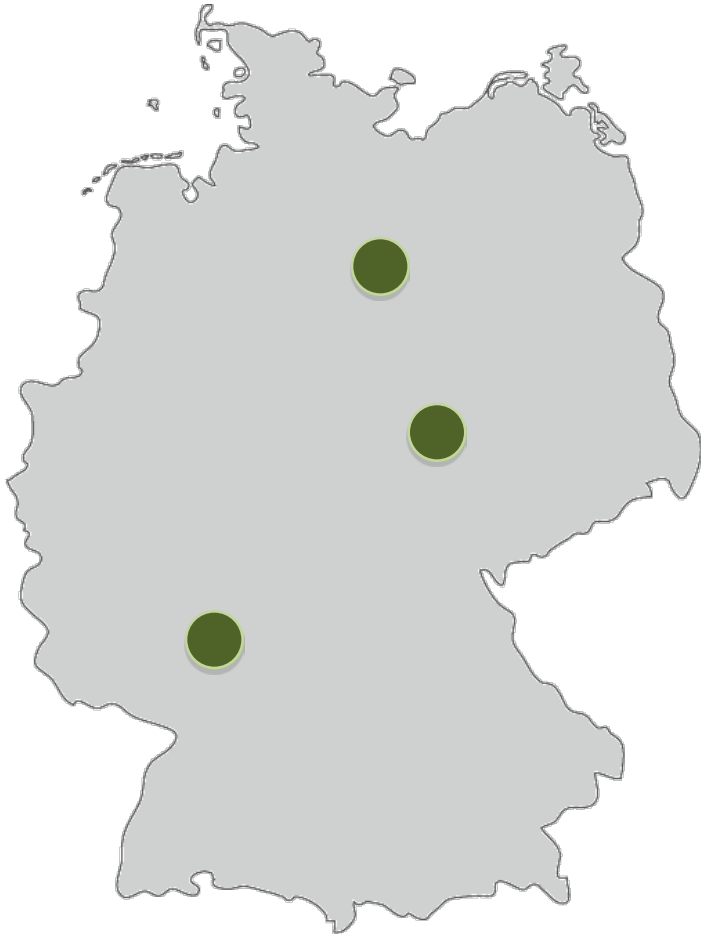
Pillar I:
National General Access Nodes



National General Access Nodes:

MEDICAL IMAGING
Preclinical Molecular Imaging
Nat. Radiotracer Network
Large Animal Imaging

Pillar II:
European-leading innovative technology nodes



- Strong imaging technology nodes leading in Europe:

MEDICAL IMAGING
Advanced MI: High-field MR, MR-PET, PCI and beyond

Comparison Biology - Medicine

Biology

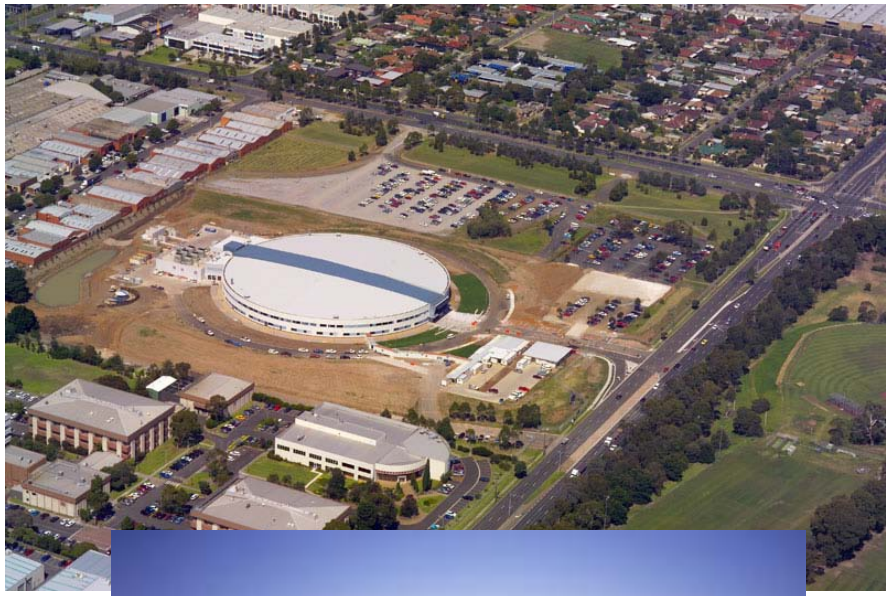
- Well organized > 2a
- Formal structure
- Funding
- User needs well known
- (homogenous scientific group)

Medicine

- Still in construction phase (<1a)
- No formal structure yet
- No funding
- User needs partly known
- Heterogeneous interests

- Monash – a leading translational site in AUS
- Memorandum of Understanding
- Participation in M-GEBI stakeholder meeting
- Exchange programms (DRG/DGM)

➔strategic win-win partnership at highest scientific level



GEBI User Survey

Nutzung von Infrastruktur zur biomedizinischen Bildgebung

Umfrage beenden

1. Haben Sie Bedarf für biomedizinische Bildgebungstechniken, die Sie selbst nicht vorhalten?

- [ ] Ja
- [ ] Nein
- [ ] Weiß nicht genau

2. Welche Bildgebungsmodalität / welchen Support, die Sie lokal nicht haben, benötigen Sie für Ihre wissenschaftlichen Arbeiten

- [ ] MR-PET
- [ ] 7T MRT
- [ ] Phasen-Kontrast-CT
- [ ] µPET/CT
- [ ] µMR
- [ ] µCT
- [ ] µSPECT
- [ ] Optische Bildgebung
- [ ] Bereitstellung von Radiotracern
- [ ] Großtierbildgebung
- [ ] Online-Datenspeicher
- [ ] Online-Datenverteilung
- [ ] Online-Datenauswertung
- [ ] Wissenschaftliche Weiterbildung
- [ ] Anwenderschulung

Sonstiges (bitte angeben)

Thank you very much