



July 2011

**Report on a consultation workshop on the possible content of "Horizon 2020" -
Common Strategic Framework for Research and Innovation (2014-2020)**

Held on Monday, 4th of July 2011

Subject: Research Infrastructures

1. Welcome and introduction

The introduction was given by *M. Campolargo* and *O. Quintana-Trias*. They reminded the participants with background and objectives, linked with the preparation of the next Common Strategy Framework (CSF), renamed as Horizon 2020. They highlighted that the objectives of the EU should be centred on words such as SMART, SUSTAINABLE and INCLUSIVE and that the 3% GDP for R&D investment, existing already in the 2010 Lisbon objectives are still the EU target.

Horizon 2020 will support the existing initiatives of the Commission such as the Innovation Union and the Digital Agenda. It would cover the current FP7 programme as well as other existing programmes like CIP and EIT. It should be complemented by an increased use of Structural Funds (SF) for Research & Innovation, including for Research Infrastructures (RI).

The Commission has already drafted a budget envelop for its action beyond 2013. The proposed budget is around 80 B€ at 2011 prices, not including ITER and GMES. This corresponds to a 46% increase compared to FP7. The adoption process is only starting now, and the legislative decision will be taken during 2012-2013, for CSF implementation from 2014 on.

<http://www.ec.europa.eu/research/csfri>

2. Context and state of play of Horizon 2020

Key messages from Green Paper consultation as regards research infrastructures

introduced by C. Vasilakos

- The EC performed a detailed analysis of the public consultation about the Green Paper entitled "From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation funding". The paper, which was published by the Commission on February 9th, was open for comments till June 20th, 2011.
- The public consultation is complemented with specific consultation workshops. The present meeting is one of these, for Research Infrastructures.
- About 1300 responses were received. To the question #25, regarding RI funding by the UE, 81% of responders supported the principle (31%, 33% and 17% corresponding to very important, important and of some importance opinions).
- There was a relatively low answer rate from industry (14%), but from an EU perspective, RI are really the ERA backbone, even if answerers recognize the need of a more balanced distribution of RI across Europe.

- Concerning ESFRI, comments emphasize the need to focus on implementation and sustainability of the RI identified in the 2010 roadmap. However, regular updates in line with societal challenges are expected. To improve the RI distribution across Europe, the Regional Partner Facility concept is appreciated, and more technology activities are desirable as well.
- About the funding requirements, there is a consensus that the CSF (Horizon 2020) should provide funding for RI, but also be a leveraging instrument for more funding from other sources. Member States are expected to earmark structural funds for RI construction, and a better coordination is wished for the various funding instruments.
- e-Infrastructures get support as critical infrastructures for e-science and open access to scientific data. They are perceived also as knowledge and innovation enablers. As fully multidisciplinary infrastructures, they should preferably be coordinated at the EU level.
- The existing Integrating Activities (I3) should be maintained and reinforced. Longer term awards are advocated for the largest I3 (>4-5 years), including eventually a mid term review. A strong motivation for promoting Open Access for RI as well (with simplified system for supporting the access costs).
- The new RI should be supported and the design studies as well.
- Comments about industry partnerships advocate for an enhanced industry involvement, and an improvement of the current eco-system should allow better schemes for technology transfers.

Main lines for action for research infrastructures

Introduced by H. Pero, K. Glinos

- The current situation for RI from the EC point of view (DG-RTD) has the following features:
 - The EU definitely needs world-class research infrastructures for producing the best science and attracting also the best researchers;
 - The potential of RI is still largely under-exploited;
 - In the present model, RI sustainability is not guaranteed;
 - With regard to the task of deploying the ESFRI roadmap, the EU is needing an "implementation engine"
- There are three objectives foreseen in CSF:
 - Objective #1: Optimize the use and development of pan-European RIs without forgetting their regional partners facilities, integrating national RI of pan-European interest into a fully integrated RI ecosystem and developing e-infrastructures which have a significant role to play in all scientific fields;
 - Objective #2: Fostering the RI innovation potential and human capital as well;
 - Objective #3: Reinforcing the consistency between MS and EU policies for implementing and operating RIs, and promoting the global dimension.
- Objectives 2 & 3 could be pursued independently or through the actions under objective 1.
- In summary, the future RI programme should be more open and more integrated, addressing more specifically than in the past::
 - Innovation, both aiming at the suppliers as well as at the users of the RIs;
 - The development of human capital;
 - International and regional integration.
- Following the presentation of the Commission, several concerns were raised by experts:
 - Education/Training is too weakly accounted for.

- There is also a risk to build a collection of world class RIs (with SF for instance) and not being able to afford the operating costs.
- There is a need for prioritisation, as the present ESFRI roadmap is worth around 20 B€ investment plus 2 B€/year for operating costs. It is likely that not all RI will be built. A strong interaction with other DGs is recommended, especially DG-REGIO.
- There is a fundamental difference between regional and R&I policies in terms of criteria used for the evaluation of actions.

Discussion about the Open Access brought in several comments:

- Open Access (to scientific data and publications) is valuable to industry as well, because of the high cost of standard subscriptions for scientific publications;
- Curation and preservation of data are fundamental. There is no point to store and archive anything, without the proper mechanisms to curate and maintain these data. Otherwise, they are useless.
- Open Access (to research infrastructures) does not mean Free Access. However, cost of access should not be a discriminatory algorithm.

3. *Future EU support for research infrastructures - discussion on some key questions*

How to best support the implementation of the ESFRI projects and other large-scale infrastructures of pan-European interest as well as the emergence of new research infrastructures in Europe?

Introductions by D. Pasini, J. Moulin

- Primary focus is the support to the implementation and operation (including access) of the ESFRI research infrastructures (50 pan-European RIs identified in the 2010 ESFRI roadmap), beyond their preparatory phases. Support only for activities with clear European added value (no capital investment) e.g. operating cost of the central coordinating hub for distributed RIs, networking, transnational access and joint research activities, technology transfer activities, exchange of personnel, data management, outreach activities, training activities.
- Support also for Regional Partner Facilities which are a key aspect to insure a better distribution of RIs in Europe.
- CSF should support further preparatory phases to contribute to an expected 20 new RI as update of the roadmap, with an enlargement to cover engineering activities as well.
- Support for the design studies is planned as well (30 new studies are expected), with more importance to the enlargement of technical activities.

Discussion raised different views:

- The ESFRI vision is to help developing a common funding “pot”¹, similar to the ERC for instance (likely to be in Horizon 2050 rather than Horizon 2020 according to some). But it would require a consistent definition of subsidiarity between MS and EC.
- A significant budget increase is needed for the transnational access, which is a fundamental contribution to the RI-based ERA. The "I3" has been a key instrument to enhance the use of RIs. To some extent, support to distributed RIs could be considered through an I3-like funding mechanism.

¹ "Common funding pot" denotes the idea of a single European body or agency, managing centrally the budget for pan-European research infrastructures (at least for the operating costs), like ERC is in charge of detecting and supporting the best and most innovative research projects in Europe.

- More coordination with other DGs (health, Environment, Industry) is needed.
- Coordination between ESFRI projects is still too weak. Furthermore, the interaction with global projects/organisations, like GEOSS or WMO etc. is too very weakly identified.
- Access to RIs should be used also to support visitors.
- There is still too much distance between RIs and e-infrastructures, with a lack of awareness for the fundamental role of data and interoperability.
- Training and education should be part of RIs; the training/education dimension, not supported by the Marie Curie actions is relevant to the RIs responsibility.
- Evaluation of RIs is the subject of a dedicated working group of ESFRI. It will clarify ex-ante and ex-post evaluation, and help establish a set of relevant criteria.
- The importance of international cooperation was highlighted, but it was also mentioned that Regional Partner Facilities may be conflicting with regional ambitions.
- Building a central body to fund the RIs is different from managing the relationship between MSs, which keep a fundamental role for the RI sustainable operation.
- The EC could support some operation costs (e.g. of distributed RI) to ensure their EU-level scope and openness, provided that this does not result in reduction of investment at MS level.
- As already identified, the creation of new RIs will not be possible without the shutting down of some of existing ones. Therefore, the prioritisation remains a key requirement for all MS.

SYNTHESIS

Beyond the implementation of the existing ESFRI roadmap, it is expected another set of up to 20 new RIs in the 2020 timeframe. The evaluation of RIs, both ex-ante and ex-post is highlighted, together with the need of prioritisation. There should be more convergence between RIs and e-RIs, especially because of the fundamental role of proper management of scientific data, regarding interoperability and preservation.

A common funding pot might be considered on the long term, for all RIs of pan-European interest. On a shorter time scale, the EC must consider to fund part of the operation costs resulting from a truly pan-European openness of infrastructures (e.g. the central hub of distributed infrastructures).

How to best support ICT-based e-Infrastructures, from networks and computing to data and software? How to ensure they support the leading edge users while digitally empowering all researchers? How to best achieve seamless e-Infrastructure services and build a single online ERA?

Introductions by K. Glinos (DG-INFOS), G. Host (e-IRG)

- From the definition of ICT-based RI, the aim is the development and deployment of e-infrastructures, together with services. Their continuous upgrade is required for a sustainable operation in the interest of the community.
- The e-infrastructures support more easily and flexibly virtual communities, with the development of innovative services and up-to-date technological base.
- These e-infrastructures should also leverage activities and services beyond research. This will require awareness, national policy alignment, communication and training.
- EU is working on policy definition for clouds, HPC and on harmonization of scientific data infrastructures.

- Recall of the issue of scientific data growth rate (data deluge), with the example of genome sequencing for which the cross-over between the data volume and the storage capacity happened already in 2010.
- On the computing power side, EU is permanently 3 years behind the n°1 of the TOP500 ranking.
- Pan-European e-infrastructures can readily be expanded while the scientific workforce is relatively stable.
- e-IRG recommendation is to multiply by 4, the funding of e-infrastructures compared to FP7. Furthermore, a separate pillar of funding should be identified for e-infrastructures, while SF could be also used to address the digital divide between countries and regions.
- The role of e-IRG should be emphasized.

Discussion raised the following views:

- Training and education should be part of RIs.
- The data layer is more difficult to build than other layers such as communication network, grids, HPC etc, because while the ultimate goals are well perceived (interoperability, curation, preservation, etc.), the ways and methodologies to achieve them are still largely undefined.
- The role of research libraries is highlighted as:
 - Open Access to research literature
 - Copyright reform
 - Access
 - Digital Preservation
 - Digitisation
 - Research Data
- Cloud infrastructures should not be perceived as the global solution, especially from commercial offers. Science issues should be more properly accounted for.
- Success of e-Infrastructures needs a better relationship between users and service providers.
- It was advocated to have a combination of a top-down, policy-driven approach per e-infrastructure area with a bottom-up approach to identify innovation opportunities and new needs and communities.
- Again, it is emphasized that investment in human capital should be done in parallel to investment in hardware/software. Also as viewed from ERC, excellent people tend to go to excellent institutes and RIs. Therefore it is required that less developed regions host RIs as well.
- EIROforum points out a pilot initiative with industry for a joint data and computing infrastructure. Bridge between Industry and Science should be emphasized, especially for SMEs. Industry is really looking for better means to cooperate with Science and Research, but an enhanced dialogue is sought to achieve this.
- Because it is technically not a difficulty for e-Infrastructures, it is recommended that they are open to all researchers.
- e-Infrastructures are increasing the efficiency of research and innovation but this requires support not only for the infrastructures but also for changing the entire research process.

SYNTHESIS

e-Infrastructures are indispensable for research and for achieving the 5th freedom, but their technological basis evolves very quickly. Training and education should be part of all e-

infrastructures initiatives. Among all layers of e-infrastructures, the data layer is still underdeveloped, even if the ultimate goals for open access, interoperability and long term preservation and curation are well identified by all experts. Partnership with industry is perceived as a means to foster knowledge and technology transfer but there is still room for improvement for the dialogue with the private sector, both as a supplier and as user.

How to best support the integration and optimisation of existing facilities and their opening to the full European user community?

Introductions by: J.E. Faure, P. Fletcher

- Strong argument for integrating national RIs (of international interest) in the European landscape) by coordinating the use, and making access easier. A continuation of the successful FP7 Integrating Activities (and FP6 Integrated Infrastructure Initiatives).
- Networks of research infrastructures in different domains covering all fields of science and technology. By 2020, it is expected that around 100 networks would be supported.
- Integrating Activities are representing the key instrument to identify and organise user communities and their needed facilities and transnational access. But Integrating Activities should be better funded and their interaction with ERIC should be clarified.
- Awards should cover longer periods for major networks.
- To the question of targeted calls versus bottom-up approach, a proper medium approach should be to prepare them via Expressions of Interest.

Discussion

- Efficiency of the RI ecosystem may be greatly improved through coordination actions. EUROFLEET is taken as a relevant example. Among others, exchange of experience about best practices should be recommended to RI managers.
- The Expressions of Interests to build bottom-up approach should however be properly linked to other thematic actions and to Joint Programming Initiatives (JPI), even if the characteristic time scales may be quite different.
- A close interaction between ESFRI and Integrating Activities is again recommended.
- There may be different outcome from peer-review compared to ex-post evaluation (based on predefined sets of criteria).
- The past practice of thematic calls is appropriate except that flexibility is reduced due to the establishment of priorities that needs to be made far in advance. The combination of a bottom-up with the top-down approach could be helpful.
- Another point is the importance of data infrastructures, for which more synergy is required among the existing RIs.

SYNTHESIS

Cooperation among MS has been proved already to be very efficient and should be pursued.

Sufficient funding to support the integration of National RIs across all S&T fields would deliver a significant improvement of the European (ERA) landscape. Clear criteria for evaluation and prioritisation are required, recognising scientific excellence and strategic requirements, especially to identify disciplines for larger or longer awards.

Expressions of Interest preparing targeted calls could be the ad-hoc process to combine scientific excellence with prioritisation. The efficient organisation of the data infrastructure is required at all levels.

How to best develop an effective European policy for research infrastructures? How should research infrastructures be leveraged for education, regional development or societal goals at large?

Introductions by C. Morais Pires, K. Koski

- A key point at the policy level is to reinforce the consistency and efficiency of MS and EU RIs policies. The question is still open how to best develop the EU policy, in phase with the national level.
- This policy effort should also leverage for education and innovation aspects as well.

Discussion

- A clear definition of everybody's role is required (Who is doing what? How to increase the efficiency and to reduce overlap between various RIs)
- e-Infrastructures are recognized in their pervasive role, especially because of the key issues around scientific data. However, e-infrastructures are not only important for research or information society, but they also span other areas for example transport, governance, energy, health, etc. Thus the policy actions should take into account the potential synergy beyond the typical RI user and promote policies suitable for larger inclusion.
- Discussion about assessment of RIs: Confusion must be avoided between research activities, technology know-how, etc. The evaluation systems should not be mixed as well: As example, socio-economic returns should not be aggregated with scientific excellence (but this point has been underlined already when dealing with regional issues).
- About scientific data, there is a strong view that the publication of data goes hand-in-hand with their usability (and their need). Otherwise, there is no need or justification to store data (as they are useless). Even if data will never be unified, there is a huge improvement needed in terms of interoperability. However, the path to achieve this interoperability is still to be worked out and clarified.
- To start with the effective EU policy definition, we need a vision. This should be built from various drivers, related to the ERA, scientific excellence, innovation and the impact on society. The actors for this policy development are not only the RI users, but the citizens as well.
- Evaluation is fundamental, but choices in terms of industrial strategy are important as well.
- The identification of user needs is an important parameter that needs to be properly addressed.
- A further difficulty is to manage properly (and to articulate) between local, national, regional, European and global dimensions.
- There is a strong risk for research to delegate (outsource) to private companies. However, companies like Google and Co are needed, but not to fulfil any task or duty.
- The development of RIs (especially e-infrastructures) should not ignore the environment issues. Green ICT should be kept in mind in all progress, because of the increasing volume of scientific data to be managed.
- It must be kept in mind that the main objective is to increase the quantity and quality of research and innovation activity and scientific production.
- Scientific excellence stands also for quality of operation, which may not be that straightforward!

SYNTHESIS

To start with a policy definition, there is a need to have a vision of what are the needs and what should be the future landscape of RIs. Various roles should be clearly defined. But the vision should not be developed only by RI operators, but also by citizens or by the society. Evaluation will be a corner stone, but RIs may also be part of long term industrial strategies (silicon components or HPC for instance).

The data infrastructure requires further definition work and implementation strategy.

The RI policy development must include education and training aspects, as these are in the middle of the win-win game between the science (RI) and the economy (providers).

The characteristic time scales of RIs are long term, which must be kept as the policy principle and protect RI's from short termism. This is not the case of research projects and grants, and even not the case of Joint Programming.

How to maximise the innovation potential of research infrastructures, including for industry and SMEs?

Introductions by H. Péro, M. Marinucci

- Strengthening the EU technological Innovation potential
 - Strengthen synergies between RIs and their suppliers
 - § Make EU industry more competitive by using RIs as lead markets and early adopters of technology
 - § Facilitate a EU market of scientific instrumentation
 - Link better RIs and industrial users
 - § Use RIs as test-beds for industrial innovation
 - § Transfer know-how from RIs towards industry and SMEs
 - Promote the integration of RI in innovation eco-systems (local, regional, global or virtual)
 - § Support to EU-wide coordinated actions linking better RIs with the innovation actors
- Contribute to a world-class human capital and public service
 - Train staff in - and through – RIs
 - § Specific training on Management of RIs, and support to the setting-up and operation of an EU MBA devoted to such facilities
 - § Specific training of industrial researchers
 - Education of the next generation of researchers
 - § Analysis and surveys of best practices; development of new curricula (exploiting the potential offered by RIs)
 - § Use of e-infrastructures by teachers and pupils, enabling “citizen scientists”
 - Leverage RIs for public service
 - § Analysis and surveys of best practices
 - § Specific training of users in public services, e.g. in health, security, civil protection, environmental monitoring, etc.

- Fostering the RI innovation and human capital potential would:
 - Strengthen synergies between RIs and their suppliers;
 - Link between RIs and industrial users;
 - Promote the integration of RIs in the innovation ecosystem;
 - Train staff in and through RIs;
 - Contribute to the education of next generation of researchers
 - Leverage RIs for public services
- Key questions are:
 - How to identify the innovation potential and what is it?
 - How to create opportunities and how to exploit them?
 - How can scientific excellence meet industry requirements and vice-versa?
 - What are the current technologies enabling the process?
 - How to balance cooperation and competition?
- Answering these, a wider approach is needed that relies on interoperability, data considered as the asset, daring projects and new service-based approaches. Cross-breeding assumes mobility and exchanges and strategic alignment assumes common objectives and time synchronisation.
- Showstopper are: security/trust, IPR, and appropriate collaboration framework, jargon and risks.
- The role of demonstrators is highlighted (HPC, energy), often linked to the existence of an industrial strategy. In such cases, EU rules should not block EU development! Indeed, interplay between research and industry actors is complicated and multi-faceted. It is highly recommended that procurement for research should be widely utilised but not follow standard rules, considering also the double role of industry as supplier and possible user.
- In line with this concern for industrial strategy, longer time scale for RI support should be examined versus the ordinary time scale for research projects. But there may be a gap to overcome in order to have the industrial strategies comply with local or European interests.
- It was also suggested that some % of all RI projects should be allocated to entrepreneurship activities.

SYNTHESIS

Strengthening the EU technological innovation potential would imply reinforced synergies between RIs and industrial users and suppliers. This would also enhance the virtuous loop between science and industry regarding the education and training, through the human capital investment and possible leveraging effects for public services, especially as e-infrastructures are concerned.

Demonstrators are recommended in many fields to foster exchanges with the commercial sector, for the benefit of science communities. Exchanges between science and industry should also be exploited through the double role that industry itself covers as both user and supplier.

What should be done to ensure strong linkages between the actions for research infrastructures and other parts of Horizon 2020, e.g. the parts for competitiveness and societal challenges?

Introductions by W. Cannell

- Proper coordination with the other actions under the "Excellence in the Science Base" Specific Programme (e.g. Marie Curie actions) is needed for seeking consistency and leveraging effects.

Discussion

- A common window is suggested in order to apply for all research-related projects funded by the various DGs of the EC.
- Merging of FP, CIP and EIT would certainly help gaining this consistency. Linkages will be needed also with ERC and Marie Curie.
- ERC is strongly interested by the development of RIs. The bottom-up approach would be OK, provided that evaluation and prioritisation are in place. This is in line also with EURAB recommendations.
- Because of their characteristic time scale, RIs cannot be considered as agile. Similar gap exists also between IT industry and EC funding.
- There is a consensus among experts to recognize that European Innovation Partnership will require RIs anyway. Then the challenge will be how to access them especially for industry.
- Identifying specific grants for access and operation costs would certainly help.

SYNTHESIS

Proper coordination with the other parts of CSF is required. This should help to face global societal challenges. However the disparity of characteristic time scales between RIs and other initiatives is a challenge.

How to ensure strong linkages between Horizon 2020 actions for research infrastructures and the Structural Funds?

Introductions by C. Vasilakos, N. Kroo

- Do we need to enhance more the linkages between National, Regional and European funding through an efficient and effective mechanism and how?
- Should the Regional Authorities and local stakeholders be more involved in the implementation process of Horizon 2020 and in particular in the implementation of ESFRI Roadmap?
- Should the European Commission provide more practical assistance and RI support actions to national and regional policy makers? How can Regional Partner Facilities be included in this context?

Discussion

- Upon request for clarification about the use of SF, the Commission reminds that plans need to be made now, because of time scales: new programming of SF will start in 2014 (as the Horizon 2020) and a dialogue with MS should be promoted.
- SF are more and more concerned with Innovation and RIs. A region can even contribute for another region by involving its own industry.
- A strong argument is made that SF should be considered as a global asset of the EU, and not only as a local advantage. The action is therefore to achieve a global decision making process for using SF for RIs.
- ESFRI and e-IRG are proposed as appropriate fora for this global action. As examples, ELI (Extreme Light Infrastructure) and ESS (European Spallation Source) are cited.

SYNTHESIS

Mobilisation of SF for the implementation of major infrastructures is needed. However, special attention is needed to account for different ambitions of the funding mechanisms: regional development and competitiveness versus scientific excellence! Structural funds should be considered as an asset of the EU as a whole, and not just as a local tool.

ESFRI and e-IRG may be seen also as appropriate fora for bringing the EU-level view, as this was demonstrated for ELI and ESS already.

4. *Wrap-up points and late contributions*

- There were a lot of references to the requirement of ensuring the proper investment on human capital (training and education). The pillar of this is universities, which are marginally concerned with RIs. They should be recognized as full partners as well.
- It is important not to underestimate the need for funding certain operational costs including costs of access and RIs' upgrade.
- Europe should move away from a R&D model where competition is the lead of innovation and cooperation is a means to better competition, to one where cooperation is the lead and competition is the means to better cooperation. This requires both a thinking mode shift and a world champion taking the lead of a global model shift. Europe has sufficient historical and technological solidity to take up this challenge and become the world champion of cooperation among the big actors (US, Japan, China, India, Brazil). Practically, this would involve strengthening the international dimension of all its R&D programs, including research infrastructures.
- To sponsor innovation and entrepreneurship, which is believed to be the key to a sustainable technological and independent Europe, then one must be more ambitious and accept failure as a natural consequence of pushing the envelope. People must be encouraged to take risks. Failure to do that will keep Europe behind the US today and probably Asia tomorrow. So, lowering the barriers to innovation is key.
- In the field of nanotechnologies, a model for long term partnership with industry is proposed, based on three levels of expertise: The first level would be managed by academic research laboratories. The second pre-industrial level is driven by Institutes and the third one is managed by the European industry. This scheme should be strongly supported by three levels of research infrastructures in line with the R&D projects, which is very important as regard to competitiveness.
- e-Infrastructures need to face emerging challenges to better address broadening of their user base and industry.

5. *Close of meeting*

The chair thanked all attendees for their active participation. He also reminded them to send their possible comments to *D. Vandromme*, acting as rapporteur.

He concluded in highlighting the strong support from the present stakeholders towards the proposed lines of actions which the EC colleagues had presented.

Research Infrastructures

Workshop on the content of Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)

Monday, 4th of July 2011, Avenue de Beaulieu 33, 1160 Brussels

Chairs: Octavi Quintana (Director of DG RTD - Directorate B)
Mario Campolargo (Director of DG INFSO - Directorate F)

Agenda

	Timing
1. Welcome and introduction - Background and objectives <i>M. Campolargo, O. Quintana-Trias</i>	10:00
2. Context and state of play of Horizon 2020 - Key messages from Green Paper consultation as regards research infrastructures <i>C. Vasilakos</i> - Main lines for action for research infrastructures <i>H. Péro, K. Glinos</i>	10:10
3. Future EU support for research infrastructures - discussion on some key questions	
- How to best support the implementation of the ESFRI projects and other large-scale infrastructures of pan-European interest as well as the emergence of new research infrastructures in Europe? <i>Introductions by: D. Pasini, J. Moulin</i>	10:45
- How to best support ICT-based e-Infrastructures, from networks and computing to data and software? How to ensure they support the leading edge users while digitally empowering all researchers? How to best achieve seamless e-Infrastructure services and build a single <i>online ERA</i> ? <i>Introductions by: K. Glinos, G. Host</i>	11:30
- How to best support the integration and optimisation of existing facilities and their opening to the full European user community? <i>Introductions by: J.E. Faure, P. Fletcher</i>	12:15
<i>Sandwich buffet</i>	13:00
- How to best develop an effective European policy for research infrastructures? How should research infrastructures be leveraged for education, regional development or societal goals at large? <i>Introductions by: C. Morais Pires, K. Koski</i>	13:45
- How to maximise the innovation potential of research infrastructures, including for industry and SMEs? <i>Introductions by: H. Péro, M. Marinucci</i>	14:30
- What should be done to ensure strong linkages between the actions for research infrastructures and other parts of Horizon 2020, e.g. the parts for competitiveness and societal challenges? <i>Introductions by: W. Cannell</i>	15:15
- How to ensure strong linkages between Horizon 2020 actions for research infrastructures and the Structural Funds? <i>Introductions by: C. Vasilakos, N. Kroo</i>	16:00
4. Summary of key points	16:45
5. Close of meeting	17:00

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