



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

WP3 Process Plan

Task 3.5
Impact Study

Deliverable D3.13
First Impact Study

Task leader
Helmholtz, MPG

Additional task contributor
CAHTA

November 2012

Deliverable D3.13

First Impact Study

November 2012

1	<i>Executive summary</i>	3
2	<i>Introduction</i>	3
3	<i>About the work package's task and the deliverable</i>	4
3.1	Objective	4
3.2	Approach	5
4	<i>Results</i>	5
4.1	Euro-Biolmaging has revealed a common need for access, training and data management in imaging technologies	5
4.2	Euro-Biolmaging has had the first visible successes in improving the opportunity for, and the quality of research by enriching the landscape of imaging technologies available for European researchers	7
4.3	Euro-Biolmaging is an important partner and tool for overcoming the fragmentation of imaging communities and has brought visible progress in this domain	8
4.4	Euro-Biolmaging has already led to national investments into imaging research infrastructures	9
4.5	Euro-Biolmaging has initiated a process for identification and communication of Industry needs (in a coordinated and harmonized way)	12
4.6	Euro-Biolmaging has achieved a high level of visibility and support by stakeholders ..	13
5	<i>Case Studies</i>	16
6	<i>Outlook (Impact Study II)</i>	17
7	<i>Conclusion</i>	17
8	<i>Annex</i>	17

1 Executive summary

Two years of the three years funding period of Euro-Biolmaging's Preparatory Phase have been completed. With 2/3 of the program duration completed, it is time to assess and analyse the project's initial impact. Therefore, this First Impact Study (*Task 3.5, Deliverable D3.13*) has been conducted, evaluating the impact Euro-Biolmaging has had on European research in the first two years since the project's launch in December 2010.

The results of the Impact Study clearly indicate that remarkable results have already been attained and the positive effects of initiating the project radiate into the medical and biological imaging communities. Furthermore, the added value Euro-Biolmaging offers to all its stakeholders (users, providers, funders, industry) are now becoming apparent. The main achievements of Euro-Biolmaging can be summarized as follows:

1. Euro-Biolmaging has revealed a common need for improved access, training and data management in imaging technologies
2. Euro-Biolmaging has shown it can improve the opportunity for and the quality of research by enriching the landscape of imaging technologies available for European researchers. Because of Euro-Biolmaging, biological and medical researchers are no longer limited and restricted to the imaging platform(s) they have available in their own laboratory or institution
3. Euro-Biolmaging is an important tool for overcoming the fragmentation of imaging communities and has already had a major impact on consolidating and harmonizing 20 imaging communities across Europe.
4. Euro-Biolmaging has already led to national investments into imaging research infrastructures in a strategically intelligent and cost effective manner
5. Euro-Biolmaging has initiated a process for identification and communication of Industry needs (in a coordinated and harmonized way)
6. Euro-Biolmaging has achieved a high level of reputation, dissemination and support in all the relevant stakeholder groups

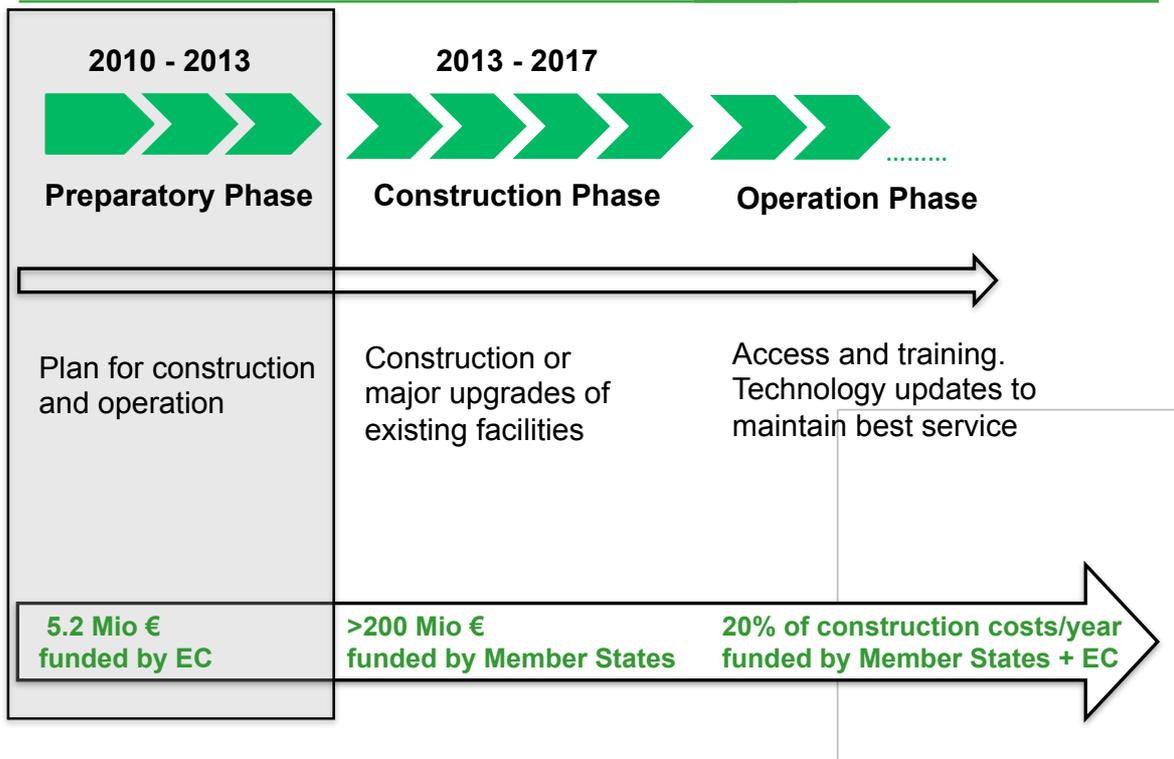
2 Introduction

Euro-Biolmaging aims to implement a coordinated, harmonized and well-balanced pan-European infrastructure for biological and medical imaging that addresses the needs of its users and all relevant stakeholders.

The Preparatory Phase (PPP) of the project started in December 2010 and will end in December 2013, followed by the Construction Phase (2014 – 2017) and the Operation Phase (from 2017 onwards)



Timeline & Funding



In the Preparatory Phase, Euro-Biolmaging is developing strategies and tools to enable the actual implementation of the pan-European research infrastructure and a successful and smooth transition from Preparatory to Construction Phase. The effect of all these measures on European research is evaluated in two impact studies (this First Impact Study, D3.13, and a Second Impact Study, D3.14 due in November 2013).

While the First Impact Study summarizes the first measurable effects and improvements of the European research area caused by Euro-Biolmaging, the Second Impact Study will include more specific and practically tested information.

Both Impact Studies will be integral parts of the final Business Plan (due in November 2013). The Business Plan will present a compelling case for decision makers to invest into Euro-Biolmaging and marks the major result of Work Package 3 (WP3) during the Preparatory Phase. Assessing the already achieved and predicted impact of Euro-Biolmaging, these two Impact Studies will be performed from an objective perspective thus increasing the factual basis and credibility of the Business Plan.

3 About the work package's task and the deliverable

3.1 Objective

The main objective of Work Package 3 (WP3) *Process Plan* is to define the mission, function and benefits as well as the deployment of Euro-Biolmaging. To do so, a plan for the implementation of a pan-European research infrastructure for biological and medical imaging

technologies is needed. Therefore WP3 has generated tools and strategies such as identifying the actual need of European researchers for access, training and data management in imaging technologies (*D3.4 Inventory map / review of existing infrastructures*), the *strategy for integration of new future partners and methodologies (D3.7)*, and a *strategy for inclusion of all relevant stakeholders (D3.9)*. Another important tool designed by the Euro-Biolmaging consortium is the *Proof-of-Concept Studies*, which were successfully conducted between January and July of 2012.

The objective of task 3.5 is to provide an evaluation of the impact of the planned and applied measures to ensure the most effective tools and strategies have been chosen and - by assessing the current and predicted impact of Euro-Biolmaging to the European research area and to European society and economy - to assess what value Euro-Biolmaging will create for all stakeholders. The results of the impact study will be used for further adjustments of the measures and strategies being implemented and for policy designing purposes to ensure Euro-Biolmaging continues to evolve to create the maximum value for its stakeholders and for the European research area.

3.2 Approach

The process to identify measurable indicators for the impact made in the Preparatory Phase of Euro-Biolmaging was carried out with a qualitative approach in a meeting held in April 2012 in Barcelona with all members of the Euro-Biolmaging Project Manager Team (PMT) and numerous WP leaders and representatives. By means of the 'Metaplan method', a large number of impact indicators were identified, which were discussed and agreed on among the participants. Then, these indicators were classified into categories to structure the large number of different indicators into a coherent format and therewith to structure the Impact Study itself. The categories utilized are:

- enabling research/scientific community
- economic impact and funding
- policy making
- dissemination.

The second step in approaching this First Impact Study was to define statements, summarizing the already attained effects of Euro-Biolmaging since the PPP had started. This was done by collecting and comparing data concerning the situation at "Day Zero" which was the 1st of December 2010 with the project being new and unknown, and day 730, which is the 30th of November 2012. By using the categories mentioned above, the six statements presented in chapter 4 "Results" were identified forming the structure of the First Impact Study.

4 Results

4.1 Euro-Biolmaging has revealed a common need for access, training and data management in imaging technologies

This first impact criterion probably is the most important, as it shows the already existing importance of Euro-Biolmaging in the imaging landscape in Europe. Furthermore, the significant effect of the project, its ideas, approaches and acceptance inside the

communities, have already been practically tested and are therefore confirmed. The two main tools that have led to this conclusion are (A.) the survey conducted by Euro-Biolmaging, and (B.) the Proof-of-Concept Studies (PCS).

A. As a first approach in evaluating the current situation in Europe regarding imaging research and imaging research needs, a survey was performed by Euro-Biolmaging from the 1st of June until the 15th of July 2011. Scientists and researchers from all sectors of the biological and medical community (academia being best represented) were surveyed and asked to complete a questionnaire to identify their needs, comment on what is lacking and asked what could make the most impact in improving the landscape for research based on imaging technologies in Europe. The number of interpretable responses received (more than 660 participants), already hints at the importance and recognition Euro-Biolmaging has achieved in and for the European scientific community already after only the first six months. The most relevant results are:

- most of the imaging facilities do not provide national and/or international external access above 10% of their capacity
- in general, biological and medical scientists requested similar resources for using innovative imaging technologies
- in both biological and medical imaging, there is a gap between the access service fees users can afford and the real cost of the facilities.
- more than 60% of biological and medical scientists are willing to travel to access innovative imaging technologies
- there exists a high interest in training activities (more than 500 respondents), specifically for training activities at an advanced level
- there exists a high interest (96% of participants) in a centralized, standardized and quality controlled repository of training activities and materials

The results of the Euro-Biolmaging Survey are summarized in a “Strategic Inventory Map” of Europe’s imaging landscape (SIM), see Annex # 1.

These outcomes of the survey therefore summarize the current and unsatisfying situation of existing unmet needs in the imaging landscape in Europe. Although this situation is of course not acceptable, this survey was an essential first step to reveal the common need for access, training and data storage. As a side effect, it also raised the communities’ awareness of the necessity for action and for supporting the work of solutions at the European level such as the measures and actions proposed by Euro-Biolmaging.

B. The Proof-of-Concept Studies (PCS) conducted later did indeed further confirm and reinforce this first result. During the 6 month period during which the PCS were performed (January – June 2012), the ideas and principles of Euro-Biolmaging opening up access to cutting-edge technologies in biological and medical imaging was practically tested, challenged and opened up for further improvements and modifications. The main focus of the PCS was therefore to test and refine standardized execution and access protocols and to identify current community needs for access to different imaging technologies. The success of this “test run” was compelling and substantiated the already existing effect of the project:

63 Euro-Biolmaging Proof-of-Concept imaging facilities distributed over 19 countries offered to open their doors to researchers for free access in order to provide a compelling critical mass of experience to guide Euro-Biolmaging. **228 scientists applied** to the Euro-

Biolmaging open user call for conducting their imaging experiments at one of the aforementioned facilities and thereby benefitted from open access to cutting-edge instrumentation and expertise. The PCS were focused on testing open access, procedures to access different types (general v flagship) and scales of imaging facilities and their retrospective evaluation from the perspective of users and providers. A two stage review procedure was applied by users and providers during the PCS with (a) an independent scientific review and (b) a consecutive feasibility evaluation.

The main outcomes of the PCS can be summarized as followed:

- 97% of the participating facilities would offer open access in the future, some of them requiring a capacity upgrade beforehand.
- >70% of users rate the validity of the obtained results to be very good to excellent for publication.
- >90% of users state that the benefit of the PCS was worth the effort of traveling.
- 99% of users would make use of Euro-Biolmaging open access facilities in the future.
- A need for additional efforts of Euro-Biolmaging to promote and increase visibility of quality management structures, either externally or at open access sites is indicated.
- On both sides – users and providers – no conflict was identified – one could even say that the integration of an external scientist does not create or implicate problems. In fact, more than 80 % of the providers will be mentioned in the PCS related publications as co-authors or by acknowledgement, which surely reflects the good cooperation among the providers and users during completion of the work.
- Due to this operational test-run for Euro-Biolmaging 110 research projects were enabled in Europe, the first of them already being published.

A detailed summary of the PCS results is attached in Annex #2.

The continuous consultation and exchange between Euro-Biolmaging and the national imaging communities through national contact persons (NCPs) added to refine the unmet user needs and existing differences in different member states as well.

Furthermore the PCS brought about a recognizable success in motivating the participating facilities to offer open access with or even without being upgraded. The effect and impact of this “test run” certainly indicates the already identified importance of Euro-Biolmaging’s main objective – open access.

4.2 Euro-Biolmaging has had the first visible successes in improving the opportunity for, and the quality of research by enriching the landscape of imaging technologies available for European researchers

Before Euro-Biolmaging conducted the PCS, a large number of users did not know the scope of biological and medical imaging facilities offering access to cutting-edge imaging technologies in Europe. A scientist needing access to a special imaging technology not available at his/her home institution did quite often not know where to go and/or had to run a time-consuming search at each imaging facility separately because a centrally available “broker service”, which is connecting demand and supply is missing. Simply put, researchers did not know where to find what with regard to technologies and imaging platforms given the very large number of different types of technologies and instrumentation nor did they know how to go about contacting the person in charge or finding a means of access.

The PCS conducted by the Euro-Biolmaging consortium brought users and imaging facilities together and fostered networking and exchange. Of the 63 imaging facilities from 19 countries that offered open access to their cutting edge imaging instruments, 41 Facilities from 14 countries received users and participated in the PCS. The users, who wanted to conduct their research project using the offered technologies were – through the online Euro-Biolmaging PCS portal – led to the right facility. The website of Euro-Biolmaging worked as a central point of information (similar to the envisaged Euro-Biolmaging Hub), making the process for the users easier and less time-consuming.

Additionally, the PCS offered the chance to use technologies rarely accessible or not well-known to scientists, which was also very well received.

4.3 Euro-Biolmaging is an important partner and tool for overcoming the fragmentation of imaging communities and has brought visible progress in this domain

Since early 2010, the self-organization of biological and medical imaging communities at the national level has started in most European Member States particularly triggered by the desire to participate in Euro-Biolmaging and thereby achieve the pan-European integration of national imaging communities. Currently, the following **20 national networks** of existing imaging facilities and major infrastructure providers have already formed with different degrees of deployment. A more detailed description of the nature and structure of a number of national imaging communities is attached in Annex # 3.

- AT Biolmaging
- **Belgium Bioimaging / Flanders Biolmaging**
- Biolmaging-PT
- **BiolmagingUK**
- Croatia Biolmaging
- **Czech Biolmaging**
- **EuroBiolmaging-NL**
- **Finish National Imaging Infrastructure Network**
- **France-Biolmaging**
- **German Bioimaging**
- Greece-Biolmaging
- Hungary Biolmaging
- **Imaging Platform Ireland NBIP**
- **Italian Bioimaging**
- Luxembourg Biolmaging
- **(N)Euro-Biolmaging Poland**
- **NorBiolmaging**
- Spanish Biolmaging
- **Swedish Biolmaging**
- **Swiss-Biolmaging**

In the countries marked in **bold**, national investments have already been made or are planned.

This process is of critical value for Euro-Biolmaging to learn about national capabilities and needs in imaging infrastructure, different funding models as well as different legal requirements.

For countries where the national self-organization process is still on-going, Euro-Biolmaging has outlined common principles 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 (NCP) who is responsible for communication between his/her community and Euro-Biolmaging. In most cases, the community publishes its own website and organizes follow-up meetings after the first constituent meeting.

Besides fostering the national self-organization of imaging communities, Euro-Biolmaging also takes a **coordinated approach to member state funding agencies** centrally and nationally by candidate nodes that wish to apply to become a Euro-Biolmaging node. For the first time, national and regional funders - the future partners of the infrastructure – are addressed with one voice, already raising awareness for the need to invest in biological and medical imaging infrastructure in their country.

By coordinating and prioritizing plans for nodes in each member state's imaging community, strong cases to national funders can be made to support the construction of the nodes that are in a good position to meet the eligibility criteria and are needed and supported by the imaging community.

4.4 Euro-Biolmaging has already led to national investments into imaging research infrastructures

As mentioned in statement 4.3, until now 20 national initiatives have been formed and in several cases, this has already led to significant national investments (e.g. FR, SE, UK, PL) or application for investments in national imaging infrastructure (DE, BE, FI – see Deliverable D4.1 *Report on funding sources for the construction and operation of Euro-Biolmaging*).

The following Table 1 summarizes Member States' investment in national imaging infrastructure and their planned investments in order to prepare their participation in Euro-Biolmaging (status December 2012). These investments into national imaging infrastructure do not include any funding for the European level of the pan-European infrastructure Euro-Biolmaging. Furthermore, the future Euro-Biolmaging Member States are very likely to make additional investments into capacity upgrades of national infrastructures for Euro-Biolmaging users.

The total national investments made amounts to **438,4M EUR** to be allocated for construction and operation of national infrastructure, whereas a sum of **354,1M EUR** has been applied for.

Country	Euro-Biolmaging on National Roadmap	Investment made/granted	Investments planned
Austria	In preparation		
Belgium	Yes	Center of Microscopy and Molecular Imaging – CMMI : € 21 Mill. UCL (microscopy and animal imaging): 10 M€ Flemish Imaging Consortium (in preparation): 10 M€	National call for imaging infrastructure in preparation.
Czech Republic	Yes (Priority project).	Imaging infrastructure at CEITEC: €5.4M BIOCEV: €12.54M	
Denmark	Awaiting ESFRI prioritization	Investment Imaging Core facilities CAB € 4 M DaMBIC € 2,9 M	
Estonia	Yes.		
Finland	Yes (2009, update planned Spring 2013).	€ 10 M funding from Biocenter Finland and the Academy of Finland infrastructure call for national open access imaging infrastructures	A new call for research infrastructure will be published for Spring 2013. Requested investment for guaranteeing sustainability of national imaging infrastructure: €4M.
France	Yes.	National open access imaging infrastructures: France Biolmaging €26,8 Mill; France Lifelmaging €42,5 Mill	National Investment Program France Biolmaging € 48 Mill; France Lifelmaging € 100 Mill
Germany	Will be published in Spring 2013.		German Euro-Biolmaging submitted a national roadmap proposal for € 187 M, result expected in Spring 2013
Greece	Yes.		
Hungary	Yes.	€ 1.4M for the new Microscopy Core Facility, University of Pécs and € 1M for the upgrade of the Molecular Cell Analysis Core Facility, University of Debrecen Source: National Development Agency, EU, European Social Fund	Calls for upgrading core facilities are expected for first semester of 2013
Ireland	No roadmap.	National Biophotonics and Imaging Platform with open access, supported by several funders (largest HEA €31M)	
Israel	In preparation. Proposal is including biological and medical imaging.	- Cost of the INCPM (microscopy only) - 5m\$ - Cost of animal imaging estimated 10m\$ (excluding the animal	Current funding proposal 40 m\$ over 5 years, renewable.

		facility itself) - Annual ISF investment in imaging ~2 M\$	
Italy	Yes (high priority)	Investment in 10 imaging facilities of Italy-Euro-Biolmaging, each € 2-4 Mill.	The imaging community submitted the proposal to the Ministry to fund the implementation of Euro-Biolmaging in Italy
Poland	Yes (Priority project).	Bio-Imaging Poland: Investments made for future participation in Euro-Biolmaging, the rough estimate of which is 12 million EUR through 2013 Future investments for 5 year term in the amount of approx. € 20 Mill. (2013-2017)	Future investments in Polish imaging infrastructure up to year 2037: construction € 32 Mill, operation € 80 Mill.
Portugal	In preparation.	Biological Imaging: €10M	National call for imaging infrastructure in preparation.
Spain	Yes (2010)		
Sweden	Yes - (2011)	Recent investment grants by SE for national bioimaging infrastructure: 18M € for Medical imaging and 2.3 M € for advanced light microscopy The current policy is to make all grants to bioimaging infrastructure conditional on integration in the Swedish Biolmaging infrastructure.	A new call for research infrastructure will be published for Spring 2013.
The Netherlands	Yes (2012)	2 initiatives in ALM have been funded: 11.8 M€. 2 initiatives in Population Imaging have been funded: 12.0 M€.	Update call for the Netherlands roadmap in 2013.
UK	Yes (2012, Priority project).	EPSRC Report of Medical Imaging Technology Working Group of Investment in Medical Imaging: £79.2M (€ 98M) Investment Portfolio MRC Next Generation Microscopy Call: £22M (€ 27M) for Innovative Biological Microscopy Development and Applications	Cancer Research UK/EPSRC Cancer Imaging Centres: £10M (€ 12.4M)
National imaging infrastructure		Investment made/granted	Investments planned
Total		SUM € 438,4M	SUM € 354,1M

Table 1: Current status of Member State investment in national imaging infrastructure triggered by better coordination of national imaging communities and Euro-Biolmaging (Status Dec 2012, based on information from National Coordinating Persons).

4.5 Euro-Biolmaging has initiated a process for identification and communication of Industry needs (in a coordinated and harmonized way)

Since 2009, more than 50 industry partners approached Euro-Biolmaging to become members of the **Euro-Biolmaging Industry Board (EIB)**.

Many of those took the opportunity to use the survey in summer 2011 to contribute their ideas and requirements thereby representing their stakeholder sector and also to actively join the discussion during the regular Industry Board meetings.

At the last Euro-Biolmaging Industry Board Meeting at ELMI 2012 (6th of June in Leuven, Belgium), the represented companies all agreed that the Euro-Biolmaging Industry Board shall become their “voice” for communicating their common interests and objectives at the different political levels. The EIB will nominate a Chair who will bring forward the common messages of all its members.

The EIB currently comprises 54 major vendors, producers and users of bio-optics and medical imaging equipment as well as software products that have formalized their support for Euro-Biolmaging by Letters of Intent (a list of industry partners associated with Euro-Biolmaging is found on the Euro-Biolmaging webpage www.eurobioimaging.eu).

In the Euro-Biolmaging Industry Board, all major bio-optic and medical imaging manufacturers are represented and - for the first time - speak with one voice on the common objectives of the imaging industry in Europe emphasizing the importance of imaging technologies for European innovation, their competitiveness and the growing bio-economy of the 21st century. The EIB will establish an effective and professional organization to represent the research infrastructure interests of the European bioimaging industry.

The benefit from the lively interactions between research and industry is obvious: Software- and hardware-related companies have expressed their interest to use Euro-Biolmaging as a network where they can test new equipment, perform specific trainings, or simply interact with professional users. Small and medium size companies were interested in using the network for their own R&D tasks without having to set up highly-specialized equipment and gain appropriate knowhow themselves.

In December 2012, the Industry Board published a position paper comprehensively describing the added value for European’s imaging industry through Euro-Biolmaging. It is available at the Euro-Biolmaging website <http://eurobioimaging.eu> and added as Annex # 4.

4.6 Euro-Biolmaging has achieved a high level of visibility and support by stakeholders

Reputation:

- Euro-Biolmaging has been awarded the **ICRI 2012 prize** (International Conference on Research Infrastructures in Copenhagen, March 21-23, 2012, organized by the Danish Presidency and the EC) for the poster “*Euro-Bioimaging. Research Infrastructure for Biological and Medical Imaging*” (out of a total of 70 posters). The poster prize increased Euro-Biolmaging’s visibility among the 700 attendees of the meeting. Also, high-level representatives from the EC and national authorities approached the representatives of Euro-Biolmaging in order to pass on their congratulations. By announcing the prize online at the Euro-Biolmaging website, further visibility and awareness was gained.
- **The Australian Microscopy Microanalysis Research Facility and Euro-Biolmaging have signed a Collaboration Agreement**
The AMMRF is a well-established multi-node, open access national research facility with 9 years’ experience in the leadership and operation of distributed research infrastructure in Australia. In February 2012, AMMRF and Euro-Biolmaging signed an official Collaboration Framework on exchange of best practices in training, user access and facility management. The collaboration is strongly supported by the Australian Government. The framework shall develop collaborative links with EU infrastructure that will be beneficial for both Australian and European researchers.
- **Collaboration with India Biolmaging**
In September 2012, the new and inclusive network called India Biolmaging of Indian biological imaging facilities invited Euro-Biolmaging to attend its inauguration. India Biolmaging creates a sustainable national infrastructure by opening resources to Indian users, and creating national and international visibility by speaking with one voice to stakeholders, funders and international collaboration partners such as Euro-Biolmaging. Similar to Euro-Biolmaging, a major focus of India Biolmaging is optimizing user access to imaging facilities, developing future common training activities for users as well as high-level training for facility staff in all aspects of facility management, and developing common solutions for image data storage and analysis. The Euro-Biolmaging Project Management together with the India Biolmaging Coordinator Prof. Jitu Major has started working on a collaboration agreement.

Dissemination:

Euro-Biolmaging provides an open and inclusive environment to all interested parties at any time of the project. By doing so it has reached a high level of dissemination amongst its stakeholders as shown below:

Stakeholder Meetings:

All stakeholders are being invited to attend the Annual Stakeholder Meeting. To date, four such meetings have taken place –

- the first one in September 2009 in Heidelberg
- the second one in October 2010 in Vienna
- the third one in January 2012 in Heidelberg
- the fourth one in January 2013 in Vienna

All meetings hosted about 250 attendees representing policy makers, funders, EC

representatives, scientists, infrastructure providers, journalists and industry. The assemblies are structured in such a way that all participants are informed and can provide input on each topic.

Euro-Biolmaging at Meetings, Conferences and Actions through Professional Societies

Euro-Biolmaging has already organised special sessions in relevant conferences (e.g. European Congress on Radiology, March 2011, Vienna, International ELMI meeting on Advanced Light Microscopy June 2011, Alexandroupolis). Moreover, it is planned that national stakeholders will be informed about Euro-Biolmaging in a systematic approach. Wherever possible, Euro-Biolmaging partners will participate in relevant national meetings and conferences to introduce Euro-Biolmaging or to provide the latest developments. In addition, a “national contact” at the level of each member state has or is being implemented that will further increase the flow of information in a bidirectional manner.

The Newsletter

The Euro-Biolmaging Newsletter is being published biannually. It highlights facts and developments of Euro-Biolmaging and is being sent out to all stakeholders. In addition, all Newsletters are available on the website <http://www.eurobioimaging.eu/>. The impact of the Newsletter is assessed through following subscription numbers as well as requesting feedback regarding its content.

Until now four Euro-Biolmaging newsletters have been published and distributed:

1st:	09 June, 2011
2nd:	19 Dec, 2011
3rd:	04 June, 2012
4 th :	19 Dec, 2012

Presence on the Internet:

The website <http://eurobioimaging.eu/> gives a broad range of information about Euro-Biolmaging and also provides detailed information on how to become an Associated Partner and stakeholder of Euro-Biolmaging and how to get involved in the national Euro-Biolmaging communities.

- Web traffic of <http://eurobioimaging.eu>
In the first 4 months of 2011 the average number of visits to the Euro-Biolmaging website was 1,278 per month. Recent numbers from the last 4 months show an increase to an average of 1,544 visits per month.

Jan 2011:	Visits: 1,663	Page views: 14,068
Feb 2011:	Visits: 1,313	Page views: 8,737
March 2011:	Visits: 1,287	Page views: 7,132
April 2011:	Visits: 848	Page views: 4,431
Aug 2012:	Visits: 1,220	Page views: 4,488
Sept 2012:	Visits: 1,481	Page views: 6,460
Oct 2012:	Visits: 1,882	Page views: 7,343
Nov 2012:	Visits: 1,593	Page views: 5,829
(until 29 Nov)		
Jan 2013:	Visits: 1,756	Page views: 14,706
Feb 2013:	Visits: 2,122	Page views: 15,211
Mar 2013:	Visits: 1,911	Page views: 12,509

- Hits on Browsers:

<i>Browser</i>	<i>Key word</i>	<i>Number of hits* (1/Oct/12)</i>
Google	Euro-Biolmaging project	30,200 hits
	EuroBiolmaging	4,210 hits
	Euro-Biolmaging	32,300 hits

*Note that the number of hits in internet browsers may vary depending on the IP address

Support:

- **Beneficiaries**

Beneficiaries are members of the Euro-Biolmaging Preparatory Phase project consortium. They comprise the Scientific Coordinators, all Work Package chairs, and further key partners such as national funding bodies and research councils. At the moment, there are 39 legal partner organizations (Beneficiaries) from 16 European Member States and Associated Countries. The consortium has increased by one member since 2010 when the number of beneficiaries was 38 organizations from 15 Member States.

- **Associated Partners**

Associated Partners have expressed their interest to actively participate in Euro-Biolmaging by sending a Letter of Intent and contribute to the Preparatory Phase objectives of Euro-Biolmaging. In 2010, 82 Associated Partners from 23 Member States had done so. In 2012, the number of Associated Partners has increased to more than 250 from 28 different countries.

- **Stakeholders**

Stakeholders of Euro-Biolmaging include scientists, representatives of European and national biological and medical imaging communities, universities, governmental and non-governmental research institutes, hospitals, as well as the health care and bio-optics industries. Further stakeholders include the service industry sector, local, regional and national authorities including those ministries in the member states responsible for education and research as well as the dedicated research associations, societies and national organizations.

As of today, Euro-Bioimaging has assembled more than 1400 individual stakeholders from more than 30 European countries, India, Russia, the USA and Australia.

- **Expression of Interest:**

The number of expressions of interest from universities, research councils, funding bodies, ministries, and industry partners has doubled in two years reaching more than 250 expressions of interest in 2012.

Euro-Biolmaging has even after 24 months' already achieved a high visibility and stakeholder support. It has not only been accepted by the different communities and national initiatives, but is also supported actively by stakeholders from all over Europe.

5 Case Studies

As explained in the chapter “*Results*” (4.), the self-organization of biological and medical imaging communities at the national level fostered by Euro-Biolmaging has not only added to overcoming the fragmentation of imaging communities but has - in several cases - already led to significant national investments

While the level of national involvement in EuroBiolmaging still being quite diverse, we have selected two cases to illustrate high levels of national commitment.

France

In the last two years, France has invested significantly into two national imaging infrastructures: **France Bio-Imaging** for photonic and electronic cellular bioimaging, and **France Life-Imaging** for in vivo imaging preclinical, clinical and population studies. Each infrastructure aims at establishing a coordinated and harmonized network of biological and medical imaging, respectively, in France.

France Bio-Imaging is coordinated by Centre National de la Recherche Scientifique (CNRS), and the main goal is to develop a distributed coordinated French infrastructure for photonic and electronic Cellular Biolmaging dedicated to innovation, training and technology transfer. The French government finances the infrastructure with a budget of 26,8M€.

France Life Imaging is coordinated by the Commissariat à l’Energie Atomique et aux Energies Alternatives (CEA). The main goals are: 1) to establish a coordinated and harmonized network of biomedical imaging in France, 2) to coordinate nation-wide research activities concerned with in vivo imaging, 3) to provide scientists a convenient access to complete range of imaging technologies and integrated services. The French government finances the infrastructure with a budget of 42,5M€.

Poland

On February 23, 2011 the **National imaging research centre in biological and biomedical sciences – NEuro-Biolmaging Poland (NEBI)** was included in the list of infrastructure projects for the **Polish Road Map for Research Infrastructures** approved by the Minister of Science and Higher Education. For the future participation in Euro-Biolmaging investments of approx. 12 M€ have been made already through 2013. For the 5 year term 2013 - 2017 an amount of approx. 20M€ has been granted by the Polish Ministry of Science and Higher Education.

The main objective of NEuro-Biolmaging Poland (NEBI) is to provide open access to imaging technologies across biological and medical applications, with emphasis on (but not limited to) neuroimaging. NEBI will operate as a distributed infrastructure with two main locations (Neurobiology and Brain Imaging Centres in Warsaw and Krakow) and a broader network of associated centres (10 or more legal entities).

NEBI is coordinated by the Nencki Institute as part of Euro-Biolmaging. As part of integrating the Polish RI Road Map projects within ESFRI, the benefits of participating in a pan-European RI according to the Polish authorities are identified as:

- adaptation of best practice in management of RI: process planning, financing, legal and governance, user access, collaboration with industry stimulating innovation and economic development
- source and transfer of new technologies and solutions
- networking (staff recruitment, scientist mobility, transfer of knowledge and know-how).

During the period 2007-2013, the Neurobiology Centre (NC) will be established, as a group of new core facilities of the Nencki Institute. NC is currently in the construction phase and its facilities will primarily have a service orientation and will be based on the European Molecular Biology Laboratory (EMBL) functional model for core facilities, supporting research excellence.

6 Outlook (Impact Study II)

At the end of the Preparatory Phase (November 2013) the Second Impact Study will complete the evaluation of Euro-Biolmaging's impact on Europe's research in the first three years of the project. Moreover, it will make well-grounded predictions on the expected long-term impact for when Euro-Biolmaging has been fully implemented. The indicators for measuring Euro-Biolmaging's long-term impact, which were initially identified at the WP3-Meeting in April 2012 in Barcelona will be further refined and adjusted. The indicators will be assessed in order to be able to answer the following questions:

- Is Euro-Biolmaging enabling better research in Europe?
- How good is the science produced by using Euro-Biolmaging infrastructures?
- How big is the societal and economic impact?
- What would Europe look like with as compared to without Euro-Biolmaging (e.g. what is the societal cost of not implementing Euro-Biolmaging)?

7 Conclusion

This first Impact Study has clearly indicated a major impact of Euro-Biolmaging within each of the categories of criteria and indicators.

8 Annex

1. Strategic Inventory Map (SIM)
2. PCS outcome
3. Detailed information on national initiatives
4. Industry Position Paper