Euro-BioImaging ERIC:
Procedure for identification and evaluation of new Euro-BioImaging Nodes

1. Procedure for identification and evaluation of new Nodes

Euro-BioImaging ERIC[1] is a pan-European distributed imaging infrastructure that provides open access to innovative biological and biomedical imaging technologies for European researchers. It is governed by representatives of those European countries and international organisations which have joined the Euro-BioImaging ERIC, i.e. the Euro-BioImaging ERIC member countries and international organisations. The infrastructure consists of a set of geographically distributed but strongly interlinked imaging facilities, i.e. the so-called Euro-BioImaging Nodes. The current Nodes have been selected among the leading European imaging facilities based on an independent evaluation process (see Chapter 2). This document describes the procedure for identifying and evaluating future generations of Euro-BioImaging Node applicants, based on user need for imaging technologies and capacity upgrade, and membership of European countries in the Euro-BioImaging ERIC.

1.1 Benefits of becoming a Euro-BioImaging Node

Applicant facilities that are selected to become a Euro-BioImaging Node will become part of the pan--European Euro-BioImaging ERIC infrastructure. The Euro-BioImaging Node status will confirm the facility's high significance in the European imaging landscape. Nodes will benefit from Euro-BioImaging ERIC's close communication with national and international funding bodies in Europe as Euro-BioImaging ERIC will work to increase awareness for the needs of the imaging community and advocate for the importance of adequate funding for Euro-BioImaging Nodes.

Euro-BioImaging ERIC will provide training opportunities for technology providers and facility staff working at the Nodes. Involvement in the Euro-BioImaging ERIC infrastructure will facilitate interactions of the facility with the international imaging community, strengthen research and technology development at the hosting institution and increase the international visibility of the facility. Furthermore, by accepting Euro-BioImaging users, Euro-BioImaging Nodes will get exposed to new scientific questions and imaging technology applications, which will result in the boost of their own science and technology development.

Euro-BioImaging Nodes will also benefit from the close collaboration of Euro-BioImaging ERIC with the European imaging industry *via* Euro-BioImaging's Industry Board (EBIB), e.g. by having an opportunity to test prototypes and develop new systems together with industry R&D departments.

1.2 Need for including new Nodes for participating in the Euro-BioImaging ERIC

Biological and biomedical imaging are fields that for the last decades have been characterized by continuous technological innovation. Technological advances in e.g. photonics, physics or bioorganic chemistry find their way quickly into technological innovation and applications in imaging. This provides exciting opportunities for research advances across the life sciences and beyond, but also brings along the continuous need for adaptation of new methods and new technologies. For a technology-driven research infrastructure like Euro-BioImaging ERIC, remaining at the technological forefront of the field while guaranteeing reliable imaging access that leads to high quality research, poses challenges.

For this, workflows are needed that identify new technologies early on, assess their relevance to the biological and biomedical imaging field as well as the feasibility of access provision and regulate their inclusion into the research infrastructure (for more details please see "Euro-BioImaging ERIC: Procedure for technology identification and evaluation for inclusion into Euro-BioImaging").

[1] Euro-BioImaging ERIC: Euro-BioImaging European Research Infrastructure Consortium

For a sustainable development, Euro-BioImaging ERIC implements procedures to:

- Continuously evaluate its services at Hub and Nodes (i.e. quality assessment and management procedures);
- Update existing imaging technologies at its Nodes;
- Identify and evaluate new imaging technologies for open access, and regulate their inclusion into Euro-BioImaging ERIC.

As a possible outcome of these procedures for keeping its service portfolio cutting-edge, the Euro-BioImaging ERIC will regularly assess the need for including new Nodes, and for decommissioning existing Nodes, whose services are no longer requested by the user. If the need for inclusion is confirmed, an open call will be published for inviting applications for new Nodes and for upgrade of existing Nodes (e.g. by inclusion of imaging technologies not included in the current Euro-BioImaging technology list). All existing as well as prospective member countries of the infrastructure will be informed timely and invited to participate with their national Node applicants in these calls.

This document describes the procedure for identification and evaluation of new Nodes for participation in the Euro-BioImaging ERIC. The procedure is based on the principles and criteria that guided successfully the identification of successive generations of Euro-BioImaging Nodes, including candidate Nodes during preparatory phase, and Nodes that have joint in the first years of operation of the infrastructure. The procedure for identifying and evaluating new Nodes shall be open, transparent and free from conflicts of interest and will be performed by the Euro-BioImaging Scientific Advisory Board.

1.3 Call for new Nodes

New Nodes shall be identified in open calls published by the Euro-BioImaging ERIC as decided by the Euro-BioImaging Board based on its strategic decision, and evaluated for inclusion into the evolving research infrastructure:

- New Member States are continuously invited to join the Euro-BioImaging ERIC; as members they are eligible to invite their national imaging facilities to submit an Expression of Interest for becoming a Euro-BioImaging Node.
- New imaging technologies are continuously identified and tested for their inclusion into the portfolio of the Euro-BioImaging ERIC, which can lead to the inclusion of new Nodes, hosting the related expertise and technology platform for access provision (see details and procedure in D8.2).
- User requests for certain technologies might become significantly higher than the available access capacity at existing Euro-BioImaging Nodes which will require an increase of Euro-BioImaging Nodes' numbers and/or capacities for the respective technologies.

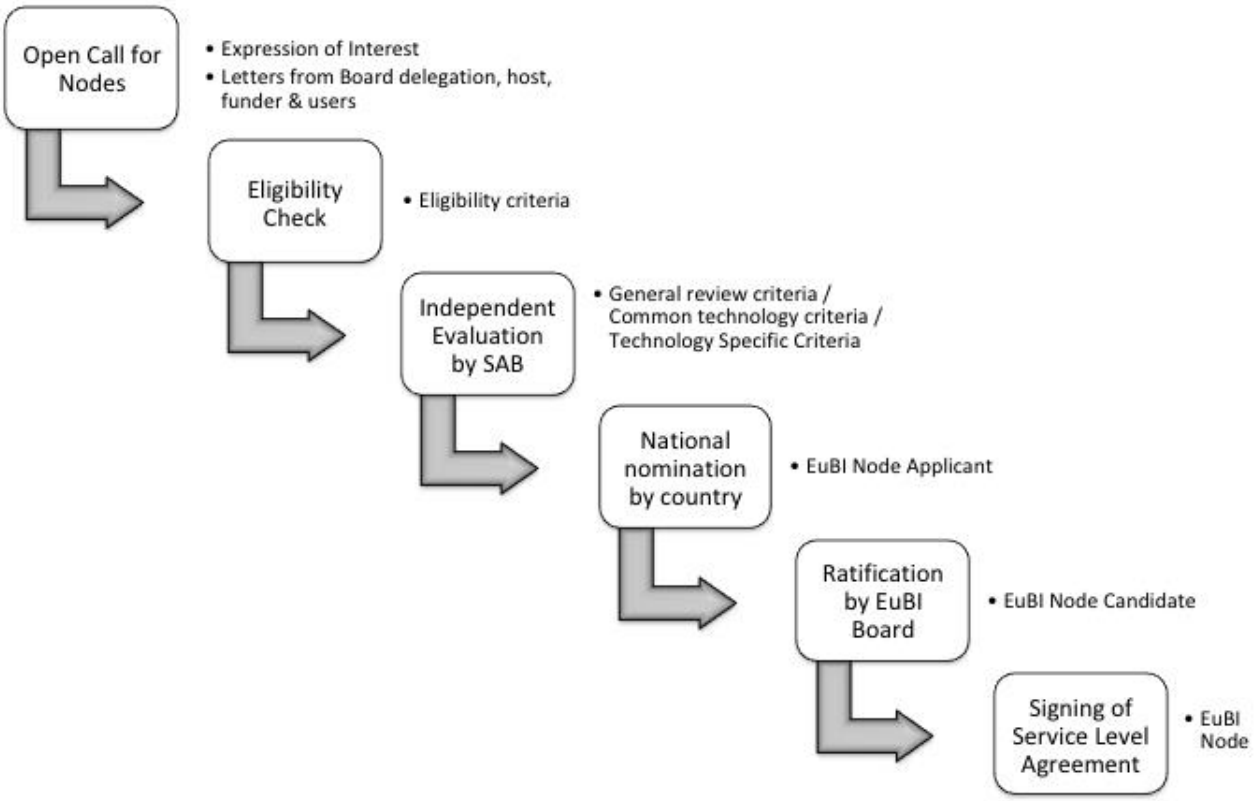

Figure 1: Draft procedure for identification and evaluation of new Euro-BioImaging Nodes for inclusion in the Euro-BioImaging ERIC.

1.4 Node "Expression of Interest" – EoIs

Communication

To prepare for the regular call for Nodes, all Euro-BioImaging ERIC members, observers and prospective member countries are timely informed about upcoming calls, so that they can prepare their national strategy together with national imaging communities and existing national Euro-BioImaging Nodes well in advance, also to align participation in Euro-BioImaging ERIC with national roadmap processes and decision-making. To increase awareness for Euro-BioImaging and the possibility of participation as Node in the research infrastructure, Euro-BioImaging ERIC will continue to build and strengthen its communication activities with the existing Nodes as well as prospective Node candidates, also by direct communication with the existing 25 and additional national imaging communities in ESFRI countries.

Scope of call

Each call will focus on imaging technologies that provide physical open access to the user, and for which:

- User need has been demonstrated (including capacity upgrade for heavily requested technologies at existing Euro-BioImaging Nodes);
- Infrastructure model and service package for technologies have been defined;
- Demonstration of feasibility has been provided by proof-of-concept studies.

Expression of Interest - Preparation and submission

Imaging facilities interested in becoming Euro-BioImaging Nodes will be invited to prepare and submit their Expression of Interest (EoI) to Euro-BioImaging ERIC. This EoI presents the foundation for the identification and evaluation of potential future Nodes and when successful, it will lead to the initiation of a series of negotiations between Euro-BioImaging ERIC, the future Node, national funders and their government. As part of the EoI, applicants will be expected to document their communication with respective funder(s) and to provide a budget plan for the upgrade and operation of the facility for the first 5 years as Euro-BioImaging Node. If requested, Euro-BioImaging ERIC will support the applicant in this communication with the funders.

In addition, the "Expression of Interest" will request information on

- Applicant (contact details)
- Hosting institution of Node
- Scientific expertise and academic environment (incl. track record)
- Technical expertise
- Imaging technologies and all services, which shall be offered for access to Euro-BioImaging user (incl. available instrumentation)
- User Access management and quality management
- Available imaging training courses

Applicants will also be asked to provide

- Demonstration of user need (e.g. letters of interest for access from users)
- Letter of Commitment from Hosting Institution
- Letter of Support from national delegation to the Euro-BioImaging Board
- Letter of Support from Funder

Templates for the Expression of Interest form and all additional required documents will be provided to applicants in due time.

1.5 Independent evaluation of Node EoIs – Criteria and procedure

A) Eligibility criteria

After submission, the Euro-BioImaging Hub Office will check all submitted Expression of Interest (EoI) forms for formal completeness and eligibility. In order to be eligible:

1. The submission of the Expression of Interest is supported by the respective national delegation on the Euro-BioImaging Board in the form of a 'Letter of Support' signed and submitted by the delegation members. A LoS template will be provided on the Euro-BioImaging website.

2. The applicant should come from an ESFRI country.

3. The applicant demonstrates the user need for the proposed capacity by submitting together with the EoI form Letters of Intent (LoIs) from at least 50% of potential Euro-BioImaging users for which open access capacity is planned for the first two years of operation, or from 20 users, whichever is less. A LoI template will be provided on the Euro-BioImaging website. A very brief outline of the user projects in the LoIs shall provide information about the field of science, scientific excellence of the project and its expected impact on the user's current and future research, and user's expertise. Based on all user LoIs received, the applicant will summarize the expected impact of the granted open access to the imaging facility e.g. for the addressed research field, the technological progress, industry relationship etc. The applicant is requested to provide a substantiated estimate of the number of Euro-BioImaging users/projects for the first two years of operational phase. It is expected that a significant fraction of those users will be transnational.

4. The applicant guarantees to provide open access for Euro-BioImaging users to at least 50% of the newly created capacity for Euro-BioImaging ERIC. In addition, the applicant will describe in its *Euro-BioImaging Node Expression of Interest* form how the less than 50% of newly created capacity will be used e.g. for internal users of the institute(s), national infrastructure users, etc. Full degree of capacity utilization, not counting maintenance and downtimes, is expected.

5. The applicant can demonstrate in the Euro-BioImaging Node Expression of Interest form that the single-sited or multi-sited Node will constitute a legal entity, which in its entirety can become a legal contractual partner of Euro-BioImaging ERIC. New models that permit Nodes composed of several different legal entities to act as a single contractual partner of Euro-BioImaging ERIC and ensure that it is legally responsible for the performance of all services offered may be developed.

6. The applicant can demonstrate the dialogue with funders for the participation in Euro-BioImaging ERIC. This dialogue can be demonstrated with a letter from the funder or any other documentation (e.g. a national research infrastructure roadmap with reference to the Node proposal; recently submitted or granted research infrastructure proposal(s) related to the EoI etc.). The letter should confirm that the applicant and the funder have communicated about the Node proposal to Euro-BioImaging ERIC regarding e.g. its context in the national infrastructure and potential funding opportunities for Node construction and operation as part of Euro-BioImaging ERIC. Funders can be any financing body, e.g. international, national or regional funding agency, university board, charity foundation, government etc. Funding should cover upgrades and building of physical facilities, but also the required personnel and other costs for the first 5 years of the Euro-BioImaging Node operation.

EoIs with minor parts missing will be invited for completion within a short deadline. All eligible EoIs will be forwarded to the Chair of the Euro-BioImaging Scientific Advisory Board (SAB) for independent evaluation.

B) General review criteria for independent evaluation

Eligible EoIs will be evaluated by the SAB against *General Review Criteria* for applications for Euro-BioImaging Nodes as well as against *Technology Specific Review Criteria* (see next paragraph below). The *Euro-BioImaging Node Expression of Interest* template will address all criteria based on which EoIs will be reviewed, and support the interested imaging facilities to prove their excellence and provide all information necessary to facilitate the review process, including a clear plan for the construction, operation, cost and legal model of the future Euro-BioImaging Node.

1. The applicant describes the scientific and technical excellence of the existing / planned imaging infrastructure. For already operating facilities, the applicant should submit all relevant publications from the last five years demonstrably resulting from science enabled by the infrastructure of the applicant, highlighting the five most important ones.

2. The quality and field of the academic environment is described by indicating in which scientific fields the applicant has proven track record in e.g. structural biology, cell biology, neurobiology, preclinical/animal research, clinical research and clinical studies, (for each field, list up to five most important publications of the last five years). The institution hosting this expertise may attach a letter of commitment stating "… if APPLICANT will be selected as Euro-BioImaging Node this institution will provide its expertise in SCIENTIFIC FIELD and related infrastructure (e.g. animal facilities,) for supporting the Euro-BioImaging users of the future Euro-BioImaging Node." A LoC template will be provided on the Euro-BioImaging website.

3. The geographic coverage of the existing/planned infrastructure is described in the national and international context.

4. Maintenance and update. The applicant lays out a sustainable strategy for keeping the imaging facility cutting-edge: therefore, the application shall include a brief description of the maintenance and update plans for the first 5 years of operation.

5. The applicant demonstrates European significance, e.g. by providing access to at least one innovative imaging technology (as listed in the open call) or area of biological and biomedical research for which their expertise and service is unique or outstanding in the European imaging facility landscape (e.g. imaging for specialized functional animal models). The applicant is requested to describe its national significance, e.g. by its role in or dialogue with the national imaging initiative if such an initiative exists for the respective imaging community and country. If no initiative exists, the applicant may lay out a plan to establish one. If the applying facility resides in a country that already hosts a Euro-BioImaging Node, the relationship and/or complementarity with the existing Node(s) should be described.

6. The applicant demonstrates in detail how the proposed single- or multi-sited Node will integrate all necessary user access and service aspects into a single package, so the user is served the imaging technolog(ies) in the best possible way. The applicant provides a detailed strategy on how the Node will meet Euro-BioImaging user expectations regarding transparent, instant and open access to instruments and services including rapid evaluation of technical feasibility and a single-point of contact at the Node. The applicant will describe in detail the foreseen user access management as well as all relevant aspects of administration and coordination of Node construction and operation.

7. For already operating facilities, the applicant is requested to provide numbers demonstrating the use of the currently available capacity and the fraction of external users served so far, if any. Applicants should have established or provide a plan for a system for quality assurance (covering functionality of instrumentation, services and procedures) and quality control (covering monitoring of user satisfaction and project success in terms of published results).

8. The applicant describes and demonstrates its capacity in user training in imaging technologies (e.g. number of training activities, number of participants, and list of training activities in the last three years, outlook of training activities within the next two years).

9. If investments in the Node have already been made or are anticipated, the applicant is invited to provide respective evidence e.g. Letter of investment from funders. The degree of funding commitment by national funders will be considered in the review for applications.

To summarize, the ***General Review Criteria*** can be defined by the following sub-headings that should be addressed in each application:

- Scientific and technical excellence of the existing / planned infrastructure
- Quality and field of the academic environment
- Geographic coverage of infrastructure
- National and European significance of the technology provider
- Plans for maintenance and update of the facility
- Plans for user access, training and provision of service
- Systems for quality assurance and quality control
- Availability of already granted investments

C) Common Technology Review Criteria

The *Technology Specific Review Criteria* refer to the resources that are needed to enable user access to specific imaging technologies in Euro-BioImaging Nodes, and for example, these address the importance of having one of the following resources for a given technology:

- Wet Lab
- Cell culture facilities
- Probes
- Animal facilities
- Other model organisms
- High biological safety level
- Workstations
- Data storage
- Accommodation
- Methodological setup
- Facility induction
- Technical assistance to run instrument
- Image acquisition
- Image processing and analysis
- Project planning

For a detailed description of these resources including the ranking per technology type, please see the *Common Technology Review Criteria* for biological, molecular, and medical imaging technologies.

D) Technology Specific Review Criteria

In addition to the eligibility, general and common technology criteria, unique additional requirements for individual technologies might be addressed by "Specific Technology Review Criteria", for providing efficient access to these technologies. Examples of such technologies in the first open call were multi-modal imaging technologies, high-throughput microscopy for systems biology, correlative light and electron microscopy, super-resolution microscopy, and functional imaging. See relevant documents on the Euro-BioImaging website.

E) Evaluation procedure by SAB

Each Expression of Interest shall be evaluated by SAB members based on the four sets of criteria described above. Final decision on the evaluation of all submitted EoIs and harmonization of EoI evaluations across technology domains and different European regions shall be done by the whole SAB, facilitated by its Chair, during a physical meeting. SAB members will jointly discuss the EoIs evaluated by them and agree on the uniform outcome. This ranking will present the basis for the overall recommendation on the application. The SAB shall propose their final ranking using the following general categories

- Highly recommended EoI
- Recommended EoI
- EoI requires minor improvement
- EoI requires major improvement
- EoI not suitable

Node applicants that are requested to provide minor or major improvements by the SAB, will be assessed by the Euro-BioImaging ERIC's executive management and the SAB Chair to determine if these improvements will have been addressed satisfactorily, before forwarding nominated Node applicants to the Euro-BioImaging Board for ratification (see next paragraph). Timelines for requested improvements will be set by the SAB based on the level of needed improvements.

1.6 National nomination and Euro-BioImaging ratification of recommended EoIs

Based on the successful recommendation of the SAB, Euro-BioImaging ERIC members will be invited to nominate their national Euro-BioImaging Node applicants to the Euro-BioImaging Board for inclusion into the Euro-BioImaging ERIC. After funding for Node implementation is secured (if applicable), and the country has joined Euro-BioImaging ERIC in case of a new member state, nominated Node applicants will be ratified by the Euro-BioImaging Board, to become Euro-BioImaging Nodes Candidates. Finally, the successful Node Candidate will be invited by Euro-BioImaging ERIC to jointly draft and sign the service level agreement with Euro-BioImaging ERIC. After signature, the applicant will be officially recognized as a Euro-BioImaging Node.