Euro-BioImaging

European Research Infrastructure for Imaging Technologies in Biological and Biomedical Sciences

WP12
User Access

Task 12.1.1
Define Requirements

Deliverable 12.1
Report on evaluation of different access policies in place within Euro-BioImaging infrastructure

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Report on evaluation of different access policies in place within *Euro-BioImaging* infrastructure

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1 Summary

Within WP12 – User Access the first task (Task 12.1) is to "identify the needs, expectations, concerns as well as existing policies of the different parties involved." As a first deliverable (D12.1), the authors report here on their evaluation of existing access policies in place in biomedical imaging research infrastructures (RIs) open to external access.

It was found that (i) at present, providing external access to imaging technology appears to be more common in biological than in medical imaging (according to public domain information). (ii) We found that amongst imaging facilities that do offer external access, only a minority publish defined access policies and procedural guidelines on their web portals (see point vi).

We present two rather ideal access policies that are being discussed for implementation in future *Euro-BioImaging* Infrastructures. (iii) One was developed by EMBL within *Euro-BioImaging* WP6 as Deliverable 6.1 for use in *Euro-BioImaging* Proof-of-Concept studies. (iv) The second one was published by the ESF (European Science Foundation) as general guideline to research infrastructures (RI). We further provide (v) a general Pipeline Model of factors affecting access and a more concreted Implementation model for external access to imaging facilities, and (vi) a work-in-progress catalogue of provisions we recommend for accessible RIs.

(vi) Finally, among the imaging facilities found to provide published access policies, we evaluate the access policies of three independent open-access facilities in different countries (Finland, France, Germany) in terms of their coherence with the guidelines set out in the previous sections.

While the results of the *Euro-BioImaging* RI survey are being assessed, the access policies investigated so far are well in accordance with the guidelines that have been publicly discussed within Euro-BioImaging. The approach taken by the *Euro-BioImaging* consortium is, therefore, supported by the authors of this report. Specifically, the guidelines developed in D6.1 are recommended as a basis for individual access policies to be applied in the ongoing *Euro-BioImaging* Proof-of-Concept studies. Naturally this does not preclude modifications and adjustments to individual demands and requirements of RIs.

2 Present Situation

We investigated >20 institutions that allow external access according to their respective web-pages. We found that the vast majority does provide contact information to responsible persons or personnel dedicated to imaging units. However, general access policies or access guidelines are mostly not provided as public domain information. In general we found more biological imaging sites than medical imaging sites to provide external access. These results are still not aligned or compared to the data that is being obtained from the comprehensive *Euro-BioImaging* survey. The survey results and conclusions related to access policies will be published in a separate report (Deliverable 12.2) to the European Commission.

3 General Guidelines for External Access to Research Infrastructures

3.1 ESF paper: ESF Member Organisation Forum on Research Infrastructures (Working Group 1: Access and Standards) and ERA-Instruments recommendations

The ESF has established a Member Organisation Forum on RIs. Therein, Working Group 1 deals with Access and Standards to RIs and has published a position paper (provided by Christian Renner, DFG, member of the Steering Committee of the ESF member organisation forum on Access and Standards). The paper lists a set of (i) minimum standards and (ii) recommendations for access policies to RIs of any type. It is dedicated to guide, align and reduce duplicate efforts within ESFRI projects (for full text, see **Annex I**).

Many European science funding organisations are members of the ESF. Since *Euro-BioImaging* RI access policies need to be coordinated with funding organisations to make *Euro-BioImaging* RIs sustainable, the ESF input already at this stage is more than welcome.

The two part document is work in progress. The first part comprehensively covers basic requirements and recommendations for any open access RI (independent of type, incl databases, technical facilities and others), in 3 chapters: (a) Management, (b) Regulation and (c) Information for potential users.

The second part covers specific considerations for two classes of RIs: (a) instrumentation and (b) databases. It may turn out that further chapters for specific types of RIs need to be added, although many topics are covered on a general level in the first part of the document.

In this context it is also worth mentioning the ERA-Net Instruments recommendations on *Efficient Operation and Access* and, in particular, on *Advanced Light Microscopy*, which is published together with Euro-BioImaging. These documents can be downloaded from www.era-instruments.eu, or also from www.eurobioimaging.eu/content-document/era-instruments-brochure. There the access recommendations are rather generally described, but they strongly support the strategies outlined in this report.

3.2 WP6 – D6.1 Access Guidelines for Proof of Concept Studies

Euro-BioImaging WP6: Report from EMBL to be used as guidance for tests. Chapter 4 - Guidelines for scientific visits to the ALMF

The report's main section is adapted from the guidelines for scientific visits to the ALMF of EMBL, Heidelberg, Germany (see **Annex II**) and aims to cover all aspects of access regulation relevant from a user's perspective. Thus the term ALMF can be regarded as a general placeholder for imaging facilities.

The document is intended to provide the basis for user access in proof-of-concept studies to be conducted in WP6.

3.3 WP12 – Access Implementation Model – Model for Access to Imaging Facilities

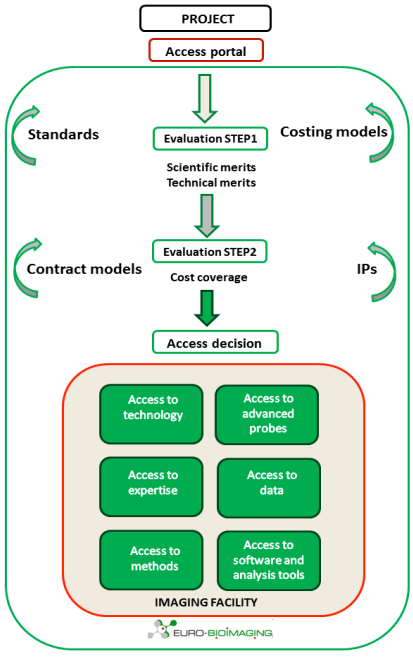

Fig 1: Implementation model of user access based on practices used during the proof-of-concept studies

As presented and largely endorsed by the Steering Committee meeting, WP12 developed a model of factors affecting user access for imaging facility of any kind to be further developed and detailed. A proposed flow-chart model of practical steps of user access to imaging facilities is presented in Figure 1. According to the developed implementation model, which is a suggestion based on the practices used during proof-of-concept studies, the incoming project is critically evaluated, based on its technical merits and scientific excellence. The evaluation process also involves a discussion and agreement about the cost coverage between the user and the provider. When accepted, the project would in general be granted full and open access to all resources provided by the imaging facility (for example: technology, expertise, methods, probes, data, software and analysis), although some special cases may require the evaluation process to assess access to parts of or the whole imaging facility. The evaluation and decision process will be aligned with the Euro-BioImaging guidelines,

which provide instructions for quality standardisation, costing and contract models, and intellectual property rights. This model will still be further iterated as the survey results are being evaluated and the experience of the proof-of-concept studies will be gathered.

3.4 WP12 - Access Regulation – Catalogue of Provisions

The catalogue covers central aspects of access to RIs, crucial from a potential user's perspective (see Annex III). The catalogue is based on critical evaluation of web published access policies. Analysed RIs were the ESRF & DESY medical beam lines and the ABO in Turku, FI. Further sources of information were telephone interviews with chairs and partners of *Euro-BioImaging* WPs. The catalogue is work in progress. All identified topics are addressed in the ESF paper discussed in Sec 3.1.

4 Existing Policies to Guide External Access to Imaging Infrastructure

4.1 Cell Imaging Core, CIC - Turku, Finland

CIC is a centralized imaging facility of two universities in Turku, Åbo Akademi University and the University of Turku. CIC provides an example of a typical microscopy facility within the National Imaging Infrastructure Network of Finland.

In CIC, users receive the support needed to carry out conventional and advanced imaging techniques. The unit has combined resources to provide state-of-the-art equipment that is open to all researchers.

All access regulations can be downloaded from a CIC website (http://www.btk.fi/cell-imaging/services/user-policy/) and applications for access can be requested online by contacting CIC personnel.

Present CIC access regulations fully comply with premises of the ESF and *Euro-BioImaging* as set out in section 1.

4.2 EMBL, ALMF - Heidelberg, Germany

The basic principles (see Annex II) have been successfully applied at EMBL's open ALMF since at least 2006. The posted ALMF policy complies with the ESF set of minimum requirements, and is structured as follows:

- General outline of the project schedule
- Application guidelines
- Evaluation guidelines
- Reporting guidelines

4.3 ESRF Synchrotron – Grenoble, France

The synchrotron facility ESRF offers access to biomedical beam lines primarily for users from ESRF member countries. Synchrotrons are a special case of technical RI as they cannot be operated by an external user without assistance of experienced personnel. The multinational funding naturally leads to the situation that research teams from participating countries enjoy access to the facility free of charge, in the case of ESRF even including housing of the guest up to three researchers per team. Installation and operation of synchrotrons is expensive and the facilities are consequently rare, the demand for beam time generally exceeds the supply. Consequently the access requires prioritisation. This situation is likely to arise as well for some of the Euro-BioImaging technologies, especially innovative imaging technologies. ESRF collects scientific proposals at defined timelines for defined windows of time. The proposals are reviewed by an independent board of reviewers and beam time is granted according to their judgements.

All access regulations can be downloaded from a website and applications for beam time can be submitted online.

Present ESRF access regulations fully comply with the premises of ESF and *Euro-BioImaging* as outlined in section 1.

5 Conclusion

While the results of the comprehensive joint *Euro-BioImaging* survey are being assessed, WP12 recommends the use of generic Access Guidelines as published in D6.1 (Section 3.2) for the *Euro-BioImaging* Proof-of Concept studies for Technology Access. For site and technology specific modifications of access policies, WP12 recommends to consult the guidelines published by the ESF (Section 3.1), as well as the pipeline model proposed by the working group (Section 3.3) and catalogue of provisions (Section 0), all provided in this report.

Annex

Annex I
ESF Member Organisation Forum on Research Infrastructures:
WG-1: Access and Standards

Contents

Introduction

This document and the requirements listed herein aim at identifying a minimum quality standard for access to research infrastructures (RIs) at the European level. The criteria and issues identified in Part I are independent of the size or kind of RI under consideration. Part II contains specific requirements addressing access to instrumentation and access to data bases / repositories.

The requirements described here are a consensus result of the *Member Organisation Forum on Research Infrastructure*[1] and as such can only be seen as a minimum quality standard that should provide orientation both to funders and to managers of RIs. The requirements are meant to provide a basis for the development of evaluation procedures, but they are not evaluation criteria by themselves.[2] More specific requirements cannot be made on this level as RIs of all kinds and all sizes are addressed.

Not all aspects of establishing, managing or operating an RI are dealt with in this set of requirements and recommendations, but rather those that have a direct impact on the external use. It is important to stress that this list is meant to be a first attempt at collecting relevant issues for the shared use of RIs and that it is anticipated that the ongoing European and national discussions on RI will lead to a continuous update and refinement.

National agencies and European initiatives, first of all the ESFRI projects[3], have partly established or are currently developing specific access models and associated quality assurance procedures. It is

[1] See http://www.esf.org/activities/mo-fora/research-infrastructures.html

[2] An illustrative example is the first requirement that asks for the description of an existing management structure, but does not contain any hints how to assess the answer provided by an RI – the later being a part of the evaluation procedure. Only the existence of a management structure (and a description of it) is required, but no attempt is made at prescribing specific governance models.

[3] See http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-roadmap

hoped that this document is close to a common denominator for all of them and, thus, can also serve as a basis for new models or procedures to be established. The general requirements of this document are meant to be valid for all scientific disciplines and should, therefore, be applicable to all RIs. A common understanding of how RIs can optimally support scientific communities will certainly help in overcoming some problems of fragmentation and heterogeneity in Europe without sacrificing the benefits of diversity and flexibility.

Technical Foreword

Basic requirements for shared access were grouped into the three categories management, regulations and information. The most important part is certainly the management section. One of the requirements under this heading is the definition of the access model. The relevant aspects of an access model are described later in the second information section where it is required that the RI must inform the potential users on all relevant aspects of the access model. The regulations part contains legal issues and good scientific practice and the necessity to adhere to these rules is self-evident. The general information part might seem trivial, but experience shows that by no means all facilities that offer external access do provide this basic information on their web pages.

The specific requirements for access to instrumentation can be divided in a similar manner, and they constitute largely requirements in addition to the general case. For the data repositories the specific requirements are mostly more detailed and differentiated descriptions of general aspects, so that for data repositories they more or less replace the items L1, I4, I9 and I11 of the general list. This kind of structuring is foreseeing a procedure where the compliance of a facility with this set of requirements is to be checked. The information part can easily be transformed into a questionnaire where, for instance, for the individual aspects of the access model internet links can be required that point to the respective information on the RI web pages. The regulations part requires only the confirmation of the RI that they adhere to these requirements without further description. The management part, finally, would require some more detailed explanation of the RI to address these aspects. For access to instrumentation the same approach would apply, only with an expanded set of requirements. Data repositories might require a slightly different procedure.

Part I: Basic requirements for all RIs with shared access

Management

No.	Required	Recommended
M1	The management structure must for the size and kind of RI	Dedicated (technical and administrative) manager are recommended for RIs with many projects/users
M2	Skilled staff, both scientific and technical, must support the RI and the user	Career options should be considered / supported. Training should be offered.
M3	The RI has to define an access model that is consistently applied in sharing access with external users (cf. section Information on the access model). An explicit or implicit contractual relationship has to exist.	The access model should be optimized for the needs of the users. Feed-back analysis should be made for all aspects including training. Signed agreements should define rights and responsibilities.
M4	RIs have to be able to estimate their total costs	RIs should be able to prove their total costs of providing access by full cost accounting.
M5	The environmental impact of the RI is the responsibility of the RI management	

Good Scientific Practice and legal issues

No.	Required	Recommended
L1	Use of a facility has to be acknowledged by the user in appropriate ways, e.g. in publications.	Co-authorship on publication or patents is only warranted when substantial scientific input contributes to the publication. Users should be obliged to inform RIs about publications and patents based on the use of the RI.
L2	RI must know and inform users about local (and other applicable) law and regulations relevant for access to the RI, also for incoming users from other countries. (Examples: In the country of the RI: Data protection laws, importing samples, ethical regulations, liability, licensing etc)	RI can help users by collecting and presenting laws and regulations for the countries users come from. (Examples: In the country of the user: Data protection laws, export of samples, liability, licensing etc)
L3	The RI management is responsible for adequate safety measures and users must be informed and obliged to adhere.	
L4	Applications for access must be treated confidential.	

Information for potential users

a. General information

No.	Required	Recommended

I1	Detailed information is available via WWW	All relevant information is both in English and national language(s)
I2	General description of the RI	examples of usage, publications
I3	Contact details	online submission of access requests

b. Information on the access model

No.	Required	Recommended
I4	Availability at what times and with what service? Continuity of access and service in the future?	RI should offer reliable service with long term perspective
I5	Information about training and specific assistance, also for subsequent data analysis	Provision of training and specified assistance
I6	Definition to whom access is allowed (industrial research/users?)	Granting access to the private sector is encouraged, but industry should pay at least the full operational costs
I7	Are there costs for access? What cost models exist for public research, for industrial research?	Define the cost model and/or its available options. No disclosure Agreements (NDA) might be linked to higher costs for using publicly funded RIs
I8	Description of the selection process for access requests: • Who is doing it? • What are the criteria? • How long will it take?	The procedure should be adequate for the size and type of RI. Confidentiality should be explicitly confirmed.
I9	Handling of results from data management to publication has to be clearly described. Standardized data formats have to be supported.	Service and support with data handling (storage / access / transfer / processing) and presentation of models/examples is recommendable.
I10	Expectations of the RI regarding citation or acknowledgement of the use of the RI.	Clear policy on co-authorships by members of the RI.
I11	Responsibilities of owners and users need to be defined (e.g. for correctness, authenticity, storage, contribution and distribution of data)	RI should support quality control.
I12	Treatment of intellectual property, data ownership, confidentiality (competition between scientific teams).	Presenting models or examples is Helpful.

Part II: Specific requirements depending on the kind of RI:

Access to instrumentation, possibly including investigation of samples

a. Management

No.	Required	Recommended
1	If access is (physically) limited (e.g. access to instrumentation) and access requests compete, a fair and transparent selection procedure is needed.	Feasibility checks, e.g. by the RI management, are useful. A review panel (independent from the RI management) should decide in a fair and fast procedure on granting access to instrumentation. Constructive feedback should be given to declined applications.
2	Facilities must provide basic laboratory space for sample preparation and/or immediate set-up.	

b. Good Scientific Practice and legal issues

No.	Required	Recommended
3	The sample has to remain the property of the experimental team; the RI management must guarantee returning samples unless they are destroyed during the measurements or the users give an explicit consent to a different procedure.	The use of a MTA (Material Transfer Agreement) is recommended.
4	Property and license rights about experimental arrangements made on the occasion of the investigation sample environment, preparation, detection, data treatment, etc) have to be shared appropriately between the user and the RI team.	Ideally, an agreement should be in place beforehand; In unexpected cases parties should convene and decide upon sharing of "innovation paternity" as soon as possible.

c. Information for potential users.

No.	Required	Recommended
5	Facilities must inform the user about measurement conditions and in what form samples need to be prepared.	Special attention should be given to the handling of harmful or hazardous material. Users should be informed and instructed, if applicable.
6	Information on any training or assistance that is provided for sample preparation and instrument use.	Training and assistance should be provided.
7	Support for accommodation is commendable.	If physical presence is needed for access, RIs should inform users about possible accommodation.

In the case of publicly funded research infrastructures for scientific use the access for users from industry should not compromise scientific use. A time share of up to 10% is usually acceptable.

Access to RIs that are data bases / data repositories

No.	Required[4]	Recommended
1	The data repository ensures that research data is provided in suitable standardized formats and with sufficient information for others to assess the scientific and scholarly quality of the research data and compliance with disciplinary and ethical norms.	The data producer should be obliged to provide the required meta data.
2	The data repository ensures the integrity of the digital objects and the metadata.	
3	The data repository ensures the authenticity of the digital objects and the metadata.	
4	The data repository assumes responsibility for access to and availability of the digital objects Provisions for continuity of access and service in the future are described by the data repository.	
5	The data repository defines access regulations respecting licenses, copyrights, personal data protection etc and obliges the data user to comply.	
6	The data repository enables the users to utilize the research data and refer to them.	
7	The data repository applies documented processes and procedures for managing data storage with defined workflows for archiving across the data life cycle.	
8	The data repository has a plan for long-term preservation of its digital assets.	Stable funding should be secured.

[4] This list is largely derived from the list of requirements defined by the Data Seal of Approval (www.datasealofapproval.org).

Annex II
WP6 – D6.1 Access Guidelines for Proof of Concept Studies

[…]

4 Guidelines for scientific visits to the ALMF

4.1 General outline of the project schedule

1. The scientist interested to conduct a project in the ALMF contacts informally the head of the facility to enquire the feasibility to conduct the project in the ALMF, to explore the possibilities for a scientific host and to estimate the approximate project costs.

2. After positive response from the ALMF head the scientist submits a formal but concise application to the ALMF. This needs to include also the proposal of a scientific host (who should have agreed to act as such, and can in some cases be the head of ALMF) at EMBL see 4.2. for an application template).

3. The project application is evaluated on a scale from 1 -10 by written procedure (email) by a board of EMBL scientists representing the different scientific disciplines of EMBL, the head of the ALMF committee and ALMF and the proposed scientific host at EMBL. (see 4.3. for an evaluation template)

4. After positive project evaluation the scientist is invited to visit the ALMF and conduct the project work. Timelines are arranged according to the project ranking (average score of the board evaluation). Highly ranked projects may be considered earlier than lower ranked ones. Due to space and personnel constraints no more than three external visitors are accepted to work in the ALMF at any time and scientific hosts (except for the head of the ALMF) typically accept only one external visitor at a time. The ALMF makes every effort to host the scientist as soon as possible after application to maintain scientific competitiveness.

5. The logistics of the visit (e.g. accommodation, travel, shipment of reagents) should be arranged with ALMF staff, scientific host and the administrative assistant of EMBL's visitor programme.

6. The project work is conducted in the ALMF supported by the scientific host's laboratory.

7. After project completion, the scientist summarizes the project results and in a short report (typically one page) and provides standardized feedback on various issues of his/her stay.

8. In the post visit period the scientist will inform the ALMF when the results obtained at EMBL are published in scientific journal(s) with appropriate mention of ALMF support in the acknowledgement section of the article. This is included in ALMF visitor reports.

4.2 Application Guidelines

The formal application of the scientist to the ALMF should be concise and typically not exceed two pages and include the following items:

1. A short CV of the applicant.

2. A short scientific project description containing the following information:

- Project title
- Scientific background of the project
- Description of work proposed to be conducted at the ALMF
- Importance of the project for the overall research of the scientist
- Expected results

3. Further information requested

- Equipment/technology that is envisaged to be used
- Approximate costs of the project (e.g. based on equipment usage hours and reagents; needs to be estimated consulting the head of ALMF and scientific host)
- Previous experience of the applicant in light microscopy techniques (in particular the one that he/she intents to use at the ALMF)
- Biological hazards associated with the project
- Approval of the scientific host at EMBL (could be head of ALMF)
- Estimation of the time to be spent at EMBL (preferred starting and ending dates should be proposed)
- Agreement to acknowledge the ALMF in publications resulting from data obtained during the visit.
- Approval of the scientists home institution supporting the visit to the ALMF

4.3 Evaluation Guidelines

The project application will be evaluated according to the following criteria (scale 1 to 10, 1=lowest, 10=best mark). Evaluations should be concise and typically not exceed one page:

1. Scientific excellence

- Significance/importance of the project in comparison with international standards in the field
- Relevance/contribution of the project to the scientist's overall scientific worklinterests
- Relevance of project's results for inclusion in future scientific publications
- Scientific quality of the scientist or home laboratory

2. Feasibility of the project

- Feasibility of the project to be successfully conducted in the ALMF
- Availability of required technologies at the ALMF
- Required training capabilities of applicant for the conduction of experiments or possibility to acquire the skills in the timeframe of the proposed project
- Reasonable estimation of project costs and coverage by the scientist

If any of the questions above are evaluated as not feasible or insufficient (ranking as “1’) the project will be rejected.

3. Others

- Benefit for applicant (e.g. training received, results obtained, scientific networking started, be able to apply for hislher own grant)
- Necessity to conduct the research at the ALMF (or could the applicant conduct the work in another place that is closer by his home laboratory, or more qualified for the specific application)

4.4 Reporting Guidelines

After project completion the scientist is asked to report on the scientific results obtained, the impact the results have on hislher future work, the quality of the scientific, technical and logistic support from the ALMF and EMBL (if feasible scale 1 to 10, 1=lowest, 10=best mark). Reporting should be concise and typically not exceed one page:

- Type of instruments used
- Satisfaction concerning given advice and information on usage of most appropriate imaging instrument(s)
- Satisfaction concerning logistic support at the facility (office space, computing, libraries, accommodation)
- Satisfaction concerning technical support to make best use of the imaging instrument(s)
- Satisfaction concerning training (if received) in imaging technology
- Satisfaction concerning scientific support to set up the experiments and interpretation
- of results
- Rating of scientific impact of imaging infrastructure usage on the project
- Satisfaction conceming administrative support

- Summary on project results which were achieved by using ALMF instrument(s)
- List of publication(s) containing project results based on using ALMF instrument(s)

Annex III
Provisions in Access Policies

Who can request access?
- Academic (EU members / associated / Non-EU)
- Commercial (EU members / associated / Non-EU)

Request goes to whom?
- Provider
- Central access agency (future Euro-BioImaging agency?)
- Direct registration in a web based reservation tool

Decision body?
- Provider
- Independent project evaluation committee
- Central access agency (future Euro-BioImaging agency?)
- None - each wish granted

Request includes what?
- Project justification
- Rough project outline
- Detailed project proposal
- Project requirements
- Proposal for
- Cost calculation
- Proposal for cost coverage
- Proof of users qualification

Basis of decision on access?
- Evaluation of project quality
- Evaluation of users scientific excellence
- Availability of time slots
- Cost coverage
- Nationality
- Slot availability

Cost coverage?
- User responsibilty
- Provider responsibility
- Shared
- Responsibility of funder of infrastructure
- For academic users
- For industry users

What is provided?
- Instruments
- Consumables
- Technical assistance
- User training
- Animal / patient accomodation
- Experimenter housing

IP?
- Who has the publication rights?
- First author ships?
- Follow-up projects owned by user or provider?
- Patent rights?
- Interdependency with collaborative agreements
- Incidental findings covered?

Any QA for closed projects?
- Are publications recorded
- Do publications make reference to the facility/funder
- Acknowledgement to Euro-BioImaging & facilities

Project Agreement (universities)
- Contracting party university
- Contracting party service provider
- Central agency