Notes from Euro-BioImaging Stakeholders Meeting, Vienna, 21st-22nd January 2013

Agenda for the meeting is available at:

http://www.eurobioimaging.eu/sites/default/files/Agenda%204th%20Euro-BioImaging%20Stakeholder%20Meeting.pdf

Presentations from the meeting can be downloaded from:

http://www.eurobioimaging.eu/content-document-gallery/4th-stakeholders-meeting-jan-2013-vienna

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Opening session

1. Status Report (J. Ellenberg)

Started with a re-iteration of the goals of Euro-BioImaging.

The 3 main aspects of Euro-Bioimaging are access to imaging technology, training, data processing.

250 Euro-BioImaging partners from 28 countries, 19 national imaging communities formed, Euro-BioImaging on roadmap in 12 countries.

The focus will be on leadership, sustainability, and cross-border access to imaging technology.

The next step is to identify imaging facilities of European significance, that will be attractive and can be made open for transnational access.

Euro-Bioimaging proposes to operate a hub and spoke model, with multimodal technology nodes and single technology flagship nodes. The hub is the coordinating entity, and will act as a single point of access, distributing users to appropriate nodes.

National bioimaging networks exist in Finland and Ireland, and collaboration frameworks have been established between Euro-Bioimaging and the Australian Microscopy & Microanalysis Research Facility, and with INDIA bioimaging.

Proof-of-concept studies have been carried out. There were 228 user applications. >110 users visited 51 facilities in 14 countries. >60% of users applied for transnational access, 89% left their home town for access. Most popular were multimodal integrated ALM, super-resolution, functional imaging.

A few examples were given of successful proof-of-principle experiments (see presentation).

Facility perspective – much higher staff effort required for support than anticipated, so need more staff to provide external access. Average duration of user visit 2 weeks. 97% of participating facilities would offer open access in the future, after a capacity upgrade.

User perspective – happy with access system. >70% of users rate the results good to excellent for publication. >90% thought it was worth the effort of travelling. 99% of users would make use of Euro-BioImaging open access facilities in the future.

Now in transition from planning to construction. During 2013 there will be negotiation with member states. There is an open call for Euro-BioImaging nodes between the 15th Jan and the 30th April 2013. A business plan will be prepared during 2013, and construction and operation will commence in 2014.

How to become a node:

7 steps:

1) expression of interest
2) eligibility check
3) evaluation by external experts
4) communication with funders
5) negotiation with national governments to convince them to join Eurobioimaging
6) securing of funding (with help from Eurbioimaging)
7) contractual agreement between 3 partners (node, funding bodies, Eurobioimaging)

Important:

Proof of need for 50% external users (max 30 letters of interest)

Communication with funders must have started at time of application

Bidder could be a legal entity, but can be collaborations between institutes and virtual nodes. Not sure how this will work out legally, but should be sorted out by the people dealing with the relevant work package.

Only some technologies are part of the first call, but more will be added in the future, based on new proof-of-concept studies

Calls are expected annually

Eligibility criteria available on web. They include: demonstration of user need, guarantee to provide open access, communication with national funders, demonstrate that node will constitute a legal entity. Applicants from ESFRI countries eligible.

Review criteria – scientific/technical excellence, quality and scientific field, geographic coverage, maintenance/update, significance, access/service package, use/QA, training, dedicated staff time for advice, training and support (sample preparation, acquisition, data interpretation), if applicable, evidence of support from national funders.

Support / staff time somehow was missing from the review criteria, but it came up quite prominently in various presentations that a good plan for support and dedicated staff, from sample preparation even before the visit to data interpretation, is quite essential. A major benefit of bidding for a node could be additional staff time, of which 50% can still be used internally. They are asking for a long-term business plan, 3-5 years, rather than short-term jobs.

Specific technology review criteria have been put together for specific imaging methods.

Additional imaging technologies will be added in future calls if they demonstrate need, infrastructure model, and have been tested in a feasibility study.

If you're interested in becoming a node:

1) Contact your national imaging community.
2) Talk to national funders.

3) Submit EOI online by 30th April.

Forms and templates available from Jan 25th.

Questions:

Is there a limit to the number of nodes in a particular country? No limit imposed by Euro-BioImaging, but will depend on demand and needs of national funders.

Will future calls also be open to technologies covered in the current call? Yes.

Is there any funding from Euro-BioImaging to support travel, consumables, etc? Node applicants are asked to supply a budget plan to give an idea of costs. Euro-BioImaging will negotiate funding with national funding bodies and European Commission.

Can specific technologies identified for flagship nodes e.g. CLEM be included in a multi-modal node? Could be part of a multi-modal node, but specialist reviewers will be used for areas which applicants identify as world-leading.

National and European-level strategies for implementing open access research infrastructure (Eero Vuorio, Biocentre Finland)

The idea of the presentation was to share experience from a number of perspectives: from Finland distributed life science infrastructure, from BBMRI, EMBL, and also the "Brussels Perspective"

- Biocentre Finland founded in 2006
- 2010-12 received €45m (€15m per year) to support research infrastructure networks
- Important: community has to decide first on division of labour, what they want
- 9 networks, 3 are imaging platforms (LM, EM, in vivo)
- Funding used 45% for equipment, 40% for staff salaries
- Funding now ended, so installed new expert group set up to update roadmap for the future

Experience from other European initiatives (Biobank, EMBL, ESFRI):

- Difficult to agree which country pays how much
- Multi-lingual, which costs money (de facto only English is read, but for the sake of principle)
- Member states are reluctant to fund at European level, yet securing national funding is essential because European Commission can't fund investments in infrastructure
- For distributed nodes, difficult to calculate full construction and operation costs
- Varying speed of processes among member states

French Imaging Infrastructure (Maite Coppey-Moisan & Franck Lethimonnier)

France bio-imaging distributed infrastructure network (IBiSA) headed by CNRS. Initiated 2 years ago. There are 5 regional nodes, 1 transversal node. Aims are R & D, teaching & dissemination, access.

Technologies: Multimodal and also "flagship" Super-res, multiscale, single molecule, label-free, in-depth imaging, probe development, high throughput, image/data processing.

Investment over 5 years: €14M for equipment, €4.6M for non-permanent staff, €3M operation, €60K/year for coordination.

There is currently no funding for users outside France.

Organisation:

- Executive board (central coordinator, coordinators of each node) + Scientific Advisory Board
- National steering committee
- User committee
- Working committee (representatives for each node and each of the five working groups)

Ready to apply as Euro-BioImaging node(s)

France Life Imaging (Medical imaging infrastructure). Coordination at national level by "Aviesan" – national coordinating structure of research in biology & health. €100M funding including €37M for infrastructure, €5M for infrastructure coordination.

Implementation & criteria for nodes. Identify providers from different regions and define needs/capabilities. Criteria – sci/tech excellence, open access, critical mass for service, user training, tech R & D. Current IBISA programme taken into consideration for implementing FLI core facilities.

6 physical nodes and 1 virtual node for population imaging (large databases on Alzheimer, Multiple Sclerosis, Psychiatric diseases, Oncology, Preclinical). There are 150 existing and 50 new imaging systems.

Monthly meetings of the 7 node leaders and 6 WP leaders. There is a single route of access, and a plan is set up for QA based on ISO 9001 & 9004, and progressive set up of business plan. Harmonized prices based on full-cost payment. Coordination of training. Intend to apply to Euro-BioImaging as a distributed node. Flagship tech UHF MRI, PET-MRI, PC X-ray, spectral CT. Future calls ultra low field MRI, EPR imaging, etc.

Session 1 (WP8, WP9, WP10, WP11, WP13): Euro-BioImaging Infrastructure Model - Molecular and Medical Imaging Technologies & related Data and Training infrastructure aspects

WP8 Molecular Imaging (Silvio Aime)

"in vivo" visualisation of molecules and molecular events. Combination of several complementary tools & techniques. Highly interdisciplinary. Modalities:

Micro PET/SPECT

Micro MRI/MRS

Optical imaging

Micro CT scanner

Micro US scanner

Issues:

Development of novel imaging probes; test/validation of novel animal model; monitor therapeutic effects of new drugs; compare/validate new imaging technologies; compare/validate new image analysis developments.

Criteria: single or multi-sited; lists procedures offered to users; can include one or more flagship

technologies; infrastructure able to support users of all levels of a molecular imaging experiment – method set-up, experiment prep, image acquisition, data management, analysis, and interpretation.

Animal facilities if required; accommodation; workstation; training; expert support.

Provision of training courses. European Molecular Imaging Doctoral School - EMIDS

Multi-centre network for training already established.

National roadmaps:

Italy BioImaging (ItaBI). Proposed 2 interlinked clusters – advanced light microscopy and biomolecular imaging. Large array of molecular imaging experiments.

Finland – single access point for 2 complementary sites (PET & MRI)

Belgium – national scientific committee 2 regional nodes proposed (Flemish & Walloon regions). Both in vivo imaging & microscopy.

Israel – application to establish Israel Centre for Biomedical Imaging & Therapy. Will facilitate access of users to nodes through centralised resource.

Germany – Interdisciplinary Molecular Imaging Network. Contributions from several scientific societies. Plan under examination.

France – MI facilities in all FLI physical nodes.

Conclusion – a molecular imaging mode would be expected to be multi-modal.

WP9 – Access to innovative technologies/medical imaging (Holger Speck)

User need: MR-PET (highest); UHF-PET (2nd highest); 3T MRI, PET, 3D-US (mainly eastern countries – out of scope of innovative medical imaging); Phase contrast imaging; MEG-MRI, MPI, EPRI

Consensus between WP chairs & modality reps to first evaluate & include UHF-MR, MR-PET, and PCI

Consensus between WP chairs & modality reps to continue observation of emerging modalities MEG-MRI, MPI, EPRI.

Proof of Concept study – UHF-MR: 6 facilities, 14 proposals, 11 accepted, 9 successfully finished

PCI: 1 facility, 11 proposals, 3 accepted and completed

MR-PET: not within PoC study (not enough time for regulatory issues). External access data provided from 3 facilities & 6 projects (majority wp chairs considered this equivalent to PoC study).

Single site, single modality node concept does not adequately serve the community needs.

Implementation: single and multi-site, and single and multi-modality nodes possible. Multi-site noded coordinated & represented by a single contractual partner accountable to Euro-BioImaging. Legal structure to be developed by the node.

Challenge – development of suitable legal frameworks.

Multi-site nodes: coordinating node interacts with Euro-BioImaging hub – responsible for QA of all

partners – number of coordinated partners depends on need for access.

Task distribution within Euro-BioImaging needs to be considered – how much centralised, how much at the node? Details depend on governance, legal, finance structure.

WP10 – Medical Imaging – Patient to Population

Transfer of innovative diagnostic imaging into healthcare.

3 areas – interlinking health tech assessment & clinical trials. Large scale image acquisition/analysis in population cohorts. Non-invasive techniques.

Need infrastructure for multisite clinical trials. Innovative diagnostic imaging techs are not always reimbursed when reaching the clinical area

Willingness to collaborate – 294 individuals interested.

Complementary survey in 20 hospitals – need for methodological support.

Model – 1 node with 2 components – clinical trials (CT) and health technology assessment (HTA)

Interlinked pan-European HTA/CT node – single point of access – single point of coordination. Staff: 1 coordinator for CT, one for HTA, 2 scientific coordinators, 1 admin person.

Population imaging. Large scale (>1000 patients) acquisition & analysis of medical images in controlled population cohorts.

Rationale: Detection of subclinical abnormalities (precede disease 10-20 years); serial imaging; imaging endpoints.

Surveys – 32 responders involved in population imaging. 5 requested imaging facilities (MRI most used/requested). >10 countries have a large study with imaging. Standardised imaging/analysis is needed.

PoC study difficult to perform – travel for participants, ethical approval. 1 application but did not match technology. Feasibility assessed through an overview of imaging facilities, access to image analysis platforms, and access to image data.

Next steps – report on feasibility, bottlenecks. Then construction plan & ethical issues.

French example – distributed image acquisition, centralised analysis. Distributed methodological research, centralised production. Portfolio of analysis methods now available. Working towards a national database.

WP10 – Image Guided Therapy

Identify integrated clinical & technological reference sites across Europe

Advanced modalities (MR, CT) broadly established. Emerging modalities (MR-guided FUS therapy) missing.

Possible major role of Euro-BioImaging: training & coordinated IT infrastructure.

PoC study – 3 test sites offered but disappointing response, no study could be carried out.

Next step – analyse why survey shows a lot of interest but poor response to PoC study.

Take steps to better organise the IGT community in Europe.

Role of IGT in preparatory phase unclear – WP10 excluded from 1st call. Governance structure not yet appropriate for needs of IGT nodes.

Feeling that the needs of IGT are not really met by Euro-BioImaging at present.

WP11 – Data Management

Support efficient & standardized storage for, and access to, curated biomedical image data

Support (open-source) software for biomedical image analysis through coordination of community efforts. Provision of repository of state-of-the-art validated algorithms.

Interface with high-performance computing

Facilitate collaboration.

Prep phase – challenges meeting, Nice 2011; ISBI 2012 workshops on medical image analysis, Barcelona; coronary artery challenge, MICCAI Nice 2012.

Outcomes: Interoperability, standardization, and evaluation are key.

Concept of "challenges" – set a task, define reference dataset, compare methods. Not only evaluates algorithms but also supports process of making standardized/evaluated algorithms available to the end user.

Next generation of challenges – "Open Medical Image Computing" framework identified as key technology.

What is open access? Open access to data storage & analysis technology; WP11 should define guidelines for nodes.

Important aspects: user need; transparent; standardized & validated tools/workflows; training.

Challenges in areas of data mining, machine learning

Questions

Any agreement with companies regarding open source vs proprietary? This is an issue – Jason will address this tomorrow. Need to be careful not to become totally dependent on a single partner.

General Discussion

Any thoughts on current status of Euro-BioImaging? How much maturity should we demand before bringing in new technologies?

Medical imaging by necessity needs to operate in a different way, because they are dealing with people and everything they do involves many formalities. They must be allowed to operate differently (e.g. no

proof of concept studies), otherwise they can't operate, and without them Eurobioimaging doesn't work"

Many communities are organising themselves. How much do we need in the way of central functions? How much control?

Challenge to maintain dynamic within a formal system. Big difference between "science" and "medical". Ethics etc. Euro-BioImaging needs to respect this different *modus operandi*. Needs to be considered in the governance structure.

Control is important but can also be suffocating. Researchers need freedom to contact each other and form collaborations.

Often political considerations can block access to technology. Euro-BioImaging should help to prevent this and allow access based on the best science.

Quality control is a big problem in many imaging modalities. Better quality control could be a big benefit from Euro-BioImaging.

How centralised should access be? PoC studies seem to show that a central access point works well. If people wanted a certain site they usually got it, but if it was full alternative sites could be found.

Centralised organisation is ok as long as it is transparent and access is equally available to everybody.

Technology requests for some technologies were discarded in the proof of concept studies because they appeared widely used and available; BUT: he asks for them to be reconsidered because many scientists in Eastern Europe do NOT have easy access to them.

Has Euro-BioImaging been in contact with other European bodies organising transnational access, e.g. synchrotron sources? Examined in survey – good models are out there but only a small number of facilities providing open access (5-10%).

Understand that there is scepticism about central planning, but the Euro-BioImaging model is to provide access in a transparent way. Strongly support a mechanism for central access.

Given the large array of science & technology, it's difficult to imagine that there can be one central hub. We need to build on the huge range of knowledge in the community. Set of specialised hubs would be a better model.

Funding question – national funding agencies have limited budgets. Unlikely to expand their budgets because of Euro-BioImaging. If there's a transfer to Euro-BioImaging, will big facilities prosper while smaller ones die out?

Big countries e.g. France, Germany, are coming up with distributed infrastructures for the country. Smaller countries want to see more concentration.

Worry about centralised process – how is this controlled? Could end up with classes of facility with the best science becoming concentrated in some, and "second rate" science in others.

Some people not happy with eligibility criteria for nodes. Have the criteria been adopted by the steering committee? Answer is yes. These have been agreed upon now they have been published on the website. For general criteria majority decision, not unanimous. Apparently still some discussion ongoing with specific criteria, which have been put together by the WP chairs. If you're not happy, contact your WP chair.

Who is the decision-making body for Euro-BioImaging in future? Wide range in other ESFRI projects from one extreme of only government representatives, to the other extreme where node representatives

participate.- “Who controls the controllers?”

GENERAL CRITERIA: the steering committee have first refused them, then they were re-discussed, then a new version has been agreed on by majority (not unanimously)

NODE-SPECIFIC CRITERIA: set up by work package chairs, have not been discussed

WHO WILL BE THE DECISION MAKER: in other European projects, this ranges from one extreme (everything decided by steering committee) to the other (everything decided by node representatives)

WHO WILL CONTROL THE CONTROLLERS: The users through their feedback and the scientific advisory board

The user can only control the controllers without a centralised hub, so the user can turn away from a bad node to a good one.

A model is the Gordon conferences, which are reviewed based on user feedback, if they are not successful enough they first lose money, then are closed; the job of the hub is to distribute users and also to collect feedback

Different users with different funding streams applying to one facility– who gets access? Maybe hubs need to have an allocation of European access, for which they peer-review applications and tension them against each other.

Is there an absolute requirement to have done a PoC study before becoming a node? Individual nodes do not have to do PoC studies, just the technologies.

The hub could act to maintain quality by policing user feedback – if a node consistently gets bad feedback then it should cease to be a node.

What’s the future for facilities that don’t apply to be nodes? In principle, nothing, but it is up to national funding bodies. Being a node may attract funding preferentially if national funding bodies are on board.

Important to get the people with the money on board. Some resistance detected with various national funding bodies. Discussions ongoing.

What does open access mean? Is it free or is there a charge? It’s not envisaged to be free. Financial model is being discussed – cost price? Subsidised? Remains to be seen. There will be some form of funding for the provider.

Session II (WP6, WP7, WP8, WP11, WP13): Euro-BioImaging Infrastructure Model - Molecular and Biological Imaging Technologies & related Data and Training infrastructure aspects (Jason Swedlow)
Introduction with description of Euro-BioImaging model, and slide with description of access procedure.

3 possible legal models

Funding streams mainly from member states (infrastructure). Possible that structural funds can also be used.

Work packages:

WP6 (ALM), 7 (Innovative LM & EM), 8, 11

All on Euro-BioImaging website. Defining technologies needed, identifying sites, developing models for access. “Advanced” kit can be purchased, while “Innovative” is not yet commercially available

Survey identified user requirements – useful at national and European level.

PoC studies – summary see notes from yesterday – positive feedback from both users & providers.

Published survey conducted last year provided data about what potential users want/need and what providers can offer.

Good correspondence between what users want and what providers have to offer.

Proof of concept studies conducted last year successfully connected users and providers for short term projects (e.g. 2 weeks) and validated correspondence in needs and provision, and demonstrated the willingness of users to cross national boundaries.

However, technical support requirement for proof of concept studies was way more intensive than predicted.

What’s the relationship between WP6 & WP7? It’s a dynamic process – innovative technology becomes standardised and commercial equipment becomes available. Not so simple because even though commercial microscopes are available it’s challenging to use them successfully. Grey area between the two WPs.

WP11 – Data analysis and Infrastructure

- Users and providers all use a wide variety of software, some open access, some commercial
- OpenBioimage.org – an open source alliance for software developers networking http://www.openbioimage.org/.
- One perspective is common ROI identification and analysis across software platforms
- Question: What about super-resolution reconstitution algorithms?

- Technology development for data processing and analysis need to be a focus, but there is not really currently funding for this (e.g. in POC)
- Question: How can we improve user friendliness for open source software?
- It needs to be understood that development of image processing and analysis tools for bio-medical imaging is not at all at the cutting edge in that field, thus how do we tap into expertise when it really is not pushing the boundaries?
- However this isn’t really the case with medical imaging, which can really be much more innovative.

Survey of software use: 48% ImageJ, 23% Matlab, plus others. Open and commercial tools both heavily used.

ISBI 2012 BioImage workshop. Formation of Open Bio Image Alliance: http://openbioimage.org

Software & algorithm developers, biologists, & bioimaging scientists.

Developed common region-of-interest (ROI) specification. Goal – ROI defined in software A but analysed in software B. http://www.scijava.org/roi-model/

What is open access?

Discussion:

For new techniques, e.g. super-resolution, software development is critical and we need funding for this.

Also there's a need to fund the more "boring" aspects – i.e. interoperability, user friendliness etc.

Infrastructure – links to other ESFRI projects

Many nodes will have image processing capabilities. Any ideas on how to coordinate these? There are good ways to collaborate in the open source world. Euro-BioImaging shouldn't try to come up with new methods to do the same thing. We should take advantage of the existing tools and build on them.

Image analysis also depends on expertise that's specific to the data.

Difference in the way the medical imaging community approach this – more focus on image processing.

WP13 – Training

Multi-level training portfolio – general and platform-specific.

Training in imaging – database of training activities – minimum quality standards for training activities under the Euro-BioImaging umbrella.

Matrix of training activities adaptable for future needs.

Training for infrastructure users – specific training provided by individual nodes.

Questions:

Are programmes specifically for users, staff, or both? Should cover all. Second level related to specific use of facility and this would be up to the individual node.

Would it make sense to have facility staff exchange programmes for staff who want to learn from another facility? Suggestion supported by results of survey. Seen as very valuable.

Also need standards for quality control.

Will there be funding available for training? Depends on whole finance model for Euro-BioImaging. Maybe apply for European money to run training courses.

Can we start with something before the whole Euro-BioImaging structure is put into place? Maybe we can implement some courses when we know what the demand is.

Conclusion – deliverables for 6, 7, 8, 11, 13 met & submitted

6,7,8 PoC projects completed

WP11 challenges completed

General & tech specific criteria for nodes drafted & approved

Ready for progression to 1st call for nodes

Reminder of general elegibility criteria

Table of “support” requirements for particular technologies (wet labs, probes, etc. – see slide).

Discussion:

When will there be another round of PoC studies? There may be a slight delay because of other activity this year, but there will be regular calls and suggestions for PoC studies are welcome.

Is there a funding scheme planned for the nodes? This goes back to national funding. There will be an opportunity for more discussion this afternoon.

How is capacity defined for elegibility? Includes all additional resources required to offer external access.

What is to be gained by becoming a node? Exposure to new science, new projects. Every core facility doesn’t have to do this.

There are risks. In the medical imaging side in particular. Some definitions aren’t clear. E.g. “open” vs “free” access. Can’t choose who you work with. National funders may not give funding if the facility is an international one.

First call is for expression of interest – there’s no commitment to sign up. Euro-BioImaging needs concrete plans to initiate dialogue, and this is what the first call for nodes will provide.

How long do you commit to be a node for? Depends on funding availability.

Discussion about the requirements for specific technologies – information is in the technology-specific criteria document.

Is there a minimum capacity for elegibility? Depends on the national context. If scientifically justified, then a very small facility could still be eligible.

Could there be other sources of funding than governmental? Main funding engagement will be through national funding bodies. Other funding mechanisms can contribute (e.g. charities). They aren’t excluded from Euro-BioImaging.

National imaging communities – is there a national level process for taking nodes forward? Will be discussed this afternoon. Various national issues involved.

Multi-modal nodes – could the various techniques be linked thematically? Demonstration of a “joined-up” theme would probably go in favour of an application.

Session III (WP2, WP3, WP4, WP12): Euro-BioImaging Infrastructure Model - Strategic aspects: Governance, funding and access policies

WP3: Project Plan

1st impact study. 6 statements supported by respective data. 2 case studies (France & Poland).

Business plan 1st draft due end of February 2013-01-22:

1) What unique service, at what scale?

2) What added value, for whom?

3) How to execute?

4) What does it mean financially?

Structure of Business Plan

Executive summary

Introduction – infrastructure, needs, motivation

Services – user access, what services

Added value – market, European research landscape (competition)

Organization – structure – hub/nodes, infrastructure/scientific

Realization plan

SWOT analysis

Financials

Attachments

WP2: Legal & Governance

Aim:

- Clear distribution of tasks
- Clear hierarchy
- Easily understandable

Hierarchy:

- EuBI HUB
- Single-technology flagships
- Multimodal technology nodes
- National imaging infrastructure initiatives (currently 19)

Hierarchy levels:

- GOVERNANCE (Euro-Bioimaging Board + Scientific advisory board)
- EXECUTION (Executive Director, Executive Management Office)
- ADVISORY BOARD (Heads of Nodes committee + Industry Committee + National Coordinator Committee + Ethics Advisory Board)
- STAKEHOLDER FORUM (annual meeting)

Hub:

- Will be physically in one place
- The country hosting the hub is expected to contribute more to its construction
- Organises transnational access and coordination

Questions – composition of board? Scientists on board should not be heads of nodes, or on the advisory board. The member states nominate the board representative. Some disagreement on this.

Why 3 delegates from each member state? Gives opportunity for representatives from different areas.

Other infrastructure projects are more distributed – this is very top down. Why? Are there other options? No decisions taken yet. It's a proposal that will be discussed by the steering group. It's not particularly top-down – decisions should rest with member states.

Concern that nodes are not very visible in the governance structure. Nodes and hub related to each other. Collaboration agreements will outline the relationship.

Have looked at a number of ESFRI infrastructures. Have similar structure.

To what extent do facilities share in the decision-making process? Micromanagement of each facility is not proposed.

WP4: Finance

- There will be some European funding (Horizon 2020) to support EuBI in the form of ESFRI infrastructure and transnational access grants
- Other funding sources will be member states and EC structural funds
- Nothing has been specified with funding yet, but the main reason is that there is no clear expression of the needs; now all the specific needs have to be specified, in the next 10 months the financial needs have to be clarified, then the finance WP will see where to get the money from
- The finance WP people are confident that the money will be there once the needs are clarified
- There was a big discussion how financial needs are fed back to EuBI admin; the answer: the information will be in the Node application packages. Additional investment in coordination and support for hub – joint funding from member states.

What is planned for the hub? What is it? Is it just a coordination centre? If so, why does it need an infrastructure budget? Is it a physical node? Organises access at European level. More efficient than doing this in a distributed arrangement. Joint training activities, tools for data analysis.

Will have to deal with different needs of biological and medical communities.

Hope that Horizon 2020 will provide some additional support.

Should there be free access, or should users provide their own money? Current model is free access supported by additional money provided to nodes.

Questions:

Objectives of WP are to determine a sustainable funding model, and identify the level of funding required. How far have you got? Last year had experiment in free access. Did not show a huge number of users. Need to develop a convincing case for a bigger activity. Cannot devise a finance plan until this has been done. We have got nowhere because we don't have finance requirement input from nodes. Need to know how much money the nodes will need. Write down in business plan what you need.

How do you get the financial information? It will come from the expressions of interest for nodes.

A few points from the floor:

1) There has not been an adequate request for feedback from this WP

2) PoC studies are not a good example of what will happen – put together very quickly

3) There will be a lot of local users and need to support the total operation of the facility

Advice is to talk to national funders. WPs have reported, there will be a call for node applications, and this will allow us to assess the level of ambition. This information will determine how the finance model develops.

What are the financial dimensions of the hub? Where do the funds come from? Given what's been described, it will be very big. This doesn't seem like a good idea. What's done in the hub and what's done by the individual nodes remains to be seen. Services provided will be according to user requirements.

WP12 – Access Policies

Open access – tech, expertise, know-how available to any qualified user; defined and visible access portal; access to QA/user satisfaction

Evaluation – step 1 scientific/technical; step 2 cost, collaboration vs service

See slides for detailed steps in process – sequential model favoured by participants in PoC studies.

Quality control – user satisfaction survey, results reporting etc. Detailed slide describes proposed QA system.

Table of cost models shown – free access; shared cost; full cost

Discussion – from experience, costs £700K per year to run a fully open access mixed imaging facility

Technical feasibility assessment could be done better at the nodes. If it's done at the hub it would need a high level of technical expertise. Could be done by having an expert board ("editorial board" type model).

Users may apply through E-BI once, then once they have contacted a facility they will make arrangements with the facility directly. Need a reporting mechanism.

How to structure a node? Primary consideration should be how to best serve the user.

If a whole country is a node, how does the review procedure work? Node proposals will be reviewed by international experts who will advise on how to improve the structure.

Need to go into details about how quality control is done.

One node per country? In France, this was recommended by the medical imaging community. France Bioimaging had already been put together so no need to go through the selection procedure again.

Open access question: What's the aim of the review process? What if you want to access a particular facility? No need for a central hub to send a scientist to a different facility. Small number of users will need guidance in finding the right facility. Experienced users will want to ask for money to access facilities. How will the review process be linked to funding applications?

- If the Hub handles all node proposals, POCs and user applications, it will be the size of a medium-size funding body, so quite huge; could it be more efficiently done in a distributed way?

- The plan is to use the hub as a common point of reference, but behind the website / scenes could still be a distributed structure for part of the jobs

- The hub does not necessarily decide on which project goes to which node, but might simply direct it to a range of suitable nodes or an expert panel, to keep the organisation slim

Access types:

- Technology
- Probes
- Expertise and training
- Data
- Software and analysis tools
- Methods

Open access ≠ free access

Needed from facilities:

- Open to anyone sufficiently qualified
- Defined and visible web portal

Procedure for providing access:

- Users apply to some central access portal, using a SITE FINDER function and TECHNOLOGY FINDER tool (the applicant remains anonymous)
- The application is reviewed and distributed to suitable nodes
- The web portal must also make the reviewing process transparent, updating the applicant about the process throughout
- The final decision is with the nodes whether a project can be done

- *Quality control tool:*

- Project quality criteria:
- User satisfaction
- Number of publication
- ...other indicators
- Done online after completion of project

- Nodes make quantitative and / or qualitative assessments of equipment and services provided

- Nodes maintain QA documentation which is available for inspection with 2 days' notice

Closing remarks:

ESFRI is about the addressing of grand challenges. Giant campuses in other countries. E-BI has achieved a lot in terms of information gathering. Given medical imaging community a lot of insight into new imaging technologies. More competitive now than 3 years ago because of what's been done. We nee to maintain the trust on it. Critical issue is to be transparent.

Great to see the support from the community for the project. We now have the first concrete project going forward. We don't have everything yet, but it is a very strong model: to create transnational open access. We also have concrete interest from Industry. We are in an excellent position going forward and move ahead. Importantly we have strong interest from the stakeholders.