Euro-BioImaging
Preparatory Phase II Project

D7.2 Report on the set-up of coordination tools for user and CFS access to training activities, including procedures for user application, course evaluation, training sites certification

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Task leader	Daniel Choquet
Contributors	Daniel Choquet (WP7 task leader) Caroline Thiriet (WP7 administrative manager)

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Abstract

With the aim of setting the general coordination of the identified Euro-BioImaging training activities for operation, Work Package 7 presents the procedures for the establishment of the application, evaluation and certification procedures related to the set-up of the training course portfolio for user and core facility staff.

The present report constitutes the deliverable D7.2 of the Euro-BioImaging Preparatory Phase II project.

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1. Introduction and framing of Deliverable 7.2 within Task 7.1 and Task 7.2

The objective of Work Package 7 (WP7) is to prepare the general coordination of the identified Euro-BioImaging (EuBI) training activities for operation, in particular the set-up of the training course portfolio for user and core facility staff (CFS), and the establishment of the related application and evaluation procedures.

These procedures will be the keystone of a coordinated, modular, and standardized multi-level training portfolio of courses, ranging from basic courses to top-level scientific workshops in different imaging technologies. Also, a system of criteria for training activities is being developed and introduced to promote high quality training activities in biological and medical imaging.

To this aim, WP7's main objective is divided into two dedicated tasks - 7.1 and 7.2- that prepare the general coordination of user and CFS training, respectively, in EuBI (Deliverable 7.2).

Task 7.1 prepares the technical tools for coordination of optimal user access to the EuBI training activities (including procedures for user application and course evaluation procedures), and a procedure for checking user's competencies in an online assessment for identification of suitable training sessions, e.g. before user access takes place at the EuBI Node.

Task 7.2 extends and completes the work done in Task 7.1 with the preparation of the general coordination of core facility staff training in EuBI. The training of CFS members in terms of latest developments in imaging technologies, facility management and soft skills is fundamental, as they will be the main trainers of and support for user and the broad scientific audience. In this task, the WP7 partners - in close collaboration with WP3, WP5, WP8 and EuBI Industry Board - will set-up the EuBI portfolio of core facility staff (CFS) training courses in general and emerging imaging methods at EuBI Nodes and centers specialized in imaging technology development, establish the EuBI procedure for determination of topics and frequency of training on emerging technologies (see procedure presented in WP7 D7.3), set-up the EuBI portfolio of CFS training courses in lifelong vocational training (covering business processes of core facilities), and set-up a CFS application procedure as well as course evaluation and training sites certification.

WP7 proposal for the general coordination of Euro-BioImaging training activities is built on the results and deliverables from Preparatory Phase I, in particular the EuBI PPI WP13[1], as well as the strong experience of the WP lead partners in training. It is also based on best practice of currently available training activities in biological and biomedical imaging and on existing quality assurance systems for higher education and continuous professional development.

A first set of procedures and criteria has been presented and discussed during the EuBI WP7 CFS Meeting in Seignosse in September 2016 (see D.7.1[2] and the minutes of the meeting in annex). The main outcome of the discussion around this first draft was to obtain feedback from the CFS community, WP7 members, WP5 members and Euro-BioImaging Industry Board members, in order to ensure the correct alignment with the existing best practices adapted to EuBI general infrastructure necessities.

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[1] Related deliverables from the PPI WP13: D13.2, D13.3, D13.5, D13.6
[2] Ref. Ares(2016)3569986 – 18/07/2016

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2. Objective

The aim of this report is to present the set of coordination tools for user and CFS training programmes in biological and medical imaging within the Euro-BioImaging framework.
The proposal covers operating procedures for the implementation of the training platform and quality requirements for training programmes in biological and medical imaging that have been discussed and improved during the EuBI WP7 CFS Meeting in Seignosse.

The following procedures will be presented:
- Training sites and training courses identification;
- Training site and training courses evaluation;
- Training course certification;
- User application to a EuBI training activity.

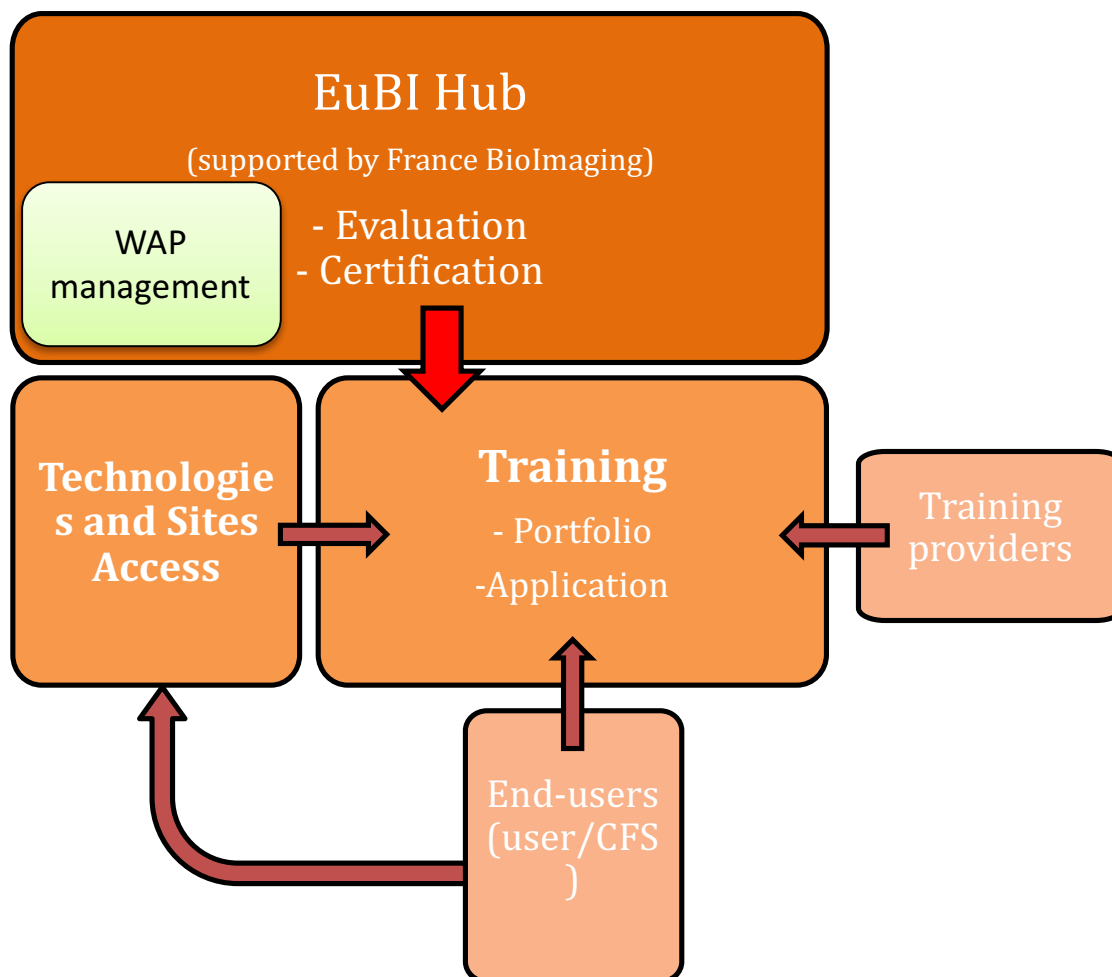## 3. Training platform coordination overview (*figure 1*)

The future EuBI training activities will be coordinated by the EuBI Hub with support from France BioImaging, and the training portfolio and training access tools will be hosted on the EuBI Web Access Portal.

According to the basis set by WP13 and WP12 during the Preparatory Phase I, the Web Access Portal will be used by the EuBI Nodes to submit new training activities applications. For this purpose, a separate course/training application submission page will be created. To this aim, a close coordination with WP5 will take place in the second part of the Preparatory Phase II. In the meanwhile, WP7 used the Survey Monkey software (Business Associate Agreement signed between Survey Monkey and Turku BioImaging as a representative of EuBI) to conduct surveys on the existing training offer in order to provide a first list of training sites and training courses for the future EuBI training portfolio (see D7.4 and D7.5).

The evaluation and certification of the training activities offered through the EuBI platform will be conducted by the EuBI Hub. The evaluation and certification procedures as well as the criteria for both procedures will be detailed further on in this report.

Concerning the application procedure, end-users will have the possibility to apply to a training course directly through the training portfolio or through the "Technologies and Sites Access Application" when they also are Euro-BioImaging users; the good knowledge of an imaging modality being a prerequisite for assuring full benefits of the open access to imaging instrumentation.

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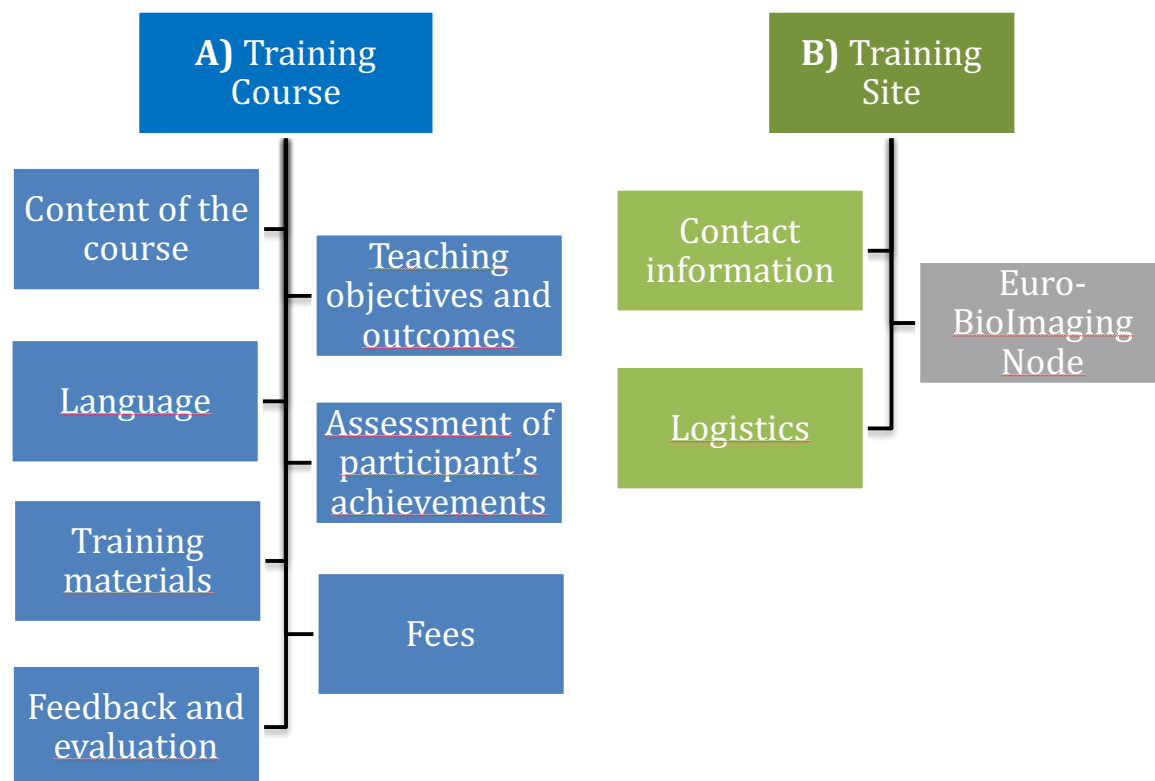*Figure 1 - Training platform coordination overview.*

4) Training site and training course identification and evaluation

In order to build the EuBI training portfolio, WP7 had to define a set of operational rules to identify and evaluate the training sites providing the training activity. As pointed out by the PPI WP13 (D13.2), these rules have to be sufficiently flexible and adaptable to different types of training activities and a minimum set of requirements for training activities has to be defined to allow users to get transparent and comparable basic information on a training activity.

The criteria retained for the identification and evaluation of the training courses (*figure 2*) cover both the specific training requirements (A) and the institutional aspects of the training provider (B).

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Figure 2 - Criteria for the identification and evaluation of the training courses.

These criteria were used as basic information to be provided by the training site in the training site and training course surveys conducted by WP7 between April and July 2016, and will be used when implementing the online training application form on the Web Access Portal.

5) Training site and training course evaluation and certification

a) Evaluation and certification

The evaluation of training activities will be coordinated by the EuBI Hub. WP7 designed a proposal for an evaluation procedure that can be adjusted to be part of the future overall EuBI governance structure.

Based on the recommendations of the PPI WP13, WP7 proposed the implementation of a two-pathway evaluation system with (1) an evaluation and certification process for training courses applying for the "EuBI stamp of excellence" and (2) a light evaluation process for training

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activities to be deposited and advertised via the searchable general training course repository hosted on the EuBI Web Access Portal.

- (1) "EuBI stamp of Excellence": training providers will have the opportunity to obtain this recognition for the training activities presented through EuBI when meeting all the criteria. This recognition indicates a high quality training activity as regards to the contents and organizational aspects, and the training activity will be identified as a EuBI training course.

    (2)"General training course criteria": to be listed and advertised on the EuBI Web Access Portal, it is mandatory that the training activity registered by the provider fulfils this basic set of criteria. It defines the identity and describes the relevant content of a training activity, and links directly to the training provider.

Both sets of criteria will be described in details in the section 1.b).

This two-pathway evaluation system will determine the procedure implemented for the evaluation and certification of the training activities to be included in the EuBI training portfolio (*Figure 3*).

The training course and training site application will be submitted by the candidate provider through the Web Access Portal and evaluated by the EuBI Hub. Note that a training site application requires a simultaneous training course application. During the application process, the provider will have the option to request the inclusion of the training activity in the "General training course" repository or the inclusion in the EuBI excellence training course list with the "EuBI stamp of Excellence" certification. Once the application is submitted, the request will be evaluated accordingly. If the criteria are not met, the EuBI Hub will ask for corrections and the provider will have the opportunity to submit a revised application.
If the "General training course criteria" are met, the training activity will be included in the "General training course" repository and advertised on the Web Access Portal. If the "EuBI stamp of Excellence" criteria are met, the training activity will be included in the EuBI training course list and clearly identified in the training portfolio with the "EuBI stamp of Excellence". Both the "general training courses" and the "EuBI stamp of excellence courses" will be searchable through the WAP by the users.

For the "EuBI stamp of excellence courses", the necessity of a reporting procedure to the EuBI Hub through the Web Access Portal is pointed out in order to regularly assess the quality of the training offer and ensure a constant portfolio updating. This reporting procedure will be critical for the EuBI Hub to be able to continuously ensure high quality course content.
For the "General training course criteria", a light reporting procedure to the EuBI Hub through the Web Access Portal will be put in place to ensure a constant portfolio updating.
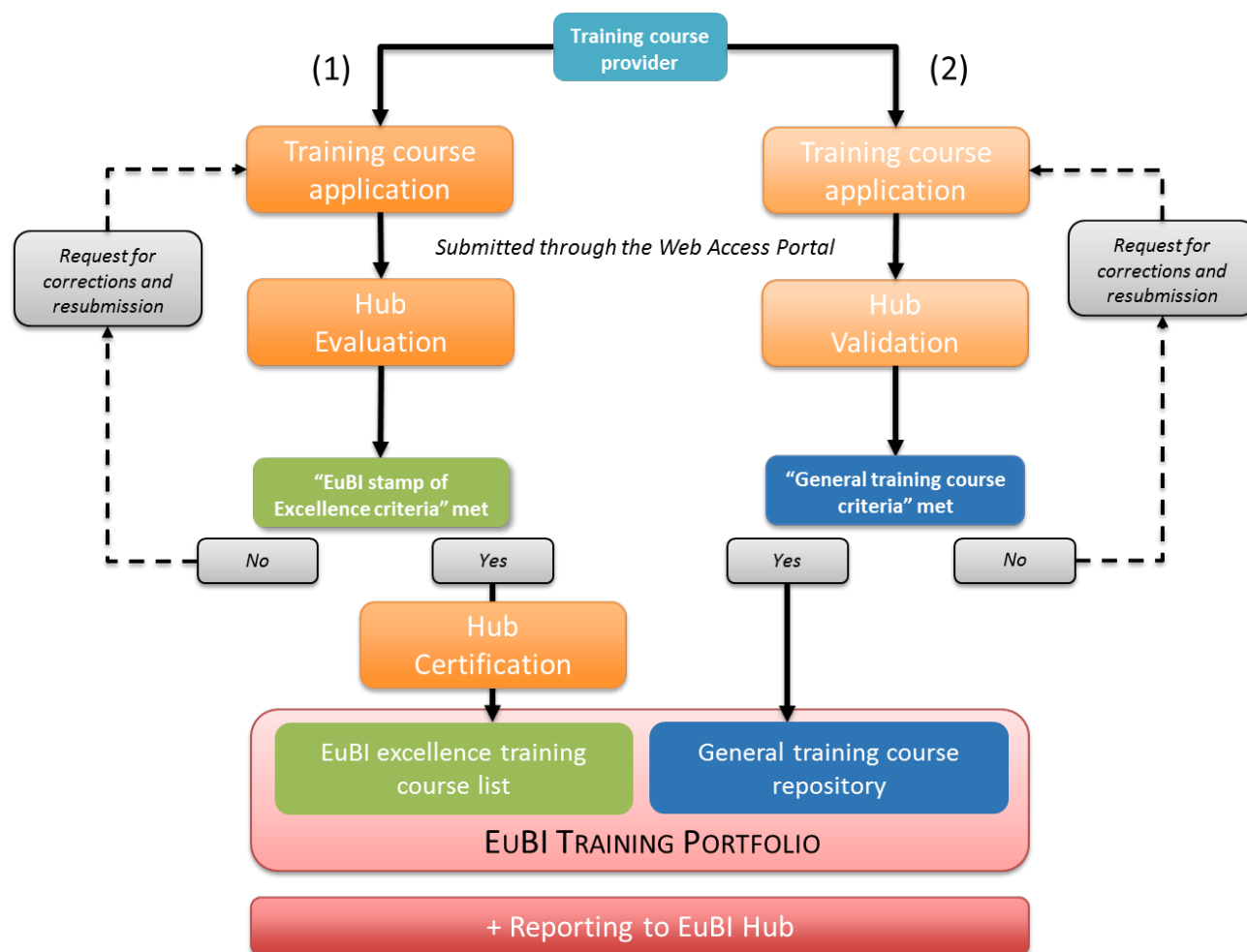
Figure 3 - Training course evaluation and certification procedure.

b) EuBI Criteria

During the EuBI WP7 CFS meeting in Seignosse in September 2016, a list of criteria based on the proposal of the PPI WP13 (D13.2) has been discussed and improved in order to establish the basis of the EuBI training quality assessment system and define the requirements behind the two-level evaluation system presented in the section 1.a).

These criteria are summarized in the following table. For each criterion a description of different options and their eligibility for each level of the evaluation system is indicated.

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CRITERIA	EuBI STAMP OF EXCELLENCE	GENERAL TRAINING COURSE	NOT ELIGIBLE
CONTENT OF THE COURSE	Course covers imaging methodologies served by EuBI technology list	Course covers other areas related to imaging as well as skills	Content of the course does not have any relation to imaging
DEFINITION AND TRANSPARENCY OF THE ACCESS RULES	Open access to the course + compliance with EuBI access rules: Equally open to international participation and actively advertised	Restricted access to the course or no active advertisement	No information on access rules available in course description
LANGUAGE	Course is taught in English	Course is taught in English	Course language is not English
PREDEFINED SET OF TEACHING OBJECTIVES AND OUTCOMES	Course has a comprehensive description: - topics and skills description, - quality of the program - quality of the teachers	A short description of the course is available	No description of the course is available
APPLICATION OF A FEEDBACK OR EVALUATION SYSTEM FROM PARTICIPANTS AND TEACHERS	A feedback system is implemented and available to EuBI upon the course completion An evaluation form is implemented (template)	No feedback system is implemented	
ASSESSMENT OF THE PARTICIPANTS' ACHIEVEMENTS	Formative or summative assessment is implemented	No assessment is implemented	
VENUE WITH SUITABLE TRAINING INFRASTRUCTURE (Training facilities, accommodation, competences of support staff)	Venue offers all necessary infrastructure for training	Venue offers all necessary infrastructure for training	No information about the venue of the course available
AVAILABLE AND UPDATED TRAINING MATERIALS	Up-to-date training materials are provided for participants		No training materials available for participants
EURO-BIOIMAGING NODE	Provider is an EuBI Node*		Provider is not an EuBI Node*

* At the onset of EuBI, only Nodes will be considered, then the call will be expanded to other sites, provided criteria are met.

6) Procedure for user application to EuBI training courses

As previously explained in the training platform coordination overview, there will be two ways to find and select a EuBI training activity: directly through the training portfolio or through the "Technologies and Sites Access Application" when knowledge and/or training is a prerequisite to access the specific imaging equipment.

In the case of an application through the training portfolio (*Figure 4*), the user will start the application procedure on the Web Access Portal with the training or technology finder function. Then, the "user competency profile" will guide the applicant to find the most suitable training. Also, the training activities awarded with the "EuBI stamp of Excellence" will be clearly identified in the training portfolio.

Once the training selection is done, the user will have to submit his application following the procedure established by the provider of the training activity (i.e. using either the provider access tools, or support offered by the WAP, see below). If the application is eligible and complete, it will be forwarded for evaluation to the local training office in charge of the review at the site delivering the training. If needed, the local training office in charge of the review at the site will request further information and the resubmission of the application. If the application is complete and accepted, the local training office in charge of the review at the site will notify the user, the EuBI training site and the EuBI Hub for follow-up purposes.

While we expect that at the beginning of EuBI most training activities will be organized at and by EuBI Nodes and their faculty, we envision that as the EuBI research infrastructure develops and defines its tasks, the EuBI Hub will quickly provide support for organization and online access to training activities through the Web Access Portal. Thus, the EuBI Hub will also provide the possibility for online application and review functionality for "EuBI stamp of Excellence courses".

A functionality will be developed through the WAP to help Euro-BioImaging users who need to take a training course before accessing the technology. In this case, the Euro-BioImaging user will be informed about required expertise for a specific imaging modality during the access procedure. Good knowledge of an imaging modality being a prerequisite for assuring full benefits of the open access to imaging instrumentation, PPI WP13 suggested implementing this feature into the Euro-BioImaging user access procedure (D13.3). Potential users will get information on which knowledge and/or training is a prerequisite to access the specific imaging equipment at the very beginning of the Euro-BioImaging access procedure after they select a technology in the "Euro-BioImaging technology finder". If the knowledge of a user is not sufficient, the access portal will display a list of suitable courses listed in the Euro-BioImaging training portfolio. E-training resources could be particularly adapted to ensure that the user receives the necessary knowledge and skills in time before accessing the technology (The implementation of a virtual platform with e-training resources on the Web Access Portal will be further detailed in the report of the Deliverable D7.6).

This application procedure will be based on the interoperability between the user access application tool and the training portfolio database. The creation of a "user competency profile" for each imaging modality for which an open access is offered within Euro-BioImaging infrastructure has been suggested to ensure the connection between both Web Access Portal

services. This profile should clearly describe which competencies users should possess before their application for access to a facility in order to help with the definition of a tailor-made training list. To this end, the "user competency profile" should cover the following aspects: imaging technology, sample preparation, microscopy (theoretical knowledge and implementation), data analysis.

Figure 4 - Procedure for user application to training courses.
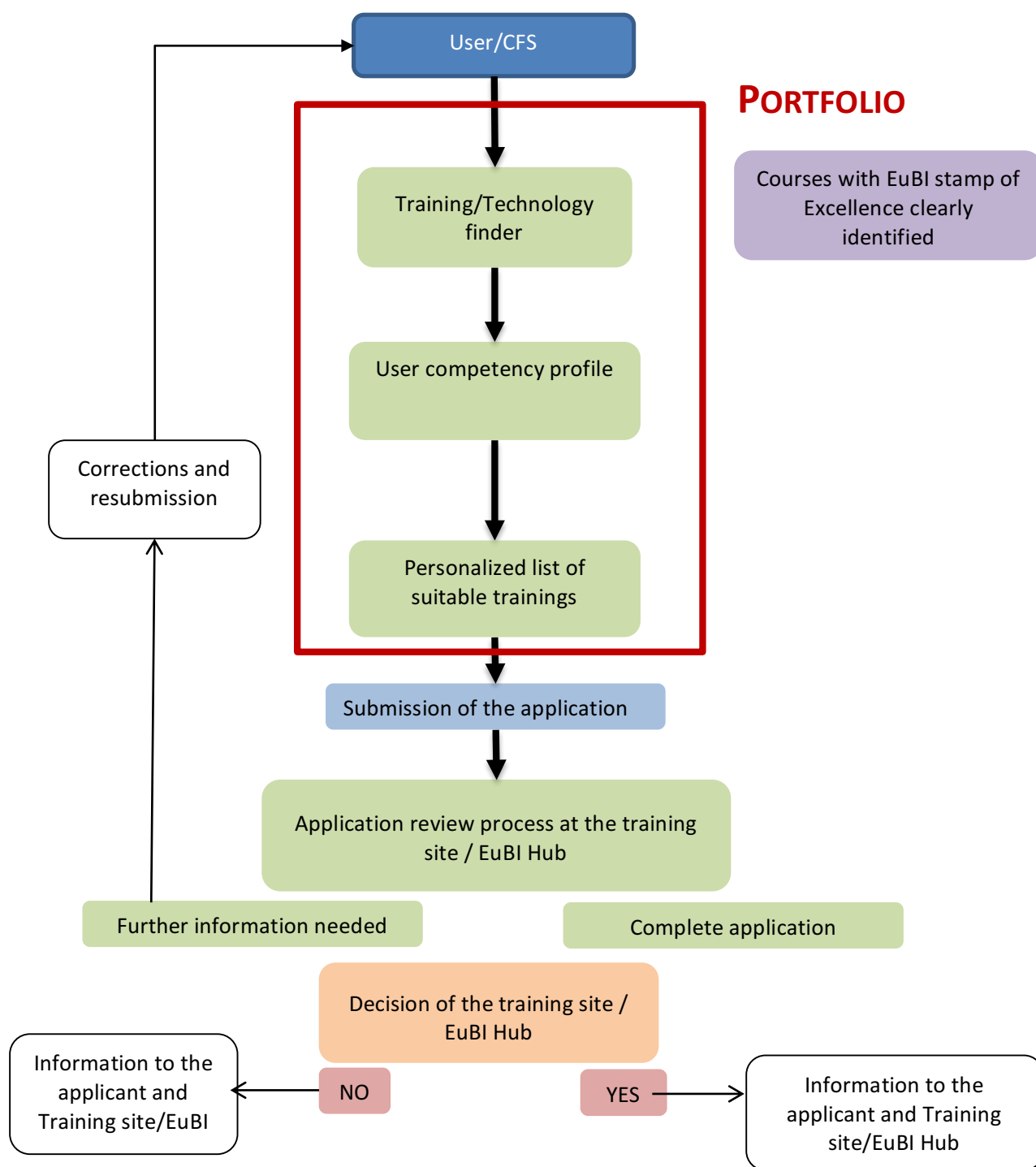
7) Conclusion

The operating procedures for the implementation of the EuBI training platform and the quality requirements for training programmes in biological and medical imaging presented in this report fit into the EuBI strategy that strives to create a European coordinated and modular system of training in biological and medical imaging.

Besides the evaluation and the certification of the training programmes in biological and medical imaging, the requirements presented in this report should also serve as guidelines for providers of training activities in biological and medical imaging in the process of designing, upgrading and enhancing training activities.

Moreover, to complete the evaluation and certification procedure, a EuBI quality assessment strategy should be defined in order to give a better framework to the "EuBI stamp of Excellence" and thus ensure the quality of the training activities offered through EuBI.

Finally, this report draws up a first requirement list for the addition of the training portfolio to the Web Access Portal and points out the necessity of interoperability between the different Web Access Portal services. The plans and details of the implementation described in this document are general guidelines that will be finalized as the work with WP5 progresses.

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Annex 1: Minutes of EuBI PPII WP7 CFS meeting, September 30th, 2016, Seignosse

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Draft Minutes

Euro-BioImaging WP7 CFS Meeting

Seignosse, France

September 30th, 2016

Programme

9 :00 – 9 :15	Welcome - Introductory session – *Daniel Choquet* Objectives of the upcoming activities
9 :15 – 10:00	Existing training activities – *Caroline Thiriet* • Presentation of the results of the EuBI WP7 surveys: *First list and description of identified sites for EuBI user and CFS trainings (D7.4) based on the survey* *First list of identified CFS training courses (D7.5) based on the survey*
10 :00 – 10 :30	Implementation and coordination of the EuBI training activities (D7.2) – *Claire Herzog* • Proposal for: - Pre-requisites for inclusion in first listing of EuBI TS and TC - course evaluation procedures and certification (EuBI), - training sites certification, - user and CFS access application procedures,
10 :30 - 11 :00	Discussion – Coffee Break
11 :00 - 11 :30	Identification of trainings on emerging technologies (D7.3) – *Timo Zimmermann* • "Procedure for the implementation of training of CFS on identified new emerging imaging technologies" WP8 (D8.1)

11 :30 - 12 :00	Identification of trainings on emerging technologies (D7.3) - *Christoph Thumser* • "View from the Industry Board"
12 :00 - 12 :30	Discussion
12 :30— 13 :30	Lunch break
13 :30 — 14 :00	Implementation of an e-training program (D7.6) – *Fabrice Cordelières* • Definition of topics and identification of milestones • Discussion and proposal for a roadmap
14 :00 - 14 :15	Discussion
14 :15 - 15 :15	Parallel sessions: 1 – Construction of a competency profile (*Fabrice Cordelières*) 2 – Criteria for training certification (*Silvio Aime*) 3 – Emerging technologies (*Timo Zimmermann*)
15 :15 — 15 :45	Summary of the parallel sessions
15 :45 — 16 :00	Closing session

Participants

Silvio Aime, CNR, Italy, EuBI PPII WP4

Jordi Andilla, ICFO -The Institute of Photonic Sciences, The Barcelona Institute of Science and Technology, Spain

Ales Benda, Advanced Light and Electron Microscopy Multi Modal Multi Sited Node, Prague, Czech Republic, Czech Republic

Daniel Choquet, France BioImaging, France, EuBI PPII WP7

Genevieve Conejero, France BioImaging, France

Fabrice Cordelières, France BioImaging, France, EuBI PPII WP7

Vicky Diakou, France BioImaging, France

Orestis Faklaris, France BioImaging, France

Claire Herzog, France BioImaging, France, EuBI PPII WP7

Eija Jokitalo, Finnish EuBI node, Finland

Frauke Leitner, EuBI Bio-Hub Candidate, Germany

Sébastien Mailfert, France BioImaging, France

Sébastien Marais, France BioImaging, France

Alzbeta Marcek Chorvatova, Slovak BioImaging Network (SkBIN), Slovakia

Cédric Matthews, France BioImaging, France

Perrine Paul-Gilloteaux, France BioImaging, France, EuBI PPII WP7, WP6

Inga Pukonen, Finnish EuBI node, Finland

Jean Salamero, France BioImaging, France, EuBI PPII WP7

Paula Sampaio, PPII WP7 member / Future PPBI node candidate, Portugal

Beatrice Satiat-Jeunemaitre, France BioImaging, France

Stefan Terjung, Advanced Light Microscopy Facility, EMBL, Germany

Corinne Tessier, France BioImaging, France

Caroline Thiriet, France BioImaging, France, EuBI PPII WP7

Christoph Thumser, Euro-BioImaging Industry Board, Germany

Marc van Zandvoort, Maastricht University, the Netherlands

Timo Zimmermann, SLN@BCN, Spain, EuBI PPII WP8

Welcome – Introductory session

After a welcome note by Jean Salamero, Daniel Choquet takes the word and welcomes the meeting's participants, introducing the meeting as the Euro-BioImaging Preparatory Phase II (EuBI PPII) CFS meeting.

Daniel Choquet presents the objectives, activities and deliverables of WP7, and highlights the different upcoming activities of the CFS meeting.

1. Existing training activities – Caroline Thiriet

See Annex 1

Caroline Thiriet presents the outcome of the Training Site and Training Course Surveys conducted by the EuBi PPII WP7 from May 29th to July 15th, 2016 and reminds the objectives of both surveys:

- Identification of the training sites for user and CFS training
- Identification of the training courses to be offered through the EuBI portfolio
- Creation of a EuBI training portfolio

Both surveys have been implemented using the Survey Monkey tool.

The analysis of the data gathered through both surveys allowed to identify 30 training sites, representing 17 Nodes Candidates (including the Brain Imaging Network of Portugal) in 11 countries. Also, 59 training courses have been registered, representing 11 Nodes Candidates (including the Brain Imaging Network of Portugal) in 8 countries.

The information extracted from the results of the surveys draw a profile of the EuBI training courses to be offered. Most of the trainings registered are dedicated to biological imaging (90%), teaching hard skills (83%), are aimed at users (43%) and are basic level courses (49%).

The results of the surveys also show that the training sites are contemplating to implement new training courses over the next year.

Then, several problematic issues are presented:

- The difficulty to identify medical imaging training courses
- The difficulty to identify e-training courses
- The lack of virtual platforms devoted to online/e-training
- The fact that not all the training registered are taught in English
- The need of training activities on advanced level when the offer is more important on basic level.

Finally, the different list of identified training sites and training courses are presented.

Discussion:

The idea of a new survey to identify the needs in training in order to complete the information gathered through the Strategic Inventory Map in 2011 (PPI WP13) is brought up. Daniel Choquet mentions that the identification of needs was not defined as a task of the PPII WP7 at this stage of the portfolio

construction. In the future, the assessment of the needs should be part of the tasks of the EuBI training office to insure that the training offer meets the needs of the users.

The need for the core facility staff to be trained on a higher level and the importance of the teaching of soft and generic skills are pointed out.

In order to insure the representativeness of list of training courses identified through the surveys and the real training offer, it is suggested to send the surveys not only to the Heads of Nodes Candidates and core facility staff but also to the research teams and Industrial Board members. Timo Zimmermann adds that it could be an efficient way to identify the emerging technologies.

Silvio Aime stresses the importance to address the problem of the medical imaging training representativeness in the EuBI training portfolio. It is important to see whether it shows a lack of existing training activities in medical imaging or a lack of reactivity from the Nodes Candidates.

Silvio Aime adds that there is a huge amount of training in medical imaging, and that they are currently working on a e-repository. This e-repository could be linked to the EuBI training e-repository.

Also, it is suggested that a shadowing program could be a way to compensate the lack of medical training courses registered.

2. Procedures and criteria – Claire Herzog

See Annex 2

Claire Herzog presents a first list of criteria for the evaluation and certification of the training sites and courses to be included in the EuBI portfolio. Claire indicates that this first list is based on the work previously done by the PPI WP3. The different criteria will be discussed during the upcoming parallel session.

A two-level evaluation system is presented:

- Registration in the EuBI training portfolio
- EuBI stamp of excellence

For each level of evaluation, a list of criteria is presented.

Claire also presents a proposal for the different procedures to be implemented in order to coordinate the EuBI training activities:

- evaluation and certification procedures
- procedures for user/CFS application

Discussion:

The first point brought up is the definition of open access and restricted access criteria. Some training courses are restricted to a specific community, e.g. CNRS in the case of France.

A general comment shared by all participants is that the criteria of "Being an EuBI Node" should not be necessary for the EUBI stamp. And the question about including sites that are not nodes in the EuBI portfolio is brought up.

Then, the idea of the creation of "training nodes" is discussed, with the question of the preparation of a special call for training nodes to apply. Silvio Aime adds that some specialized nodes could be developed in order to increase visibility.

Silvio mentions that the visibility of the sites could be incremented through the certification process.

Timo Zimmermann stresses out that this certification process should include the emerging technologies.

> ➢ Several criteria will be discussed during the parallel session and the input will be included in the final report.

There is a difference between the quality of the training and the quality of the site, thus the certification system should take into account both. It is the task of the Hub to define a quality control on the course activities. It is pointed out that the ISO label is not necessary and should not be considered as an EuBI criteria.

Regarding the procedures for the EuBI certification, the criteria of the reporting to the Hub after the training activity took place is pointed out as a key topic. It should be a requisite to give a feedback after the training activity is done. However, a third category without feedback should be added in order to be more inclusive and not leave down what is available.

Christoph Thumser mentions that in the case of the Industry Board quality seal, the measure of the quality of the training activity is done through the measure of key performance indicators over time.

3. Identification of trainings on emerging technologies - Timo Zimmermann - WP8

See Annex 3

Timo Zimmermann summarizes the objectives of the PPII WP8 "Preparation of identification of new technologies", which are to:

- Develop the procedure for identification and evaluation of new imaging technologies for which a need for user access via EuBI exists,
- Develop the procedure for identifying out-dated technologies in EuBI for de-commissioning.

He then presents the procedures for the implementation of core facility staff training on identified emerging imaging technologies proposed in the preliminary version of the deliverable D8.1.

Distinct training formats offer different levels of exposure that allow a progressive familiarization with the new technology. The following formats can be applied to core facility staff training:

- Seminars: These can provide an initial familiarization with a new method, but lack the possibility of applied training and experience.

- Workshops and training courses: These provide a deeper understanding and practical expertise of the method in a standardized and coordinated manner

- Advanced technology training: More individualized activities aimed at a small group of participants to make them experienced users.

- Training stays at expert sites: These provide the most applied form of training under realistic working conditions.

The categories of new imaging technologies that affect the training strategy are: a new imaging method based on existing instrumentation, a new imaging method based on new instrumentation, an imaging technology can be offered in one or a few existing Euro-BioImaging nodes, an imaging technology is offered in a newly created node, a method can only be offered at dedicated sites, a technology is offered by commercial providers, a technology is only available on custom-built instrumentation.

> ➢ These categories will be discussed during the parallel session and the input will be included in the final report prepared by WP8.

Two training procedures for new imaging technologies are presented:

- The new technology can be distributed over many sites inside Euro-BioImaging,

- The new technology is incorporated only at specific sites. For very dedicated instrument-based methods, access will be limited by the instrument and expertise availability not by the knowledge about the method.

For each training procedure, different levels of expertise are established: initial, practical and advanced.

Timo mentions that an input from the medical imaging point of view will be needed to complete this framework. Specialized nodes could be identified.

The need to provide a defined standard of expertise and harmonized training modules will be challenging in the case of the emerging technologies that keep developing and need frequent assessment of the state of the art and a subsequent adaptation of the training activities. This could initially be done or aided by regular (annual) meetings of a technology committee (watch board) consisting of experts from academia and technology companies and core facility representatives, aimed at scouting for emerging technologies.

Timo adds that the final procedure will be affected by the input collected during the Leica Super-Resolution User Club, the EuBI WP7 CFS meeting, and the EuBI conference calls.

Finally, Timo presents the feedback about the identification of new emerging technologies and training from France-BioImaging provided by Jean Salamero.

Discussion:

The first point brought up is the need to define the place of the emerging technologies in the EuBI portfolio and the criteria for their certification. All offered activities are a part of the coordinated Euro-BioImaging training activities that are currently being developed in WP7 and therefore are aimed at providing a defined standard of expertise inside the infrastructure and meet specific criteria.

> ➢ How to set up rules in order to normalize the emerging technology in order to establish trainings?

Different issues are mentioned:

- The difference existing between trainings on the same technology among different sites.

- The difficult to find a set of rules when applied to certain type of technologies. The case of the CLEM is pointed out as an example of a methodology with a lot of technology development.

Stefan Terjung proposes to implement a proof of concept study for emerging technologies in order to set up a standardization.

Fabrice Cordelières points out that it will be important to define a set of criteria and a procedure to determine when an emerging technology should not be considered as an emerging technology anymore.

4. Evaluation of the training activities: View from the EuBI Industry Board - Christoph Thumser (IB)

See Annex 4

Christoph Thumser presents the list of EuBI Industry Board (EBIB) members and the companies looking into joining the Board and reminds the goals of the EuBI Industry Board, one of them being to participate and contribute to EuBI training activities, finding synergies with the WP7. The EBIB will coordinate training activities provided by the EBIB members:

- Register the training opportunities across Europe organized by EBIB companies

- Establish the EBIB "quality seal" certificate for training courses

The EBIB will work together with the EuBI Interim Board, the PPII partners and GBI partners in order to align the quality requirements and levels of the training activities offered through the EuBI project.

Christoph presents the procedure for the evaluation of the training courses. The courses evaluated for the EBIB quality seal should be nominated by providers using a nomination form. The evaluation committee will bring together independent experts and experts from the Euro-BioImaging project.

The EBIB has established a list of training models and training modalities and will prepare an inventory of existing training activities. This information will be available on the EBIB web page.

Discussion:

A general comment shared by all participants is the alignment of the EBIB quality seal requirements with the EuBI quality stamp criteria. It will be necessary to see how the EBIB quality standards are fitting with the EuBI criteria and vice versa. Silvio Aime adds that a work has to be done on EUBI quality stamp criteria and additional contribution will be primordial in order to be more accurate. A collaboration with the EBIB should be considered.

Perrine Paul-Gilloteaux points out that it would be interesting to know the companies' needs from the academics and core facility staff. Based on this information, the Nodes could propose and organize the training of the companies' staff.

Daniel Choquet reminds that the EuBI training courses offer should comply with the open access of training materials and cost models requirements. However, being part of a marketing process, the EBIB training material is very company oriented, which could be a disadvantage. Christoph Thumser replies that there is indeed a commercial interest but there is also an interest in instruments to be used in the

right way. Concerning the cost of the EBIB training courses, Christoph adds that this point will need to be discussed in the future and that the creation of a cost model for EuBI nodes is contemplated.

The risk of redundancy between the EuBI training offer and EBIB training offer and the necessity to see if there are overlapping contents are brought out. There is also a need to define the audiences of the EBIB training courses.

Christoph Thumser comments that the EBIB will offer financial support for EBIB activities.

Concerning the scientific action, Fabrice Cordelières adds that the first task should be to agree on a set of criteria and identify the common training courses between academics and industry. The synergy between both is already happening in workshop like MiFoBio and the core facilities are willing to work in collaboration with the companies.

5. Implementation of an e-training program (D7.6) – Fabrice Cordelières

See Annex 5

Fabrice Cordelières reminds briefly the different tasks of the deliverable D7.6 "Implementation of an online for initial and vocational training":

- establish a database of existing academic programs in bio-imaging technologies and service provision in Europe, aimed at end-users;

- implement a repository for e-material for basic imaging technology training, aimed at end-users;

- identify the resources for CFS initial and vocational training, aimed at core facility staff.

Fabrice then presents the components involved in the planning of the e-training platform. The planning must be collaborative, beginning with involving stakeholders in the entire process. Content should be relevant to needs and adapted appropriately. Technology must be accessible to users. Monitoring is essential for measuring results and must be planned for each stage of the process. Periodic evaluations are necessary to implement changes and to guaranty the quality of the training.

Roadmaps for the preparation of the content and the technological implementation are presented.

A two-level pedagogical system is presented. The system is built on two training blocks: the first one dedicated to initial training in BioImaging and the second dedicated to CFS initial and vocational training, both blocks being interconnected. As for the interactive tutorials, the platform could be linked to existing tools like Myscope or Microscopy Primers.

Finally, Fabrice presents a first inventory of existing academic programs in bio-imaging technologies in France and share the University of Bordeaux experience with the Moodle CMS.

> ➤ *Tasks for all the Candidate Nodes and EBIB:*
> • Complete the list of existing e-trainings and existing resources
> • Share information about existing CMS dedicated to e-training

Comments:

- The fact that all the courses online are in English could be an issue when the courses are aimed to students.
- Could the e-training be mandatory before the access to the technology?
- Necessity to coordinate with the GBI team in order to discuss about the implementation of the platform.
- The platform should take into account the difference of background between the different types of users.
- Paula Sampaio explains they are using the Moodle CMS, which is a basic tool but easy to use.
- It is important to build a useful platform for the core facility staff.
- The contents of individual chapters should be short. It will be important to shape the contents according to the needs of the users. A survey could be conducted in order to establish those needs.

6. Parallel sessions

A. Definition of the EuBI criteria - Silvio Aime

See Annex 6

B. Identification of training for emerging technologies – Timo Zimmermann

General comment: Many of the points made in the roundtable have relevance beyond the issue of developing training for new technologies.

The first point brought up by Jean Salamero was that the concept of a new/emerging technology is not defined, neither for identifying it nor in the concept of training.

The following criteria or points were mentioned:

1. The method is not stabilized and still in flux
2. Publications exist (mainly linked to the developers of the technology, but some application papers are appearing)
3. There is activity in this field (linked to point 1: improvements based on the initial technology)
4. Interest and users for the method exist
5. The evaluation can be based also on expert advice (in this case, the right expertise may come from core facility staff, developers and early adopters)

If criteria of novelty, need and applicability are met (similar to schemes developed in the first preparatory phase), a showcase and subsequent proof-of-concept study could lead to the inclusion in the Euro-BioImaging portfolio.

Here an important distinction relevant to developing training activities is that it will be more important to think about technologies/methods that can be offered in existing nodes. Other new technologies or new fields will need to go through a future node call and the training can be implemented in parallel to the establishment of the node(s).

Based on whether a method can be replicated inside the infrastructure and offered in multiple nodes or only in a single one, different strategies will need to be applied (defined as cases 1 + 2 in the procedures for the WP8 deliverable 8.1).

A general comment shared by all participants was that "technology" is a too limited term and should be replaced with a more inclusive concept, possibly "method" or "field".

This was exemplified by distinct examples also on the sample handling side in 3D-EM and CLEM applications. Clearly there are different levels of what an emerging technology or field can be.

The discussion then turned again on how to properly spot new fields. Turning back on some of the initially made comments, it was considered that the arrival and establishment of a new field can be considered as a fairly natural process and may not need a specific and complicated selection procedure inside the Euro-BioImaging infrastructure. The question was also raised when a field "stops" to emerge and can be considered established. Again, the transition may be very natural.

An active field will need frequent reassessment and adaptation of its training offer by the structure coordinating Euro-BioImaging training activities. This will be needed to generate a controlled and quality-standardized offer. Over time the changes in the field and with it the frequency of adaptations will drop and it will naturally transition into an established training pattern, meaning the current EuBI training portfolio (or offer), which of course also needs periodic reassessment.

The discussion closed around a very important issue: Especially in new fields there is a need for specialist training for facility staff. This needs to be distinct from user training as it is aimed at the operators and providers of a technology. This offer needs to be developed much more in the future.

C. Construction of a competency profile – Fabrice Cordelières

The aim of this roundtable was to define the different core facility user profiles. From there, minimum expected knowledge has to be formalised.

Users' profiles:

The first discussion was aimed at defining the different profiles of users accessing facilities.

Categorizing new users might be performed in several ways:

- Background: some are physicist, most are biologists. Under both categories, adaptation should be performed to agree on a common language. The proper vocabulary should be used to make sure both the CFS understands the users' problematic, and that the user understands the technical solution proposed by the CFS.
- Microscopy expertise: 3 categories are defined. New to microscopy, operators (users who know "where to click"), advanced users (have already been using microscopes autonomously).

Tailored training:

All participants agree that the aim of CFS is to get the user performing microscopy experiments in autonomy. However, depending on the technology users are accessing to, the training path might be

highly variable. It should always be tuned to both the user's expectations and to the complexity of the accessed technology.

Competency profile:

Although all participants agreed that users should have generic knowledge about microscopy, no real consensus emerged from the discussion about competency profiles. Each user is unique, both by her/his background and expectations. E-training resources have emerged as a way to fill the gap in our user's knowledge. It would require having highly segmented modules, from where CFS could pick from. CFS would prescribe users a highly personalised training, before accessing the facility.

Closing session

Daniel Choquet thanks all participants for their active participation in the EuBI WP7 CFS Meeting. He thanks the FBI coordination and the WP7 team for the preparation and the organization of this meeting.

The organization of a second CFS meeting next year is proposed and approved by the participants. The next meeting could be organized by another Node Candidate.