



European Biomedical Imaging Infrastructure— from molecule to patient

Preparatory Phase WORK PACKAGES

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Project managers

- Submitted by the ESFRI delegations of Austria and Switzerland
- Two proposals with great importance for the European Life Sciences combined

“European Infrastructure for Research in Biomedical Imaging” – EIRBI (RU 41)
(clinical aspects of imaging technologies)

“Advanced light Microscopy Infrastructures for Europe” – AMIE (RU 16)
(imaging at the basic research level)



Euro-BioImaging – European Biomedical Imaging Infrastructure

“The combined proposal **brings together key research areas in the imaging** field stretching from basic biological imaging with advanced light microscopy to the clinical level with medical imaging.” (ESFRI Roadmap 2008)

Aims of Euro-BioImaging

- **Deploy** imaging infrastructure in a coordinated and harmonized manner
- **Provide** transnational access to state-of-the-art imaging technologies
- **Enable** training & service using state-of-the-art equipment
- **Foster** cooperation and networking

➡ *Create an efficient research and innovation environment*

Advanced Light Microscopy

Access
to state-of-the-art imaging
equipment

Cooperation
on a pan-European
scale

**Services
and training**



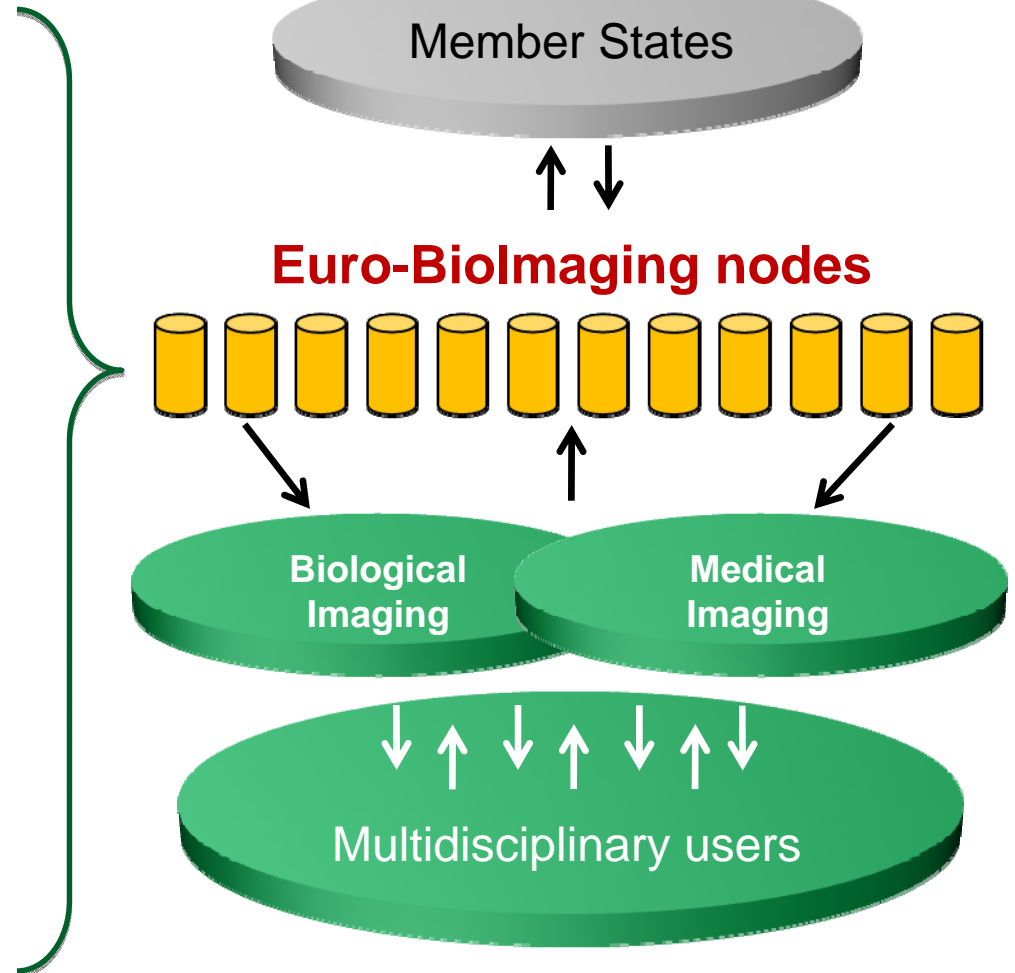
**Networking of
imaging facilities**

**Research
and innovation
environment**

Development of imaging
technologies
to offer them as service

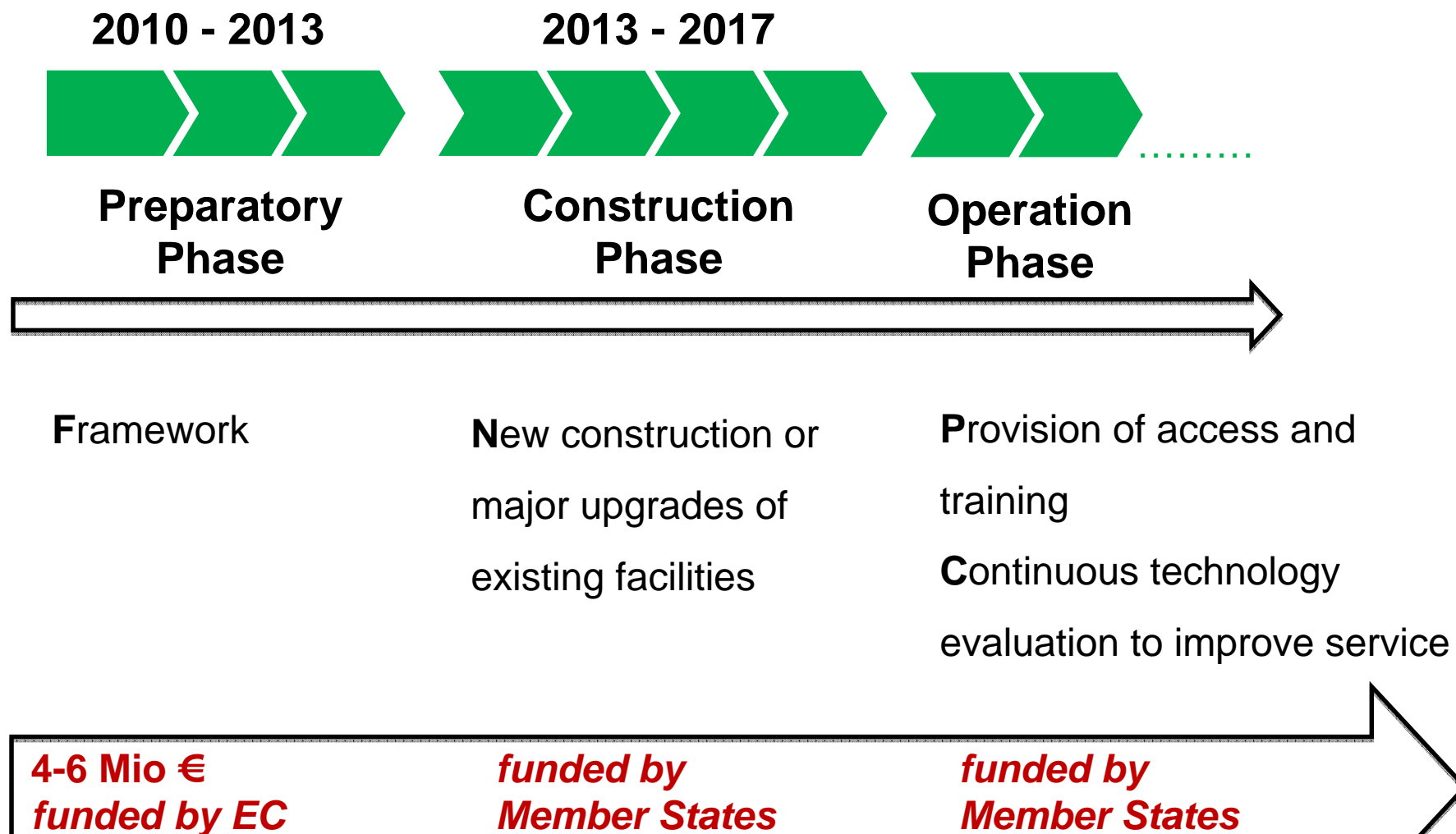
Medical Imaging

- **Strongly interlinked nodes**
- **Topical nodes**
specific to biological/medical imaging
- **Service nodes**
address needs of both imaging
- **Newly constructed or major upgrades**
- **Devote significant part of their capacity to external users**
- **Embedded in existing European imaging facilities**



Austria	Israel
Belgium	Italy
Czech Republic	Netherlands
Denmark	Poland
Finland	Portugal
France	Spain
Germany	Sweden
Greece	Switzerland
Hungary	United Kingdom
Ireland	





Aims of the Preparatory Phase

- Review current European biomedical imaging resources
- Develop an integrated and harmonized plan for establishing the biological and medical imaging infrastructure
- Develop a plan for access to Euro-BioImaging infrastructures
- Develop a pan-European training program
- Develop a concept for funding and financing
- Identify an appropriate legal and governance structure for construction and operation phases

Technical WPs

- Medical Imaging Infrastructure - Animal to population
- Medical Imaging Infrastructure - Technical innovation
- ALM Infrastructure - General access nodes
- ALM Infrastructure - Specialized access nodes

- Data management
- Access
- Training

Strategic WPs

- Project management
- Legal, governance and ethical issues
- Process plan
- Finance planning
- Networking and communications

WP Medical Imaging Infrastructure - Animal to Population

- Focus on different magnitudes of biomedical imaging from molecule to population
- Use of different imaging technologies

COORDINATION NODES

- Population imaging
- Clinical research of imaging technologies
- Translational molecular imaging



Deliver knowledge, expertise and training
Enable exchange of methodologies
Allow joint use of acquired data

Breakup Session: tomorrow in Large Operon

Chair: Jørgen Frøkiær (University of Aarhus)

WP Medical Imaging Infrastructure - Technical Innovation

- Focus on use and improvement/validation of new imaging technologies
- Centralized facility or distributed technology platform
- Development and implementation of a specific imaging technology

TECHNOLOGY NODES

- Probe development in optical, nuclear, MR imaging
- Ultra-high field MRI
- Phase contrast X-ray imaging



Improve image acquisition techniques
Implement new methods for image acquisition
Provide training
Give access to technology for scientific users

Breakup Session: today in Small Operon

Chair: Jürgen Hennig (University Hospital Freiburg)

WP ALM infrastructure - General access nodes

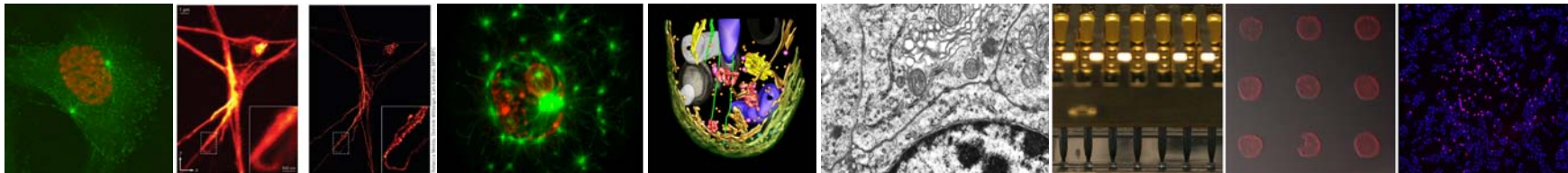
- Access to a broad range of methods in basic biological imaging to visiting scientists
- Create a distributed infrastructure of high-end ALM imaging facilities
- Establish pan-European training platforms for these methods
- Adopt new technologies from specialized nodes to maintain nodes at state of the art
- Act as regional centers of reference for basic biological researchers

Breakup Session: today in Large Operon

Chair: Andrea Musacchio (IFOM-IEO Campus, Milan)

Jason Swedlow (University of Dundee)

WP ALM infrastructure - Specialized access nodes



- Provide access and training in cutting-edge technologies
- Act as European reference centers in the respective technologies
- Super-resolution light microscopy (Stefan Hell, MPI Göttingen)
- Functional imaging of live cells (Paul French, Imperial College London)
- Correlative light and electron microscopy (Judith Klumperman, Utrecht)
- High throughput microscopy for systems biology (Rainer Pepperkok, EMBL)

Breakup Session: tomorrow in Small Operon

Chair: Rainer Pepperkok (EMBL) & Benny Geiger (Weizmann Institute)

WP Data Management

- Develop concepts for a computing infrastructure for image data
- Identify database models for quantitative imaging data
- Develop synergies with ELIXIR and other databases
- Evaluate development of central digital repositories for large scale quantitative datasets
- Investigate solutions for addressing the specific image processing and analysis needs of users
- Provide user access to documented, state-of-the art imaging software and protocols

Breakup Session: tomorrow in room 202

Chair: Michael Unser (EPFL) & Wiro Niessen (Erasmus MC)

WP Access

- Undertake an inventory of existing or foreseen platforms open for external access
- Survey expectations and needs of user community
- Develop an integrated plan for access
- Develop user access protocols for Euro-BioImaging nodes

Breakup Session: today in room 6.51

Chair: Christian Glaser (LMU, Munich) &

Maritta Löytömäki (Åbo Akademi University)

WP Training

- **Undertake** an inventory of existing or foreseen training platforms
- **Survey** expectations and needs of user community
- **Develop** pan-European training programs
- **Integrate** existing training programs in biomedical imaging in Europe
- **Develop** online training resources
- **Make** imaging methods available through Euro-BioImaging nodes

Breakup Session: tomorrow in room V130

Chair: Silvio Aime (UNITO, Torino) & Pavel Hozák (IMG, Prague)

WP Project Management

- Coordination and support of collaborative work between partners
- Organization of meetings (for stakeholders, partners, users ...)
- Establishment of management structure
- Support of scientific coordinators
- Coordination of proposal preparation for Preparatory Phase

ALM

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Medical Imaging

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WP Legal, Governance and Ethical Issues

- Identify an appropriate legal and governance structure, which
 - supports Euro-BioImaging's distributed nature
 - allows for a sustainable and long-term infrastructure
 - meets the expectations of funders and stakeholders.
- Cooperate closely with other Euro-BioImaging work packages to gain insight into the scope and operation of Euro-BioImaging (WP Process Plan and WP Finance Planning)

Breakup Session: today in room 208

Chair: Silke Schumacher (EMBL) & Carles Ros (RCD)

WP Process plan

- Provide a strategic review of existing European biomedical imaging resources (technical equipment, external user accessibility, etc.)
- Define the scope, role and benefits of Euro-BioImaging, including a coordinated and harmonized plan for the infrastructure deployment
- Define strategies to include all relevant stakeholders
- Define strategic milestones and deliverables
- Develop a process plan for the construction and operation phase

Breakup Session: tomorrow in room 6.51

Chair: Karin Lohmann (Helmholtz) & Ivan Baines (MPI Dresden)

WP Finance Planning

- Inventory of future research infrastructure | investments, operational costs
- **D**evelop finance models and scenarios for construction and operational phase
- Identify and liaise with public and private funding & finance resources
- **D**evelop financial commitments from MS for the construction and operational phase
- **D**evelop financial commitments from other parties including industry

Breakup Session: today in room 215

Chair: Wouter Spek (T.I.B. Development) and Phil Irving (EMBL)

WP Networking and Communications

Euro-BioImaging as a central hub for communication and collaboration

- Webpage
- Public relations (e.g. articles, flyers, conferences)
- Synergies with other ESFRI projects
- Organization of thematic and national user meetings

Medical Imaging

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www.eurobioimaging.eu