OASIS

Open the Access to Life Science Infrastructures for SMEs

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Deliverable 6.3
Final Report on Exploitation Plan

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SEVENTH FRAMEWORK PROGRAMME

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1 Introduction

The present deliverable is aimed at the definition of a plan for the exploitation of the OASIS project results. In the context of a coordination and support action it concerns also very much the sustainability of the structures, tools, analysis and human and professional connections that have been built up during the 30-month lifetime of the project. This document describes how the partners of the OASIS consortium intend to continue their collaboration with the main aim of strengthening the European biophotonics. The focus of this exploitation and sustainability plan is on photonics clusters, both regional ones and national platforms. This plan is very much linked to the work realized in WP4 on Cluster Services Design and described in particular in the deliverables D4.5 and D4.6, respectively related to the services to be developed for SMEs and facilities and of the business models to be used for these.

2 Exploitation of the OASIS project results

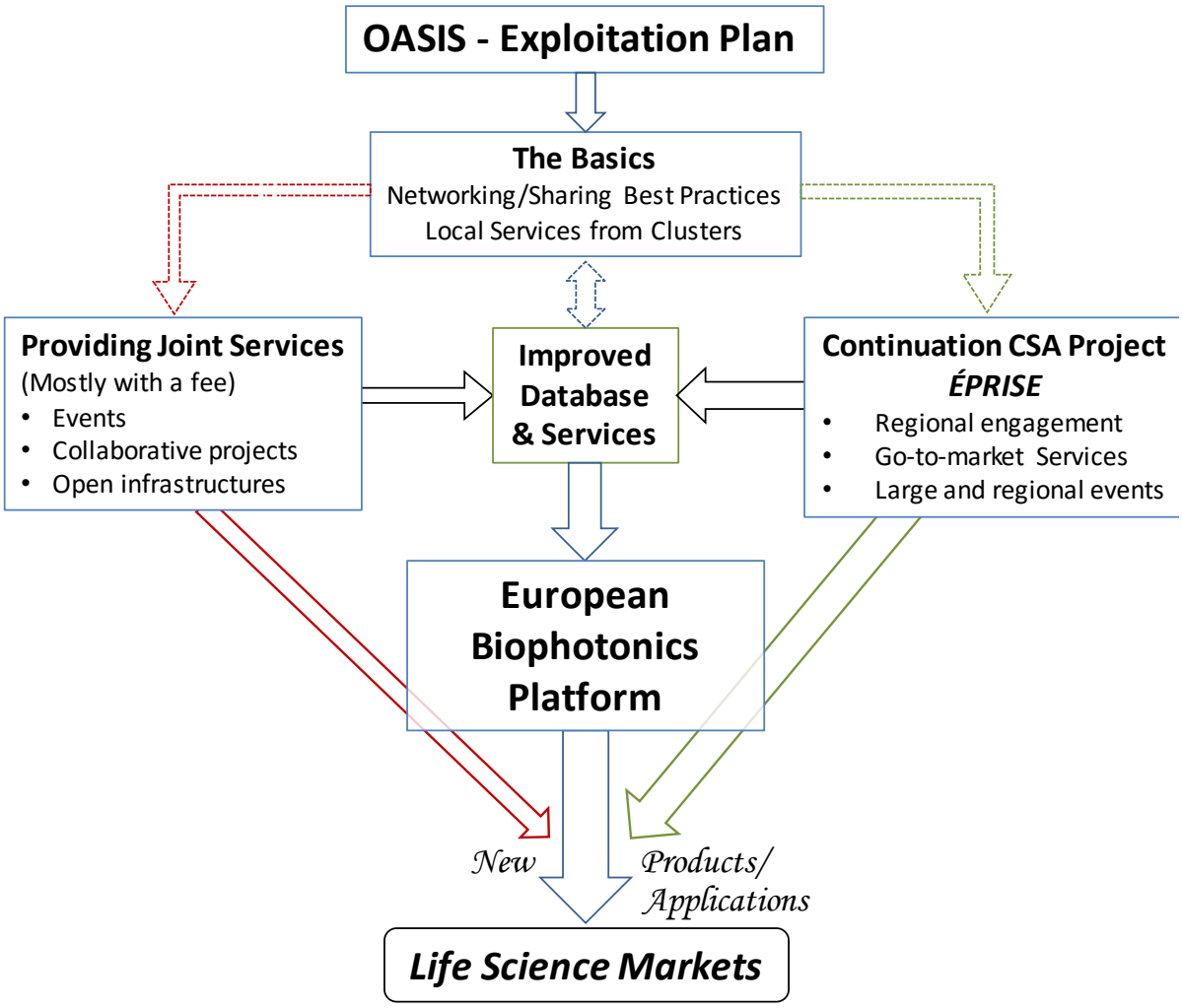

Figure 1: Exploitation Plan of the OASIS project results

The ultimate goal of the exploitation plan of the OASIS project results is to more and more efficiently address the Life Science markets with photonics-based new products. The focus is of course on the European products and the European companies commercialising them. So in other words, the main goal is to strengthen the European biophotonics. Europe has a lot to offer in this field and can address most of the life sciences challenges. This has been stated many times, but the European photonics is highly fragmented and the European biophotonics even more. It is our deep conviction as coordinating entities, like the photonics clusters are and to some extent also some dedicated institutes and academies are as well, that combining forces by connecting and supporting the different actors/resources in the innovation value chain is the best way to speed up the outcomes and overcome the limitations originating from sub-critical structures. This exploitation plan presents different possible paths contributing to the realisation of this process corresponding to different levels of integration between the coordinating actors.

Description of Figure 1:

- The Basics: This is the minimum service level that the OASIS consortium can offer to the main actors in the biophotonics field, companies, institutes, academics and end-users, to maintain the basic activities of the OASIS project if events and studies are excluded. It will occur at the level of each of the partners, transformed by their experience gained during the OASIS project, mostly locally in their region/country. Each partner will take benefit of the work realised during the project: contacts established with SMEs and infrastructures, studies of the needs of SMEs, the tools and best practices shared by the other partners, etc. To some extent, the partners will be able to further develop some of the work realised, for example the database. The partners will of course continue to exchange information to share best practices, success stories and connect actors from different regions to build up collaborative projects.

- Providing Joint Services: Another level of collaboration would be that the Photonics clusters jointly offer services and entertain this activity through fees. There have already been discussions about the possibility to organise an event during fall in France by joining funds and applying a participation fee (in fact it appears that free events like the one organised in the framework are sometimes not taken as seriously as charged ones). An estimation is that both manpower and other direct costs are about 15 kEuros for a well-organized event with about 60-80 participants. Such events should include exhibitions which are another way of financing the event and deeper discussions and analysis than realised so far in the OASIS workshops, of the technologies and/or needs of technological solutions from end-users[1], have to be organized. Except such workshops, there are several other variants of joint and delocalised services. This could be potentially very powerful might have a slow take-off as compared to a collaboration sponsored by the European Commission in the framework of a continuation EU project as is described in the next section. Providing services with fees is at the heart of the sustainability problematics of most clusters.

- A large fraction, seven out of the nine partners of the consortium and in fact all clusters in the project, has applied for a new CSA project aiming at further developing the OASIS project with among others an empowerment of the European photonics through regional engagements. The project whose acronym is ÉPRISE is the first choice follow-up of OASIS. If the ÉPRISE is accepted and starts in January 2017, this will give a big momentum to the work already realised in OASIS. We totally endorse the idea originating from the Photonics Unit that the most efficient tool to be used is the one of regional authorities. This is completely aligned with the RIS3 policy and philosophy. The database will be taken over and further enriched. New Go-to-market services will be elaborated. It will also allow for building a strong ground for the European Biophotonics Platform (EBP). The effect of this path is illustrated by broad green arrows (broader than the red arrows of the previously described path).

- The database and the services will be further strengthened by all the three scenarios described above (Basics, Joint Services or continuation CSA) whichever is favoured by the circumstances and some of these adds will be fed back to the “Basics” while it will be one of the grounds for the European Biophotonics Platform (EBP). If ÉPRISE is granted or not or if Joint efforts do not manage to properly take off), the creation of the EBP in some way or another will be the underlying aim of most of our joint actions in order to reach a situation of stable sustainability and a possibility to more efficiently engage all other European actors in the biophotonics field. The time necessary to build it up will of course depend on which of the different paths will really happen. Another situation, not described so far is that one the photonics clusters, e.g.

[1] See e.g. the Deliverable D3.5 of OASIS on the Roadmap of the needs of SMEs in the net years.

PNL seems to have a good ground for this, with national means (public, private or both) can start the platform first at the national level and extend it then to the EU.

Below the different paths are described in more details based on an enquiry which every partner has been filling. On the other hand, not much more will be said about the ÉPRISE application before (and if) it is the right time for that.

2.1 The Basics

This is the minimum service level that the OASIS consortium can offer to the main actors in the biophotonics field, companies, institutes, academics and end-users, to maintain the basic activities of the OASIS project if events and studies are excluded. It will occur at the level of each of the partners, transformed by their experience gained during the OASIS project, mostly locally in their region/country.

One of the most important instruments to preserve from the project is the website, at least as long as necessary while waiting for another structure able to take over. All OASIS partners agree on the fact that the website should be maintained. Optitec can continue to own it at least until February 2019. Optitec will also continue to update the site until October this year after which it needs to be discussed depending on the availability of staff. Most partners are apparently ready to provide material for updating the website. Three partners are ready to being an alternative to Optitec if necessary. With the enquiry, we have got several suggestions about how the website could be improved. A general comment was to be more actively and regularly update the NEWs section. An idea is to add an information about the services offered by the seven clusters involved in OASIS in the Database. Another one to make the Database more central in the website structure and more interactive. Finally, some links are missing e.g. to the Twitter account.

Concerning the Database, all partners are ready to encourage additional companies, life science infrastructures and end-user needs to be registered even if originating from other countries/regions. The process of registration is already much simpler than the procedure applied at the beginning of the project, when a rather detailed questionnaire had to be filled. In fact, a questionnaire for external actors is can be found on the website section “Database access”. The required information is basically a short description (activity, expertise, interest in international collaboration etc.), a website link and the name of the cluster to be contacted to get more information, if the latter is not directly provided by the organisation itself. Other clusters than the OASIS partners could be mentioned as contact in certain cases.

All partners but one, are also ready to maintain a clear operating contact person for the field of biophotonics in their cluster. Polimi, not being formally a photonics cluster but a University indicates that the permanent staff might not be able to concentrate on tasks of that type. The contact person is expected to keep being updated about the biophotonics activities (e.g. national projects or involvements in EU projects) and actors in its respective geographical area. He or she is also expected to take care of connecting organizations and individuals of the clusters.

All partners are ready to continue sharing good practices and experiences between them. An instrument should be found to make sure that this happens on a sufficiently regular basis (it might be unrealistic to organise phone meetings regularly but some other tool such as Linkedin or any other social medium could be used).

All partners are also ready to co-sign a Memorandum of Understanding to formalise the continued cooperation constituting The Basics. A first version of this MoU will probably be discussed during the meeting to prepare the Final Review on July 11 in Brussels.

Some additional activities might be added to what has been described above. In particular, the new services described in the deliverable D4.5 will be considered.

2.2 Providing Joint Services

Another level of collaboration would be that the Photonics clusters jointly offer services and entertain this activity through fees and with a certain level of risk-taking. This touches the heart of the sustainability issue for photonics clusters. In fact, all clusters have so far got a substantial public support, either from direct subsidies from regions or through participation in EU projects. Membership fees for companies in the clusters have been kept at a relatively low level, and services provided, if not included in the membership fee, are often provided at a price significantly lower than the actual "production" cost. As the latest ICT29 Call of the European Commission encouraged photonics clusters to provide new "Go-To-Market" services to companies (mostly SMEs), it is probably a good timing for the clusters to go to market themselves and provide new services applying reasonable market adjusted prices. This is not completely true for all clusters and in some of them a more market oriented approach is ongoing as explained in D 4.6. It is a well-known fact that services provided for free are not always taken fully seriously. To just give one example of this, the sometimes last-minute cancellation of the participation in the workshops that OASIS organized can be mentioned. Paying a fee engages to the service received and the ones providing it.

Workshops: The first example of joint service that the OASIS partners could provide is the organization of biophotonics workshops following the best experiences during the project's lifetime. To properly organise such events, our estimation is that about one to two months of work are required and other direct costs for premises, possible invited speakers, food and advertisement are at the level of 10 to 20 kEuros (strongly depending on the country though). The sources of revenue, except the registration fees, can be found through sponsoring (could be even from local authorities) and with the organisation of a company exhibition. For each organized workshop, the level of commitment and financial responsibility should be carefully defined and agreed on in advance. Possible event's deficit will then be covered according to such agreement. Possible benefice should be shared between organising parts or used for future events (e.g. as a security). Note that Polimi, not being a cluster, is not allowed to participate in all of such commercial terms.

Combining human resources: Except the organisation of events, there is almost a consensus that it should be possible to provide joint services by combining human resources from different clusters. Two examples will be described below: help with EU applications and Connect SMEs and life science infrastructures.

EU project support: Clusters (here we include the seven clusters of OASIS and Univ. of Swansea but not Polimi since the latter is not allowed to provide services) are globally positive to:

- The reviewing of project ideas (although this might be difficult to provide on the basis of a distributed service because of the risk of unwanted information spreading)
- The pre-reviewing of proposals: Altogether our clusters gather a number of experts, with sometimes already an experience with the EC, who could be called to review proposals. In some cases, clusters could just connect the applying organisation to professional help. A fee is certainly applicable to this service since it requires roughly a working day.
- Helping finding the most suitable partners: This is an excellent example where combining forces can make a very big difference. This would in most cases be included in the membership since it is a question of a number of time-limited actions (calls and emails). However, the extent of the help from the cluster's staff depends of course strongly on its availability, and making that service payable will for sure increase the priority level of that task.

To the question whether or not to assist EU project participants with the administration of their project, the answer is mostly NO maybe because the work itself is maybe not the most

interesting one, may be a bit sensitive or the competence is missing in the cluster. Some partners would accept to do it as far as a dedicated budget is available in the project (e.g. sub-contracting). Clusters are more positive about helping companies with the realization of their project but here again with condition that a dedicated budget be available for them as sub-contractor or Third Party.

Connecting SMEs and Life Science facilities: All partners are positive in orientating SMEs towards the best-suited life science facilities or organizations providing pre-clinical trials using e.g. the Database. An interesting suggestion is to see broader than the bio database. There is a clear consensus about the interest to propose the services of "translators" either internal to clusters (although the number of such translators seems to be rather limited presently, maybe two or three at e.g. CNR and PNL in the health care field) or external. Translators are individuals having a good understanding of the two "worlds" the high-technological one and the life science one and good communication skills to make the discourses from one world intelligible to the other. As stressed in D4.5 they should also have business skills to mediate between technology providers and researchers. What regards the use of facilities, it is of particular importance to make the requests from the SMEs and the limitations or boundary conditions of the life science facilities compatible with each other's. Some clusters are even willing to help facilities with their access policy and pricing strategy, but they are a minority. Support and consultancy for certification and normalization is mentioned but in most cases to redirect the SMEs to the right contacts. The OASIS partners are mostly willing to foster R&D projects aiming at funding and training facilities' staff.

All photonics clusters and Swansea University are willing to co-sign a Memorandum of Understanding for providing Joint Services. Such an MoU will start to be prepared after the MoU concerning The Basics will be agreed on and signed. Every step shall be taken in the right order.

2.3 European Biophotonics Platform (EBP)

To reach a situation of stable sustainability and a possibility to more efficiently engage all other European actors in the biophotonics field, all OASIS partners (but one[2]) are convinced that the creation of a European Biophotonics Platform, EBP, would be an interesting instrument to consider.

Scope of the EBP: There is no obvious consensus on this important question and it obviously requires further dedicated discussions. To show the complexity and the present status of the discussions, the different propositions, answers and arguments are presented below:

- Proposition 1: Scope shall be the whole biophotonics field, i.e. as broadly defined as by the OASIS project (encompassing medicine and health, biology, agriculture, food, forensics, veterinary, cosmetics and pharmaceutics):
    - 4 YES: the first argument is that there is a need to cover the whole spectrum of applications with a single platform since the relevant technologies and to some extent the companies developing them have similar requirements and needs. Another argument is that reducing the scope to e.g. a few technology fields, e.g. imaging and or sensing would render the possibility to build a

[2] Polimi's position regarding the platform is that it is not needed since Photonics21 PPP has a work group 3 on Life Science and Health which can be used instead. Based on this point of view, Polimi did not answer to any other questions about the platform.

platform in parallel to the already existing EuroBioImaging platform very difficult to justify.

- 4 NOs: the main argument against this option is that the whole biophotonics field is far too broad and that it would therefore be difficult to build up a strong and coherent structure.

- Proposition 2: Scope shall be Imaging only:
  - 5 NOs: The main argument is again the fact that it seems almost unfeasible to build a new platform beside the EuroBioImaging platform even if other aspects would be quite different, e.g. be more industry-oriented than academy-oriented.
  - 3 YES: The main argument is to focus on a well-established technology field with obviously a great potential. The workshop organized in Amsterdam was dedicated to that area and the idea of the platform was first proposed and acclaimed there.

  Subsidiary questions if the scope is imaging:

  - Shall we include X-rays: YES (all)
  - Shall we include non-photonic imaging (and add more industry-oriented aspects)? NO (would increase the overlap with EuroBioImaging.

- Proposition 3: Scope shall be Imaging and Sensing:
  - Mostly NO but 3 partners were in favour of this alternative since sensing and imaging are strongly related which would provide synergies.

Not already sharing the same view of the scope of the platform, we will below, for simplicity, talk about the European Biophotonics Platform (EBP) even if the scope might be reduced later. The word “biophotonics” will be used with the same assumption.

Activities, Organization and Financing of the EBP

There is a consensus about the fact that the platform shall be the central point to gather all possible information related to the field of “biophotonics” in Europe both what regards research, innovation and development at universities, institutes and in industry. The platform shall finalize the analysis of the results of OASIS (since a lot happened at the end of the project). The platform shall also be the privileged contact point for end-users looking for technological solutions.

Forum for exchanges and networking: All partners (in some cases surprisingly except our coordinator Optitec) agree on the following activities:

- Initiation and organization of workshops.
- Organization of webinars.
- Newsletters: less clear enthusiasm. One alternative is to post regular News when appearing instead of gathering several in a letter.
- Connecting SMEs and infrastructures: EBP could make sure that SMEs willing to use an equipment found in a life science infrastructure can do it in the best conditions. EBP can help describing the project in a translator’s position i.e. with a good knowledge of both the SMEs request and the boundary conditions of the facility.

Organization:

- Have a part-time employee? Mostly YES but 4 partners believe that it could be started through a combined manpower effort.
- Be part of a legal entity? Mostly NO
- Be able to participate in EU project? No clear consensus.

Financing:

- Be self-sustained? YES, possibly through external projects.
- Have membership fees? Mostly NO.
- Have a contribution from the clusters? Mostly YES. Before all as manpower.
- Be at least partly funded by European financing? YES
- Be partly supported by companies active in biophotonics? Mostly YES (sponsoring).

Interaction with existing organisations:

- **Photonics4life:** A possibility is that EBP at term merges with or even includes the Network of Excellence (NoE) Photonics4Life (P4L) but there is no clear consensus about this among the partners. If there is a rather positive opinion about closely collaborating with P4L, the majority seems against a higher degree of integration between EBP and P4L. The fact is that P4L although still alive and supported by the coordinator Jürgen Popp and his organization, the University of Jena, seems to have reached a certain point of breathlessness and not much new activities and information have appeared lately. In that context, the creation of the EBP could be a good opportunity to get new life in the NoE and its clear academic focus. P4L has engaged companies in the network but the number of members in its Industrial User Club is only 26. The OASIS photonics clusters and Swansea University are convinced that both the academic and industrial aspects should coexist in the platform and are strongly interrelated. There should be a good way for the OASIS consortium and their related biophotonics companies and life science infrastructures to harmoniously collaborate with Photonics4Life.
- **Photonics21 PPP (WG3):** Photonics21 Public Private Partnership launched in December 2013 represents the photonics community of industry and research organisations in a close collaboration with the European Commission. Its members develop a common photonics strategy for future research and innovation in Europe. Photonics21 has 7 Work Groups (WGs) related to applications and cross-sectoral themes. The WG3 is dedicated to the application area Life Science and Health. This WG like all others meet about once a year during the Annual Meeting and up to 2 times during the years when a new Work Programme has to be determined (with some emails discussions to finalise the process). With such a structure and way of working it seems impossible for this P21-WG3 to achieve all the aims of the EBP. It can also be observed that although Photonics21 is from its creation said to be industry-driven, only about one third of the about 540 members of WG3 are coming from industrial companies and a little proportion of which are SMEs. The WG3 Chair was for many years Jürgen Popp, i.e. a University Professor. The present Chair is Stefan Traeger from the company Tecan, a Swiss biopharmaceutical company indicating a probable change of focus (since WG Chairs obviously have a rather large influence on the output of their Work Group).

If Photonics21 is probably not a satisfactory alternative to the EBP, we believe that the latter could contribute to the WG3 by bringing the opinion of stakeholders representing the multiple end-users connected to biophotonics. In this way, the EBP could help in connecting WG3 more efficiently to other parts of Horizon2020 than ICT, not the least the first Societal Challenge, SC1.

- **European Photonics Industry Consortium (EPIC):** EPIC presents itself as the industry association that promotes the sustainable development of organisations working in the field of photonics in Europe. EPIC has 240 member organizations in 28 countries. The activities of EPIC are mainly based on about 20 workshops yearly (with of course a fee). At least one or two of these workshops every year are dedicated to biophotonics. The themes for these biophotonics-related workshops are sometimes very specialized. There are in fact three of such workshops during 2016: a) On May 25-26 on Photonic Systems for Life Sciences, b) On September 22 on Lighting for Horticulture and c) December 1-2 on Biophotonics (Oncology). EPIC has also been producing a number of market studies connected to biophotonics.

  Obviously EPIC can be seen as both a potential partner and a potential competitor especially for what concerns the organization of events. At this point, our consortium just needs to entertain the dialogue with EPIC and be aware of what they organize and produce. To the question: Could events be co-organized with EPIC, some partners are positive whereas others are afraid of losing visibility and control. EPIC's main strengths are their ability to organize networking and an extremely efficient dissemination. It would of course be very interesting to be able to use the EPIC reports but they are for members use only.

- **EuroBioImaging platform (EuBI):** In italic extract from the website: *The European Research Infrastructure for Imaging Technologies in Biological and Biomedical Sciences (Euro-BioImaging, EuBI or EuBI ERIC) provides open physical user access to a broad range of state-of-the-art technologies in biological and biomedical imaging for life scientists. In addition, EuBI is also aiming at offering image data support and training for infrastructure users and providers. The EuBI consists of a set of 29 geographically distributed Node Candidates (specialised imaging facilities) that can grant access to scientists from all European countries and beyond. Currently, researchers can apply to use some of 36 imaging technologies offered through Euro-BioImaging.* EuBI is part of ESFRI, the European Strategy Forum on Research Infrastructures, a strategic instrument to develop the scientific integration of Europe and to strengthen its international outreach.

  Most of these imaging technologies are related to optics and photonics (including of course X-rays in some cases) and the non-optical techniques are e.g. Magnetic Resonance Imaging (MRI) and Positron Emission Tomography (PET). The areas of the EBP which do not overlap with EuBI are the following, as far as the whole biophotonics technologies are considered: a) Light-based therapy. b) optical sensing. c) Other optical diagnostics tools. d) optical manipulation (tweezers, selection).

  All 8 partners think that the EBP can complement EuBI in a good manner in spite of the obvious relatively large overlap. At the same time most partners believe that it would be good to always connect to the more advanced EuBI platform when it concerns access to imaging infrastructures. The main differences between EBP and EuBI are the EBP would be much more industry-oriented and much more innovation-oriented, i.e. focusing on technology transfer. EuBI is very much focused on academic research excellence rather than on the creation of new products and industries.

3 Summary

This deliverable has presented the plan for exploitation and sustainability of the OASIS project. The idea is to start by organizing the collaboration at a basic level to maintain the basic activities of the OASIS project excluding events and studies. The next level consists of offering joint services mostly based on fees. This level will strongly be influenced by whether or not the application ÉPRISE will be accepted or not. Finally, the creation of a European Biophotonics Platform is thought as a powerful instrument to further develop the services and the collaboration between photonic clusters and open the scope to other European regions/countries. Partners administratively part of universities will in some cases be able to be part of the collaboration sometimes not, depending on their policy. A memorandum of understanding related to The Basics including all partners will be discussed and formalized in July 2016. Another memorandum of understanding related to the Joint Services including all but one partner will be prepared after the summer. Discussions about the European Biophotonics Platform will continue in parallel. It is not impossible that one of the partners takes the lead regarding the EBP.