



Euro-BioImaging
European Research Infrastructure for Imaging Technologies in Biological
and Biomedical Sciences

WP5 Networking and Communications

Task 5.2

Liaison with other BMS RI's and imaging initiatives

Deliverable 5.7

Report on collaboration with other BMS RI and biomedical imaging initiatives

Task leader

EIBIR/EMBL

November 2011

INDEX

1. Euro-Biolmaging collaboration with national biological and medical imaging initiatives in European Member States

2. Euro-Biolmaging collaboration with biological and medical imaging initiatives in the global landscape

3. Collaboration with ESFRI BMS research infrastructures (BMS RIs)

- 3.1 BioMedBridges - Data interoperability of BMS RIs: a FP7 funded project for the implementation support of BMS research infrastructures on the ESFRI roadmap
- 3.2 Common activities of the group of BMS RI coordinators for raising awareness for distributed pan-European large-scale research infrastructures and their challenges for implementation
- 3.3 Activities at European Parliament
- 3.4 Euro-Biolmaging Response to the EC Public Consultation on the Common Strategic Framework (Horizon 2020)
- 3.5 Training activities

4. Appendix: Green Paper Response Euro-Biolmaging

Summary

During the first year of its Preparatory Phase, Euro-Biolmaging has established strong communication channels and collaborations with

- the Biological and Medical Sciences (BMS) research infrastructure projects on the ESFRI roadmap 2010,
- the national biological and medical imaging initiatives in 14 European Member States as well as with
- existing imaging infrastructure networks such as the Australian Microanalysis and Microscopy Research Facility on the global landscape.

Deliverable D5.7 describes in detail these activities which have raised the awareness for Euro-Biolmaging - the future pan-European research infrastructure for biological and medical imaging - enormously among decision-makers, funders, research institutions, and scientists in Europe and abroad, and which are a solid starting basis for the close collaboration of all partners involved in the development and embedding of Euro-Biolmaging in the existing international research infrastructure landscape.

1. Euro-Biolmaging collaboration with national biological and medical imaging initiatives in European Member States

Since early 2010, catalyzed by the Euro-Biolmaging project, national self-organization of biological and medical imaging communities started in most European Member States particularly with the goal to support Euro-Biolmaging and to achieve pan-European integration of national imaging communities.

It was seen by several ESFRI projects currently in their construction phase that difficulties in the national coordination and prioritization process can become major obstacles for implementation.

For Euro-Biolmaging, this process is invaluable to learn about national capabilities and needs for imaging infrastructure, different funding models and legal requirements. Most importantly, the imaging scientists start to identify common national strengths and needs and address their national and regional funders - the future partners of the infrastructure - with one voice for the first time, already raising awareness for the need to invest in biological and medical imaging infrastructure in their country to address the unmet request for access from life scientists. The timing and formation process of these initiatives varies among the different European Member States.

For countries where the national self-organization process is still ongoing, Euro-Biolmaging has outlined a procedure for this process to ensure inclusiveness and legitimation of the national coordinating persons by the community.

In a constituent meeting the national imaging communities appoint a national coordinating person who is responsible for communication between his community and Euro-Biolmaging. In most cases the community publishes its own website, organizes follow-up meetings after the first constituent meeting.

Euro-Biolmaging actively supports national imaging communities by participation of Project Management Team members at meetings and inviting their national coordinating persons to Euro-Biolmaging Work Package meetings.

The following national networks of existing imaging facilities and major infrastructure providers have already formed and in several cases, this has already led to significant national investments (e.g. FR, SE, IT) or application for national investments (CH, DE, FR, NL – see Deliverable D4.1 *Report on funding sources for the construction and operation of Euro-Biolmaging*):

Biolmaging UK
Czech Biolmaging
EuroBiolmaging-NL
Finnish National Imaging Infrastructure Network
France-Biolmaging
German Bioimaging
Greece-Biolmaging
Imaging Platform Ireland NBIP
Italian Bioimaging
(N)Euro-Biolmaging Poland
NorBiolmaging (Norway)
Spanish Biolmaging
Swedish Biolmaging
Swiss-Biolmaging

These national imaging communities' initiatives triggered by the Euro-Biolmaging Preparatory Phase project have already influenced the process of inclusion of biological and

medical imaging on the national roadmaps of 15 European Member States, such as in Belgium, Czech Republic, Estonia, Finland, France, Greece, Ireland, Israel, Italy, Netherlands, Norway, Poland, Spain, Sweden, Switzerland. In France, France-Biolmaging already received EUR 26 Mill for imaging infrastructure investment and operation.

2. Euro-Biolmaging collaboration with biological and medical imaging initiatives in the global landscape

Australian Microscopy and Microanalysis Research Facility

In April 2011, the European Commission together with the Australian Department of Innovation, Industry, Science and Research (DIISR) organized a workshop on large-scale research infrastructure in Brussels, attended by delegates from Euro-Biolmaging and AMMRF.

The Australian Microscopy and Microanalysis Research Facility (AMMRF) is a national grid of leading edge expertise and instrumentation in microscopy and microanalysis using electrons, X-rays, ion beams and laser light. It provides microscopy, microanalysis and imaging capability and services to researchers in disciplines such as the biological and medical sciences, physical and chemical sciences, the earth and environmental sciences, various fields of engineering, agriculture, archaeology, and emerging integrative fields such as nanotechnology and biotechnology. The AMMRF is funded by the Australian Government through the National Collaborative Research Infrastructure Strategy (NCRIS), with co-investment by state governments and partner institutions.

During the EC-Australian workshop in Brussels, AMMRF and Euro-Biolmaging identified a huge overlap of common topics such as best practice, user access, training, exchange of expertise for running imaging facilities and potential interest for exchanging staff to concretely collaborate on these topics.

In August 2011, AMMRF and Euro-Biolmaging started to work on a first collaboration framework which will be signed at a common workshop taking place on February 1st, 2012, in Heidelberg, organized back-to-back with the 3rd Euro-Biolmaging Stakeholder Meeting. The participation of the Australian partners is financially supported by the DIISR.

The AMMRF and Euro-Biolmaging aspire to:

1. provide best practice in the areas of user access and experience, training, operation, management and stake holder reporting
2. benchmark performance in the areas of training, user satisfaction, instrument or facility usage
3. provide a pathway for users to access facilities at either AMMRF or Euro-Biolmaging that will support the research needs of those users
4. diversify the portfolio of research projects supported by the facilities through the provision of complimentary and correlative characterization techniques
5. develop joint research programs in the areas of biological and medical sciences, advanced light microscopy and imaging techniques and instrumentation.

Possible activities to achieve the joint objectives will include exchange (visits) of facility operational staff such as laboratory managers or specialist technical officers, exchange (visits) of research and academic staff, participation by staff nominated by AMMRF Operations Team and Euro-Biolmaging Working Groups in annual strategic planning workshops, stakeholder meetings, annual user meetings other similar facility events, jointly seek funding opportunities to develop research programs of mutual interest.

3. Collaboration with ESFRI BMS research infrastructures (BMS RIs)

3.1 BioMedBridges - Data interoperability of BMS RIs: a FP7 funded project for the implementation support of BMS research infrastructures on the ESFRI roadmap

Together with all BMS RIs on the ESFRI roadmap 2008 (1st and 2nd generation), Euro-Biolmaging will work on the construction of e-infrastructure to allow working on the progress of interoperability between data and services in the biological, medical, translational and clinical domains.

BioMedBridges will provide the computational ‘data and service’ bridges between the individual BMS RIs, clustering them together and linking the basic biological research and data to the clinical research and associated data. By building these computational bridges, BioMedBridges progresses considerably beyond the state-of-the-art. It will bridge across

- different spatial scales (from molecules through cells and organs to humans and the environment);
- different species (from bacteria, through model organisms to man);
- different temporal scales (from nanoseconds of molecular motions, to seconds of a heartbeat, to years of a human life and the aeons of evolution);
- different technologies and the heterogeneous data they generate (from the nanotechnology of sequencing through the spectroscopy of cellular and whole organism imaging to the powerful synchrotrons for structure determination)
- different research communities, who have not traditionally worked closely together (from basic molecular biologists to clinicians and environmentalists).

BioMedBridges will develop and harmonize standards and ontologies across the domains represented in the BMS RIs. Furthermore, BioMedBridges will implement a federated access system to the diverse data sources in the BMS RIs, and it will develop and implement protocols to ensure secure and appropriate access to heterogeneous data types across the BMS RIs.

Euro-Biolmaging is Work Package Chair of WP6 *Interoperability of large scale image data sets from different biological scales*, which also includes the BMS RIs Infrafrontier, EATRIS, BBMRI, and ELIXIR as WP partners. This work package will demonstrate the utility of the interoperability of large scale image data sets from different biological scales (cell – tissue – organism) to enable drug target and biomarker discovery for human disease with cancer as an example. Based on the standards and services developed in WP2 and 3, WP6 will use integrated access to systematic imaging data of disease gene function in cultured human cells (EMBL-Heidelberg) and systematic imaging data available from tissue microarrays of diseased tissue from both human patients (FIMM, U Helsinki) and mouse models (HMGU). This use case will thus link the four BMS ESFRI infrastructures Euro-Biolmaging (EMBL-Heidelberg), BBMRI (U Helsinki), EATRIS (U Helsinki-FIMM) and Infrafrontier (HMGU) with the standards and services provided by ELIXIR (EMBL-EBI) and require strong links to ELIXIR’s molecular data resources. The comparison of morphological image data on cellular phenotypes of individual genes, with morphological image data of the diseased tissues in mouse models and human patients could create a powerful predictor of optimized biomarkers as well as drug targets in cancer. Linking these imaging data with molecular data including the cancer genome sequence and cancer expression data, will allow in silico validation of the predictions and prioritization of biomarkers for validation in clinical research.

Furthermore, Euro-Biolmaging is partner in WP3 *ESFRI BMS Data Standards and Harmonization*, which will add scientific value and support for the integration of data between the ESFRI BMS domains by catalogue, review, modification, harmonization, registration and

implementation of existing identifier, content, syntactic and semantic standards across the ESFRI BMS projects to support data exchange, integration and infrastructure development.

BioMedBridges will officially start in January 2012 and is funded under Framework Program 7 by the EC with 10.5 Mio €. The project duration is 4 years. BioMedBridges is coordinated by ELIXIR (EMBL-EBI).

3.2 Common activities of the group of BMS RI coordinators for raising awareness for distributed pan-European large-scale research infrastructures and their challenges for implementation

The group of BMS RI coordinators meets regularly (2-3 times per year) since end of 2008, when the ESFRI BMS Thematic Working Group invited all coordinators to participate at the BMS TWG meeting in Versaille. The BMS TWG was dissipated in spring 2011 by ESFRI due to a general strategy shift of objectives in ESFRI. The new ESFRI Strategy Working Group "Health and Food" had its first meeting in November 2011.

In September 2011, the group of BMS coordinators decided to organize regular meetings themselves for this group in turns, to which they invite the Chair of the ESFRI SWG "Health and Food".

Since March 2010, the Euro-Biolmaging project management (WP5) took a leading role in the administrative coordination of the group and volunteered to take the responsibility for the organization of the common activities of the BMS RIs on the European level as described below.

At the BMS TWG meeting in Izmir, March 2011, the BMS group of coordinators agreed that the collaboration and coordination of synergies and common objectives had been very efficiently and that this was also pivotal for the future of the BMS RI group. The collaboration should stay at the established informal level as in 2010/11 when the BMS RIs successfully worked on their common strategy for addressing the European Parliament and the European Commission concerning their challenges for implementation and discussing the political implications/solutions. At a later time point the collaboration and status of this group could be transferred onto a more formalized level, which would also depend on availability of funding for supporting these activities.

In Izmir, the BMS RI group agreed on the high importance for working together on the following topics:

- Common strategic activities on the European level as started in October 2010
- Share best practices (internally and externally)
- BMS RI implementation
- Joint services
- Education and training
- Variable geometry
- Call for democracy (include RI coordinator input in ESFRI Forum e.g. in form of an RI coordinator expert group with consulting function to ESFRI Forum)
- Interrelation with industry (e.g. EFPIA)

The 1st Meeting of ESFRI BMS RIs organized by the group itself (Euro-Biolmaging is responsible for the organization of this first meeting) will take place on December 16th, 2011 in Frankfurt.

3.3 Activities at European Parliament

In order to raise awareness and create support for distributed BMS RIs and their specific needs, requirements and challenges concerning construction and operation, the group of BMS RI coordinators organized several meetings with Members of European Parliament (MEPs), the European Commission, and the European Council in 2010 and 2011.

Euro-Biolmaging WP5 was strongly involved in the coordination and organization of these meetings and common activities, which had very positive outcomes concerning the expressed willingness of support and even concrete outcome (see below).

BMS RI coordinators regularly communicated with the ITRE committee (European Parliament) by meetings with ITRE members representing all different political parties. Based on these meetings, the BMS RI group organized two EP Hearings on *Health-related Research Infrastructures and their Contribution to the EU's Grand Challenges* (October 2010) and *Biological and Medical Sciences Research Infrastructures at the heart of the Innovation Union - Accelerating solutions for societal challenges* (May 2011).

Based on these EP Hearings and the continuous communication with the BMS RI coordinators, the ITRE committee voted for including the following articles in the respective Own Initiative Reports from the European Parliament:

European Parliament report on Innovation Union

Article 46: "Calls on the Commission to leverage the resources of the Common Strategic Framework for EU Research and Innovation funding to ensure the sustainable implementation of biological and medical science research infrastructure as a public R&D service, oriented towards a better quality of life of the citizens, which is a way to make progress towards a knowledge-based society that can face the societal challenges in Europe".

European Parliament report on the Green Paper: From challenges to opportunities: towards a common strategic framework for EU research and innovation funding

1st Layer: Capacity building and infrastructure

Article 29: The funding scheme within this layer includes the part of the FP concerned with the Capacities Program and Marie Curie initiatives, the European funding components of research infrastructures and projects, access to loans by the EIB (covering projects over EUR 50 million and RSFF), grants associated with the abovementioned components of the FP, and cooperation with Structural Funds associated with infrastructure;

Article 32: Highlights the pivotal role of large-scale research infrastructures for the development of the ERA and calls for the overall EU funding available for research infrastructures to be raised, especially where there is the greatest scope for European added value, for the funding to be extended after the preparatory phase and for open and excellence-based access to them to be guaranteed;

3.4 Euro-Biolmaging Response to the EC Public Consultation on the Common Strategic Framework (Horizon 2020)

In May 2011, Euro-Biolmaging submitted its written response to the European Commission on Horizon 2020, *From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation funding*. This activity was coordinated by WP5. Therein, the Euro-Biolmaging Preparatory Phase Consortium emphasizes that Euro-Biolmaging will become a pillar of the European Research Area (ERA) and the European Society and provide the foundation for innovative research to develop the solutions for the grand societal challenges. Euro-Biolmaging will therefore make key contributions to the objectives of the Europe 2020 Strategy to closely link research and innovation and to increase European competitiveness. Euro-Biolmaging will help to build a new economy based on knowledge and innovation and strengthen the European Research Area.

To realize the benefits and pan-European added value, Euro-Biolmaging will depend on streamlined and coordinated funding instruments at the European level. For the preparation of the future Common Strategic Framework (CSF) on EU funding of research and innovation, the Euro-Biolmaging coordinators therefore call upon the European Commission to ensure that

- a new coordinated funding instrument is implemented at European level to support construction of distributed pan-European research infrastructures
- a new coordinated funding instrument is implemented at European level to support sustainable operation of distributed biological and biomedical pan-European research infrastructures, as operational costs will be significant in comparison to their costs for construction (estimated up to 20%/year for Euro-Biolmaging)
- pan-European research infrastructures are rigorously selected based on scientific excellence and the needs of the user community, followed by a competitive renewal system that ensures sustainability and continuous excellence
- the role of Euro-Biolmaging as a pillar of the ERA and as foundation for research to meeting the grand societal challenges is adequately taken into consideration in the implementation of the Innovation Union and the establishment of ERA
- funding for ESFRI research infrastructures and present as well as planned European research programs – e.g. Innovative Medicines Initiative and Joint Programming – is closely coordinated to avoid duplications and lead to the best exploitation of European resources
- future research programs include funding elements for trans-national user access to research infrastructures, long-term storage and accessibility of image data and training of research infrastructure users.

The complete written response from Euro-Biolmaging to the EC is provided in the Annex.

3.5 Training activities

Through their close collaboration with the group of BMS RI coordinators, WP5 initiated and prepared the participation of the Euro-Biolmaging WP13 (Training) representative in the EMTRAIN Strategic Coordination Board Meeting taking place on 21 September 2011 in Basel, Switzerland.

EMTRAIN's objective is to create a single area for education and training programs on medicines development in Europe at Master and PhD levels for continuous professional development, and for the benefit of students and professionals both on the academic and industry sides.

The aims of the EMTRAIN meeting were

- to introduce BMS research infrastructures that were included on the first and second update of the ESFRI roadmap in EMTRAIN
- to discuss on education and training issues, and to further develop collaboration between EMTRAIN and the ESFRI BMS.

After this meeting, Euro-Biolmaging WP13 decided its participation in a database (www.on-course.eu) on training activities in Europe which is momentarily still under construction, but will go online in December 2011.

In addition, Euro-Biolmaging will continue the regular dialogue with the other BMS RIs on common training activities such as workshops in overlapping fields of interest, training of trainers, etc.

4. Appendix

European Commission GREEN PAPER – COM (2011) 48***From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation funding*****Public Consultation**

“...Through the actions of the research infrastructures programme and building on the work of the European Strategy Forum for Research Infrastructures (ESFRI), a strong impetus has been given to the planning, preparation and construction of large scale research infrastructures, and to ensuring access to existing infrastructures. ...”

as well as Question No. 25 - *How should research infrastructures (including EU-wide e-infrastructures) be supported at EU level?*

Written Response**Euro-Biolmaging*****European Research Infrastructure for Imaging Technologies
in Biological and Biomedical Sciences*****Preamble**

Euro-Biolmaging (www.eurobioimaging.eu) - a large-scale pan-European research infrastructure project on the ESFRI Roadmap¹ - will deploy a distributed pan-European biological and biomedical imaging infrastructure distributed across Member States in a coordinated and harmonized manner. Euro-Biolmaging will provide an interdisciplinary, innovative environment for the use of imaging technologies in the field of life sciences and health research. By providing open access to and training in imaging technologies, and by sharing of best practice and image data, Euro-Biolmaging will enable world-leading investigators to conduct forefront research and training. By providing integrated access to imaging technologies employed in basic with those applied in medical research, Euro-Biolmaging provides the perfect environment to translate basic research into medical innovations. Euro-Biolmaging will become a pillar of the European Research Area (ERA) and the European Society and provide the foundation for innovative research to develop the

¹ ESFRI, the European Strategy Forum on Research Infrastructures:
<http://ec.europa.eu/research/infrastructures/>

solutions for the grand societal challenges. It will therefore make key contributions to the objectives of the Europe 2020 Strategy to closely link research and innovation and to increase European competitiveness. Euro-BioImaging will help to build a new economy based on knowledge and innovation and strengthen the European Research Area.

Suggestions

To realize the benefits and pan-European added value, Euro-BioImaging will depend on streamlined and coordinated funding instruments at the European level. For the preparation of the future Common Strategic Framework (CSF) on EU funding of research and innovation, the Euro-BioImaging coordinators therefore call upon the European Commission to ensure that

- a new coordinated funding instrument is implemented at European level to support construction of distributed pan-European research infrastructures
- a new coordinated funding instrument is implemented at European level to support sustainable operation of distributed biological and biomedical pan-European research infrastructures, as operational costs will be significant in comparison to their costs for construction (estimated up to 20%/year for Euro-BioImaging)
- pan-European research infrastructures are rigorously selected based on scientific excellence and the needs of the user community, followed by a competitive renewal system that ensures sustainability and continuous excellence
- the role of Euro-BioImaging as a pillar of the ERA and as foundation for research to meeting the grand societal challenges is adequately taken into consideration in the implementation of the Innovation Union and the establishment of ERA
- funding for ESFRI research infrastructures and present as well as planned European research programmes – e.g. Innovative Medicines Initiative and Joint Programming - is closely coordinated to avoid duplications and lead to the best exploitation of European resources
- future research programmes include funding elements for trans-national user access to research infrastructures, long-term storage and accessibility of image data and training of research infrastructure users.

Euro-Biolmaging: Added value for Europe

The mission of Euro-Biolmaging is to provide a clear path of access to a complete range of essential imaging technologies for every biologist and biomedical scientist in Europe. By providing access to and training in imaging technologies, and by sharing of best practice and image data, Euro-Biolmaging will become an engine that will drive European innovation in imaging research and technologies.

ACCESS TO IMAGING TECHNOLOGIES: Euro-Biolmaging will allow European scientists to access a broad range of cutting edge imaging technologies they require to perform their research. Euro-Biolmaging will guarantee that the investment in imaging infrastructure is used in the most cost effective and efficient way by applying Euro-Biolmaging quality standards in management, access and service of imaging facilities.

TRAINING: Standardized and quality controlled education of tomorrow's scientists in applying advanced imaging technologies from the single cell to the entire human will be one of the major challenges in biology and medicine. Specific training programmes offering different levels of training/education by leading experts at Euro-Biolmaging facilities will complement national efforts in education and Member States will benefit from the return of expertise.

IMAGING DATA: Biological and biomedical imaging will become one of the major data producers in the future and researchers are facing unprecedented challenges concerning data management and analysis. The Euro-Biolmaging infrastructure will offer platforms for storing, remotely accessing and post-processing biological and medical imaging data on a large scale. By providing European standards for imaging data storage, data protection and analysis Euro-Biolmaging will enable (1) the sharing of image data between different scientific communities from different countries, (2) the reuse of existing data in the light of new questions and (3) the advanced analysis of image data detached from their place of origin.

Who is behind Euro-Biolmaging?

Broad European support. Euro-Biolmaging already has a strong supporter base that comprises more than 180 partners from 26 European Member States and Associated Countries. Euro-Biolmaging is formally endorsed by over 200 universities, research councils, funding bodies, ministries, and industry partners.

Shaping national into European communities. The Euro-Biolmaging infrastructure project is the driving force to organize European biomedical imaging infrastructure communities. The first step in this process is the self-organization of national infrastructure providers to define the national needs and capabilities in imaging infrastructure. The second step is to form a pan-European

community of infrastructure providers that supports the Euro-BioImaging principles of coordination and harmonized infrastructure deployment, open access and highest training standards.

Why Euro-BioImaging?

- ✓ *Impact.* Euro-BioImaging will have a profound impact on the European Research Area, European health and quality of life as well as European competitiveness in key industry sectors (imaging technologies, biotechnology, medical technologies, pharmaceutical industry). Euro-BioImaging will maximize its ultimate impact through continuous evaluation.
- ✓ *Better return on investment for biological and biomedical imaging platforms.* Not even the best-funded institutions can any longer afford the complete range of imaging technologies they need to remain at the forefront of their respective research field. It is therefore critical that a plan is developed for sharing the costs of deployment and providing open access to such expensive but critically important technologies in order to obtain a better return on investment. By realizing the benefits of a coordinated deployment, Euro-BioImaging will decrease expenditures. Rather than having to fund only individual request for new imaging instruments, the much lower partial costs of accessing shared Euro-BioImaging facilities need to be funded.
- ✓ *Brain gain instead of brain drain.* The consequence of cuts in research funding will be devastating to research and threatens to cause a new generation of brain drain, because the best young scientists will quickly move to the best international environment for their research. Euro-BioImaging will make sure that Europe continues to offer cutting-edge infrastructure in biological and biomedical imaging to the next generation of scientific leaders and allow Europe to attract the best talent from other countries rather than losing its own.
- ✓ *Instant access.* The time required to establish advanced and powerful imaging platforms is substantial. Euro-BioImaging will allow researchers instant access to imaging instrumentation not available at their home institution.
- ✓ *Training by the leading experts.* Top-level expertise for many imaging techniques is hard to find and takes years of training to acquire. Euro-BioImaging will have coordinated training programmes for its infrastructure providers to ensure that the imaging technologies are offered with world leading expertise. Sharing expertise extends to shared best practices across Euro-BioImaging facilities, as well as repositories of methods, tools, protocols, software applications and image data that will make expertise widely available to the research community.

- ✓ *Better image data storage and analysis.* Image data is recorded across different biological scales, from sub-cellular structures to organs and in different biological models, from single cultured mammalian cells, via mouse to human tissues. The maturity of the ways image data is stored and used varies greatly amongst the research communities. The Euro-BioImaging infrastructure will offer platforms for storing, remotely accessing, sharing and post-processing biological and medical imaging data on a large scale.
- ✓ *Defragmentation, integration, and collaboration*
Different geographical areas of Europe have vastly different qualities of research infrastructure. Europe will under exploit much of its potential if a large percentage of its research community does not have access to state-of-the-art technologies and is therefore not competitive. Euro-BioImaging will address this challenge and enable scientists coming from regions of less developed research infrastructure, to access cutting edge imaging technologies, expertise and training either by going to neighbouring regions or by setting up new infrastructure according to Euro-BioImaging standards regionally.
- ✓ *A platform for translational research.* The scientific communities of basic biological, molecular and medical imaging work closely together in Euro-BioImaging to integrate imaging technologies employed in basic with those applied in medical research. Such cooperative facilities will be ideal platforms for translational research and bring innovative new imaging technologies from bench to bedside.

How will the Euro-BioImaging benefits be realized?

- *Euro-BioImaging will run through three consecutive phases.* In the *Preparatory Phase* (2010-2013) the legal, governmental and financial framework for implementation of the Euro-BioImaging infrastructure will be established. Technical and strategic information will feed into the elaboration of a comprehensive Euro-BioImaging construction plan, which will be the basis for the *Construction Phase* (2014-2017). Euro-BioImaging infrastructure nodes will be distributed across European Member States and will be deployed by either new constructions or major upgrades of existing facilities. In its final *Operational Phase* (from 2017 onwards) Euro-BioImaging will provide access to and training programmes in state-of-the-art imaging technologies and continuously review the quality of service.
- *Euro-BioImaging eligibility criteria.* An important element of the implementation plan for the Euro-BioImaging infrastructure, are eligibility criteria for imaging facilities that wish to become part of Euro-BioImaging. The principles for these criteria will be technical and scientific excellence, open access to imaging technology, and highest quality user training. Euro-BioImaging will develop European operational models that can be adjusted to the legal and administrative environments of the different Member States.

What are the challenges for Euro-BioImaging implementation?

The construction, operation and maintenance of Euro-BioImaging will mainly rely on funding by Member States.

However, securing funding for this research infrastructure exclusively from national instruments is particularly challenging, because of the strongly distributed nature of Euro-BioImaging. In addition, for biological and biomedical research infrastructures, operational costs will be significant in comparison to their costs for construction (estimated up to 20%/year for Euro-BioImaging). Sustainability of Euro-BioImaging will be endangered, if no appropriate central funding instruments on European level are in place in addition to those committed by Member States.

The Euro-BioImaging coordinators call upon the European Commission to ensure in the future Common Strategic Framework (CSF) on EU funding that a new coordinated funding instrument for construction and sustainable operation of Euro-BioImaging is implemented at European level.

In addition they invite the European Commission to include funding instruments for trans-national user access, long-term storage and accessibility of image data and training and to establish a mechanism for rigorous selection of pan-European research infrastructures based on scientific excellence and on the community needs, followed by a competitive renewal system.