WORK PROGRAMME 2011

CAPACITIES

PART 1

RESEARCH INFRASTRUCTURES

(European Commission C(2010)4903 of 19 July 2010)

The overall objective of the Research Infrastructures part of the 'Capacities' specific programme is to optimise the use and development of the best research infrastructures existing in Europe, and to help to create in all fields of science and technology new research infrastructures of pan-European interest needed by the European scientific community to remain at the forefront of the advancement of research, and able to help industry to strengthen its base of knowledge and its technological know how.

I. CONTEXT

Policy context

The Europe 2020 strategy (COM(2010)2020) **sets the objectives of smart, sustainable and inclusive growth. It announces a re-focusing of research and innovation policy on the challenges facing our society. . In order to address these challenges Europe needs to mobilise its best researcher from across all disciplines. The objective of this work programme for Research Infrastructures is to promote the development of a consistent and world-class eco-system of Research Infrastructures enabling researchers to make decisive contributions to realising the objectives of Europe 2020 and its Innovation Union flagship initiative. The Digital Agenda[1] for Europe, another flagship initiative of Europe 2020, highlights the role of the e-Infrastructures for building Europe innovative advantage. The further development and adoption of e-Infrastructures are explicitly addressed by this work programme.**

Research infrastructures play an increasing role in the advancement of knowledge and technology and their exploitation. For example, radiation sources, data banks in genomics and data banks in social science, observatories for environmental sciences, systems of imaging or clean rooms for the study and development of new materials or nano-electronics, are at the core of research and innovation processes. By offering unique research services to users from different countries, including from the peripheral and outermost regions, by attracting young people to science and through networking of facilities, research infrastructures help structuring the scientific community and play therefore a key role in the construction of an efficient research and innovation environment. Because of their ability to assemble a 'critical mass' of people and investment, they contribute to national, regional and European economic development. They are therefore at the core of the knowledge triangle of research, education and innovation.

The development of a European approach with regard to research infrastructures, including computing and communication based e-infrastructures, and the carrying out of activities in this area at a European level, can make a significant contribution to boosting European research potential and its exploitation, as well as to reinforcing European research communities. Indeed, since such infrastructures are expensive and need a broad range of expertise to be developed, they should be built, used and exploited on a European or even a global scale.

While Member States remain central in the development and financing of most infrastructures, the EU can and should via FP7 play a catalysing and leveraging role by helping to ensure wider and more efficient access to, and use of, the infrastructures existing in the different Member States. The EU actions should also stimulate the coordinated

[1] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions A Digital Agenda for Europe /COM/2010/0245 final

development and networking of these infrastructures, and foster the emergence of new research infrastructures of pan-European interest within a medium to long term vision[2].

Activities

Within the scope of this EU action, the term 'research infrastructures' refers to facilities, resources and related services that are used by the scientific community to conduct top-level research in their respective fields. This definition covers: major scientific equipment or set of instruments; knowledge based-resources such as collections, archives or structured scientific information; enabling ICT-based e-Infrastructures such as data, computing, software and communication infrastructures; any other entity of a unique nature essential to achieve excellence in research. Research infrastructures may be 'single-sited' or 'distributed' (a network of resources).

This EU action will only address research infrastructures with a clear European dimension and added value in terms of performance and access. These infrastructures must contribute significantly to the development of European research capacities. The activities to be supported are identified under three main lines of actions as described below.

1 - Support to existing research infrastructures

The objective is to optimise the use and development of existing research infrastructures in all fields of science and technology, including ICT-based e-infrastructures, and to facilitate the access of research teams from all over the EU to these infrastructures. This line of action represents the majority of the efforts (more than 60% of the operational funds) to be carried out under this part of the Specific Programme. Support will be provided for:

- *Integrating Activities:* to bring together and integrate, on a European scale, key research infrastructures in a given field, in order to promote their coordinated use and development. Integrating Activities provide researchers with a harmonised and optimised access to the best research infrastructures of a given field, independent of where the research infrastructures are located and by whom they are operated. In particular, they provide users with harmonised and enhanced interfaces, improved processing methods and optimised procedures. Integrating activities create the basis for a more rapid advancement of science in Europe, enabling the development of new advanced technologies and the associated growth of the European technology market as well as the creation of a new generation of researchers ("*generation TA*"), ready to exploit in the best way all the essential tools needed for their research. Lastly, by integrating major scientific equipment (telescopes, synchrotrons, research vessels, etc.) or set of instruments (sensors, microscopes, radars, etc.), as well as knowledge based-resources (collections, archives, structured scientific information, etc.), integrating activities harmonise and organise the continuous flux of data collected or produced by these facilities and resources.
- *e-Infrastructures*: Relentless progress in ICT makes it now possible to deploy integrated computing and communication environments that radically transform the process of scientific and engineering research. In *eScience*, computer simulation and knowledge extraction from unprecedented amounts of data help to address scientific and global challenges of enormous complexity and scale. These ICT-based environments, commonly

[2] Moreover, the EU also supports the development and construction of research infrastructures via Cohesion Policy.

called e-Infrastructures, empower researchers by offering them access to facilities and resources regardless of their location. They foster the emergence of new working methods, based on the shared use of resources across different disciplines and technology domains enabling sustainable collaboration and partnerships between researchers in 'virtual research communities' in all e-Science fields. The new European Digital Agenda[3] (DEA) highlights further the role of the e-Infrastructures and recommends to ensure sufficient financial support to joint ICT research infrastructures and innovation clusters, develop further e-Infrastructures and establish an EU strategy for cloud computing, notably for government and science**.** e-Infrastructures include today high-capacity and high-performance communication networks (GÉANT), grid-empowered resource sharing infrastructures and supercomputing facilities, combined with scientific application software, data repositories and advanced visualisation. The further development and adoption of e-Infrastructures requires structured interaction between computational scientists and ICT engineers and an ever broader range of scientific disciplines as well as catering for the specific needs of scientific and industrial user communities.

2 - Support to new research infrastructures (or major upgrades of existing ones)

The aim is to help to create in all fields of science and technology new research infrastructures of pan-European interest needed by the European scientific community in order to remain at the forefront of the advancement of research, and be able to help industry to strengthen its base of knowledge and its technological know-how. This action would also examine the opportunities to exploit the potential for scientific excellence of the convergence and outermost regions through new infrastructures. This line of action represents about one third of the total financial resources available for this part of the Specific Programme.

Support will be provided for:

- *Design Studies:* to contribute to conceptual design studies for new research infrastructures, that demonstrate a clear European dimension and interest.
- *Construction of new infrastructures (or major upgrades of existing ones):* to provide a catalytic and leveraging support for the construction of critical new facilities building primarily upon the work conducted by the European Strategy Forum on Research Infrastructures (ESFRI)[4]. This activity will follow a two stage-approach:
  - *Stage 1 - support to the preparatory phase*: This first phase will involve, in particular, the finalisation of the legal organisation, of the management and multi-annual financial planning. Some technical work could also be considered**.**
  - *Stage 2 - support to the implementation phase*: this phase involves the actual construction, building on the technical, legal, administrative and financial agreement achieved during the preparatory phase between all stakeholders.

Only projects which have sufficiently progressed in the preparatory phase could proceed to Stage 2. FP7 EU financial support for the implementation phase will be limited to cases where there is a critical need and clear European added value for such a support.

[3] The Digital Agenda (http://ec.europa.eu/information_society/digital-agenda/documents/digital-agenda-communication-en.pdf) represents the new overarching European policy framework that aims at delivering sustainable economic and social benefits from a digital single market based on fast and ultra fast Internet and interoperable applications.

[4] http://cordis.europa.eu/esfri/home.html

3 - Support to policy development and programme implementation

The aim is to enhance the effectiveness and coherence of national and EU research policies and the international cooperation in the field of research infrastructures.

Dissemination actions

Open Access Pilot in FP7: Beneficiaries funded partially or entirely by the Capacities Programme under the e-Infrastructures activities are required to deposit peer-reviewed articles resulting from projects to an institutional or subject-based repository, and to make their best efforts to ensure open access to these articles within six months.

Approach for 2011

The work programme for 2011 follows an approach which is largely continuous from the one taken in previous years, taking into account the new policy context set by the Europe 2020 strategy.
Quality-based Research infrastructures are crucial to boost Europe's competitiveness in both basic and applied research and constitute one of the pillars of an ambitious ERA-vision. A support to both existing and new research infrastructures will therefore be continued in 2011. The foreseen actions for research infrastructures would help to overcome fragmentation in Europe and to improve the efficiency of research services. They will also contribute to the development of technological capacity and scientific performance in Europe. Thereby, they contribute to the development of a more efficient and attractive European Research Area. The following lines of actions will be covered through calls for proposals:

Support for existing research infrastructures

Through *Integrating Activities,* based exclusively on a targeted approach, with 23 topics from all fields of science and technology as detailed in the next section (Call N° 8) and through the *e-Infrastructures* activity with 2 topics on e-Science environments and on data infrastructures for e-Science (Call N° 9).

Support for new research infrastructures

Through the activity *Design Studies* to support the emergence of new strategic projects within the ERA and through the activity *Construction – Implementation Phase* to support the implementation of common solutions needs for clusters of projects in the fields of "Social Sciences and Humanities", "Life sciences", "Environmental Sciences" and "Physics and Analytical Facilities" (Call N° 8) as well as the specific needs of the second implementation phase of the European High Performance Computing (HPC) service PRACE (Call N° 9);

Support to policy development

Through *ERA-NET* (Call N° 8) and *Coordination and support actions*, *studies and conferences* (Call N° 8 and 9).

Support will also be provided to studies through *public procurement procedure*.

II. CONTENT OF CALLS IN 2011

1.1 Support to existing research infrastructures

1.1.1 Integrating Activities

The aim of *Integrating Activities* is to bring together and integrate, on a European scale, key research infrastructures, in order to promote their coordinated use and development. This will ensure that European researchers have a wider and more efficient access to the high performing research infrastructures they require to conduct their research, irrespective of the location of the infrastructures. The main characteristic of an Integrating Activity will be its capacity to mobilise a comprehensive consortium of several research infrastructures[5] in a given field and other stakeholders (e.g. public authorities, technological partners, research institutions), from different Member States, Associated countriesand other third countries when appropriate. An Integrating Activity shall combine, in a closely co-ordinated manner, following the FP6 Integrated Infrastructures Initiatives (I3) model:

(i) *Networking activities,* to foster a culture of co-operation between research infrastructures and scientific communities and help developing a more efficient and attractive European Research Area;

(ii) *Trans-national access and/or service activities,* to support scientific communities in their access to the identified research infrastructures;

(iii) *Joint research activities*, to improve, in quality and/or quantity, the services provided by the infrastructures.

All three categories of activities are mandatory as synergistic effects are expected from these different components. It is recommended that at least one third of the EU contribution is allocated to the transnational access/service activities. Further details about the I3 model are provided in section VII.

Consortia are encouraged, whenever appropriate, to give due attention to international related initiatives, foster the use and deployment of standards, carry out research on impacts of the involved research infrastructures (direct and indirect, on social, environmental and economic levels) as well as of the project itself and build on e-Infrastructure standards and services, when available. Consortia are also encouraged to organise, whenever appropriate, the efficient curation, preservation and provision of access to the data collected or produced under the project.

Funding scheme: Combination of *Collaborative Projects* and *Coordination and Support Actions*.

Expected impact: Integrating Activities are expected to have a structuring impact on the ERA and on the way research infrastructures operate, evolve and interact with similar infrastructures and with their users. Operators of infrastructures will develop synergies and complementary capabilities in such a way as to offer an improved access to researchers. Likewise, a more co-ordinated approach between infrastructure operators, users and public authorities will enable to optimise the development and sustainable operation of the identified research infrastructures. In addition, a closer interaction between a large number of scientists active in and around a number of infrastructures will facilitate cross-disciplinary fertilisations and a wider sharing of knowledge and technologies across fields and between academia and industry.

[5] Exceptionally, the consortium may include only one research infrastructure providing access, if this facility is of a truly unique nature. Other participants (e.g. technological partners, research institutions) must be included for the implementation of the other two mandatory categories of activities (networking and joint research).

Note: Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the Call fiche for details of these limits.

Topics opened in Call FP7-INFRASTRUCTURES-2011-1 (call N° 8):

Social Sciences and Humanities

- **INFRA-2011-1.1.1. Language Resources and Tools for cross-disciplinary research in social sciences and humanities.** *A project under this topic must provide harmonised access to the existing language resources and tools in Europe for European research in the humanities and social sciences. It should aim to integrate these language resources and tools with a long term perspective. It is expected that such a project will be organised in coordination with the Common Language Resources and Technology Infrastructure ("CLARIN") and will contribute to the structuring of this infrastructure.*
- **INFRA-2011-1.1.2. European Data Infrastructure for multidisciplinary research in the socio-economic behaviour of individuals and households, related to sustainability policy, climate change policy and environmental risk.** *A project under this topic should aim to integrate, with a long term perspective, the large scale and longitudinal data infrastructures in Europe, which provide information on the social, economic and general well-being of individuals and households. Linking these structures at the most detailed level to indicators of energy consumption, transport, environmental conditions, waste recycling will provide researchers with the high quality European comparative data, needed to investigate the drivers of changes in behaviour in Europe, and which is critical to progress in these areas. It is expected that widespread access of researchers to these integrated longitudinal datasets will be ensured through the Council of European Social Science Data Archives ("CESSDA").*
- **INFRA-2011-1.1.3. Integrating Digital Archives and Resources for Research on Medieval and Modern European History.** *A project under this topic must provide and facilitate access to the existing archives and resources in Europe for the study of medieval and modern European History. It should aim to integrate these facilities and resources with a long term perspective. It is expected that such a project will be organised in coordination with the Digital Research Infrastructure for the Arts and Humanities ("DARIAH") and will contribute to the structuring of this infrastructure.*
- **INFRA-2011-1.1.4. Integrating Archives for research on Contemporary European Social History.** *A project under this topic must provide and facilitate access to the data collections and services in Europe for the study of the Contemporary European Social History. It should aim to integrate these archives with a long term perspective. It is expected that widespread access of researchers to these distributed data collections and material will be ensured through the linking of these services with the Council of European Social Science Data Archives ("CESSDA") and the Digital Research Infrastructure for the Arts and Humanities ("DARIAH").*

Life Sciences

- **INFRA-2011-1.1.5. Facilities and resources for multinational clinical trials.** *It is expected that a project under this topic will be organised around the European Clinical Research Infrastructures Network ("ECRIN"). It should aim to further integrate ECRIN with new European participants as well as third country organisations with a long term perspective. The project must provide and facilitate access to ECRIN for investigators and sponsors in multinational clinical trial. It is expected that access will in particular cover nutrition studies.*

- **INFRA-2011-1.1.6. Facilities and resources for protein structure determination at synchrotron radiation sources.** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe for high throughput protein production and crystallisation (both micro- and nano-), for protein crystallography, for X-ray imaging, for small angle X-ray scattering, and for data analysis. It should aim to further integrate these facilities and resources with a long term perspective. It will in particular allow the study of the most challenging proteins. Such a project will also investigate the Free Electron Laser applications for crystallography. It is expected that such a project will be organised in coordination with the Integrated Structural Biology Infrastructure ("INSTRUCT") partners and will contribute to the structuring of this infrastructure.*
- **INFRA-2011-1.1.7. Life sciences bio-molecular data resources and services.** *A project under this topic must provide and facilitate access to the key bio-molecular data resources in Europe. It should aim to integrate these resources with a long term perspective. It will lead to a better interoperability of European bio-molecular data repositories, and a better cooperation with non-European resources. In addition, it is expected that such a project will give opportunities for the preservation and accessibility to Life Sciences data generated within EU funded research projects. It is expected that such a project will be organised in coordination with the European Life Sciences Infrastructure for Biological Information ("ELIXIR") partners and will contribute to the structuring of this infrastructure.*
- **INFRA-2011-1.1.8. Facilities and resources for plant phenotyping.** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe for high throughput plant phenotyping. It should aim to integrate these facilities and resources with a long term perspective. It is expected that such a project will improve coordination, in particular as regards standards, protocols, access modalities, etc. The project should also develop the necessary collaborations outside Europe, towards a coordinated development of such facilities and resources. The facilities should enable more efficient European research to be conducted in plant genetics, plant physiology and bio-ecology, under controlled conditions.*
- **INFRA-2011-1.1.9. Facilities and services for livestock physiology and phenomics.** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe for livestock physiology and phenomics. It should aim to integrate these facilities and resources with a long term perspective. It will in particular include facilities for producing pertinent animal models such as transgenics. It will also include facilities for measuring green house gas emissions, sustainability of production, nutrient use efficiency as well as a number of other physiological parameters and phenotypes. The project will contribute to the further development of (non) invasive techniques such as remote/indirect sensing, imaging, etc. It will cover facilities for ruminant species but also for other species such as swine and poultry.*

Environmental Sciences and Earth Sciences

- **INFRA-2011-1.1.10. Research Infrastructures for Carbon Cycle Observations.** *It is expected that a project under this topic will be organised around the Integrated Carbon Observation System ("ICOS") research infrastructure. It should aim to further integrate ICOS with other European carbon cycle observation networks and systems in the ocean, terrestrial and atmospheric domains, as well as partners of the Infrastructure for Measurements of the European Carbon Cycle ("IMECC") and third country participants, with a long term perspective. It must provide and facilitate access to these facilities and resources.*
- **INFRA-2011-1.1.11. Integrated non-CO2 greenhouse gas Observing Systems.** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe for non-CO2 gas observation and monitoring. It should aim to integrate these facilities and resources with a long term perspective.*
- **INFRA-2011-1.1.12. Integrated observatories and centres for marine and freshwater biodiversity and for long-term ecosystems research.** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe for marine biodiversity research, freshwater biodiversity research, and data collection. It should aim to integrate these facilities and resources with a long term perspective. Such a project will include facilities for long-term observation of anthropogenic impacts on ecosystems functioning and biodiversity. The project should build on the outcome from the Marine Biodiversity and Ecosystem Functioning ("MARBEF") project and other relevant initiatives, such as the Science and Technology Infrastructure for Biodiversity Research ("LifeWatch"), the Pan-European Species directories Infrastructure ("PESI") and the Distributed Dynamic Diversity Databases for Life ("4D4Life"). It should promote the coordinated use and further development of the existing research infrastructures to offer the best research services[6]. It should also comply with the requirements from the Group on Earth Observations Biodiversity Observation Network ("GEO BON") to ensure compatibility with the Global Earth Observation System of Systems ("GEOSS").*
- **INFRA-2011-1.1.13. Research infrastructures for forestry research**. *A project under this topic must provide and facilitate access to the key research infrastructures in Europe for forestry research. It should aim to integrate these facilities and resources with a long term perspective. The overall objective should be to improve services for researchers working on sustained and multi-functional production of the forests goods and services, as well as climate change adaptation and mitigation strategies, and preservation of biodiversity in industrial forests.*
- **INFRA-2011-1.1.14. Multidisciplinary Marine Data Centres.** *A project under this topic must provide and facilitate access to the key data centres in Europe for in situ and remote sensing data for marine research (including coastal research). It should aim to integrate these facilities and resources with a long term perspective. The project should build on the existing SeaDataNet project and expand to more parameters as well as develop further regional components, like in particular Mediterranean and Black Seas[7]. The project should ensure its complementary nature and/or establish adequate links with*

[6] *Genomics and proteomics, already addressed in a current Integrating Activity project "Assemble" and the European Marine Biological Resource Centre ("EMBRC") should however be excluded.*

[7] *It is not expected that all existing data centres are member of the consortium however specific networking activities should implement and coordinate the regional dissemination of common standards as well as the access to the data from external data centres.*

existing relevant EU projects like GEO-SEAS, EUROFLEETS and JERICO (coastal observatories). The project should also, as initiated by SeaDataNet, ensure compliance with the INSPIRE directive and actively contribute (in particular by promoting its protocols, standards and developments for interoperability) to other initiatives like EuroGOOS, GEO, GMES Marine Core Service and EMODNET.

Energy

- **INFRA-2011-1.1.15. Research Infrastructures for thermo-chemical biomass conversion[8].** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe in the area of thermo-chemical biomass technologies, focusing on the production of 2nd generation biofuels. It should aim to integrate these facilities and resources with a long term perspective. Together with fostering the integration of existing research infrastructures and the provision of pan-European research services for pre-competitive research, a project under this topic should, where appropriate, develop joint activities to improve the research capacities of these infrastructures, as well as links to industry. Research services of world-level quality and access to be offered should be related with gasification, syngas, synfuels, advanced gas cleaning, co-gasification and advanced pre-treatment processes such as torrefaction and pyrolysis. The project is expected to be complementary to existing RTD activities in the field.*
- **INFRA-2011-1.1.16. Research Infrastructures for Hydrogen & Fuel Cells facilities[6].** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe in the field of hydrogen and fuel cell. It should aim to integrate these facilities and resources with a long term perspective. Together with fostering the integration of existing research infrastructures and the provision of pan-European research services for pre-competitive research a project in this area should, where appropriate, develop joint activities to improve the research capacities of these infrastructures, as well as links to industry. The project will focus in particular on the domains related with scientific bottlenecks.*

Materials and Analytical Facilities

- **INFRA-2011-1.1.17. Infrastructures for Neutron Scattering and Muon Spectroscopy.** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe for Neutron scattering and Muon Spectroscopy. It should aim to integrate these facilities and resources with a long term perspective. This project should also stimulate new scientific activities taking full advantage of new experimental possibilities offered by the future European Spallation Source ("ESS").*
- **INFRA-2011-1.1.18. Synchrotron radiation sources and Free Electron Lasers.** *A project under this topic must provide and facilitate access of a wide range of user communities to the key research infrastructures in Europe based on Synchrotron and Free Electron Laser light sources. It should aim to integrate these facilities and resources with a long term perspective. It should also stimulate new scientific activities taking full advantage of new experimental possibilities offered by new light sources such as the European X-Ray Laser ("XFEL") or facilities of the European Free Electron Laser ("EUROFEL") consortium.*

[8] *This topic would support the European Strategic Energy Technology plan (SET-plan, COM (2007) 723).*

- **INFRA-2011-1.1.19. Laser sources.** *A project under this topic must provide and facilitate access to the key laser facilities in Europe in the area of high-field science and short-pulse spectroscopy. It should aim to integrate these facilities and resources with a long term perspective. It should also stimulate new scientific activities in view of future new advanced European Laser facilities such as the Extreme Light Infrastructure ("ELI") and the High Power laser Energy Research facility ("HiPER").*

Physics and Astronomy

- **INFRA-2011-1.1.20. Research Infrastructures for hadron physics: Studying the properties of nuclear matter at extreme conditions.** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe for studying the properties of nuclear matter at extreme conditions. Such a project should in particular aim at new users and new user consortiums across Europe that gear up to prepare experiments at the future Facility for Antiproton and Ion Research ("FAIR"). The project should aim to integrate these facilities and resources with a long term perspective***.**
- **INFRA-2011-1.1.21. Research Infrastructures for advanced radio astronomy.** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe for advanced radio astronomy, including Very Long Baseline Interferometry. It should aim to integrate these facilities and resources with a long term perspective. A project under this topic should also stimulate new scientific activities aimed at taking full advantage of new experimental possibilities which will be offered by the future Square Kilometre Array ("SKA") and Atacama Large Millimeter Array ("ALMA").*
- **INFRA-2011-1.1.22. Research Infrastructures for optical/IR astronomy.** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe for optical and infrared astronomy. It should aim to integrate these facilities and resources with a long term perspective. A project under this topic should also stimulate new scientific activities aimed at taking full advantage of new experimental possibilities which will be offered by the future European Extremely Large Telescope ("E-ELT").*
- **INFRA-2011-1.1.23. Research Infrastructures for astroparticle physics: High energy cosmic rays, multi-messenger approach.** *A project under this topic must provide and facilitate access to the key research infrastructures in Europe for multi-messenger astronomy and astroparticle physics. It should aim to integrate these facilities and resources with a long term perspective. A project under this topic should also stimulate new scientific activities aimed at taking full advantage of the possibilities offered by the High Energy Stereoscopic System ("HESS"), the Pierre Auger Observatory, the Major Atmospheric Gamma-ray Imaging Cherenkov Telescope (MAGIC) and the new possibilities which will be offered by the future Cherenkov Telescope Array ("CTA") and Kilometre Cube Neutrino Telescope ("KM3NeT").*

1.1.2 ICT-based e-Infrastructures

The e-Infrastructures activity supports a number of interrelated topics designed to foster the emergence of new research environments in which 'virtual communities' of scientists and engineers are empowered to share and exploit the collective power of the European ecosystem of scientific and engineering facilities. Such topics in 2011 address the deployment of e-Science environments based on the seamless integration of underlying e-Infrastructure technology layers and services; and the support to advanced data infrastructures building on

earlier efforts and putting new emphasis on the whole data life cycle, from data curation and preservation to interoperability and open access, and on service deployment and tools. Activities related to socio-economic impact assessment and evaluation should be also foreseen where appropriate. Projects must implement (i) *Networking Activities*, (ii) *Service Activities* and (iii) *Joint Research Activities* in a closely coordinated manner following the Integrated Infrastructures Initiative model (see section VII).

It is clarified that this action invites proposals aimed primarily at the development and deployment of e-Infrastructures and not at the construction of ESFRI projects as such, which are addressed under topics INFRA-2011-2.3.1 to INFRA-2011-2.3.3. Proposers pursuing the implementation of ESFRI infrastructures should consult section 1.2.3 of this document. In any case e-Infrastructure and ESFRI infrastructure stakeholders are encouraged to interact as appropriate.

Funding scheme: Combination of *Collaborative Projects* and *Coordination and Support Actions*.

Topics opened in Call FP7-INFRASTRUCTURES-2011-2 (call N° 9):

INFRA-2011-1.2.1: e-Science environments

This topic aims at supporting the development and deployment of e-Science environments based on a seamless and integrated view of the e-Infrastructure and the fostering of a service-oriented culture and approach toward the user. These environments may be generic or address one or more broad communities in science and engineering. More specifically, this topic addresses:

- Integrated service provision through unified access to and seamless integration of the underlying networking, computing and data infrastructures and services. Techniques based on resource virtualisation and on cloud or grid (or hybrid cloud-grid) implementations to increase the elasticity of provision and use of resources are encouraged where appropriate.
- The design, development and deployment of user-friendly interfaces which abstract service provision from the underlying infrastructure complexities and specific implementations through the use, for example, of user-centred interaction design and advanced software tools and techniques including advanced Web technologies. The interfaces may be applicable in an office (desktop), laboratory or virtual reality type of environment.
- Environments for virtual access to (remote) instruments as well as the user-driven "composition" of virtual facilities and test-beds to lower entry barriers and to enable easy and cost effective access by researchers to infrastructures, including instruments and data.
- The deployment of e-Science support centres and training activities so that support and training on all related aspects (from the set-up and operation of e-Science environments to adding new applications and user access) can be provided anywhere and at any time to the stakeholders concerned (including for ESFRI communities).

All proposals should address at least two of the above four sub-topics (see formal eligibility criteria in the Call fiche) and include pilot implementations to test the e-Science service environments and interfaces with particular user populations.

In addition, all proposals are strongly encouraged to consider: (a) the potential use of the developed e-Science environments by a broader user population than the scientists users themselves, for example by students or by "citizen scientists"; (b) the international dimension of their activities, for example arising from the global nature of scientific communities or from standardisation needs; (c) the development and use of open standards and APIs to ensure openness of the e-Science environments to future applications and services; and (d) appropriate licensing schemes for open source software.

Expected impacts: The provision of advanced e-Science services better tailored to the user needs and supporting innovation and efficiency in the scientific discovery process. At the same time the lowering of barriers to entry in e-Science environments by researchers as well as the increased potential for e-Infrastructure usage by non-specialists, including "citizen" scientists and for public services.

INFRA-2011-1.2.2: Data infrastructures for e-Science

The aim is to establish a persistent and robust service infrastructure for scientific data in Europe that responds to the needs of the data-intensive Science of 2020. This infrastructure should allow access and interaction with a continuum of information, from raw observational and experimental data to publications. Proposals should take into account the Open Access pilot and earlier achievements in the areas of networks, computing and data and of Research Infrastructures more generally. The term "infrastructure" includes technical elements, such as servers, software, protocols and standards, content, as well as the legal, financial and regulatory framework, and also social and cultural practices.

Proposals should address one or more of the following priorities:

(a) Deployment of generic services for persistent data storage, access and management that assure data provenance, authenticity and integrity and respond to the needs of advanced user communities. Key issues include interoperability, financial and environmental sustainability of long term preservation (including the consideration of data centre energy consumption), business models including public-private partnerships where appropriate, governance, legal aspects and IPR issues.

(b) The development of an open access, participatory infrastructure for scientific information linking peer-reviewed literature and associated data sets and collections which can be open to non-scientists and to providers of value-added services. Key issues include the federation of different European initiatives, harmonisation of rights/intellectual property frameworks for scientific information, efficient financing models, standardisation and interoperability.

(c) Scientific community-driven policy development and service deployment for data generation, provenance, quality assessment, certification, curation, annotation, navigation and management so as to promote the sharing of data and the development of trust. Key issues include standardisation and the harmonisation of metadata, semantics and ontologies, in order to ensure interoperability within and across e-Infrastructures.

(d) Development and deployment of tools and techniques for the provision of advanced data services notably for data discovery, mining, visualisation and simulation.

It is expected that priorities (a) and (b) will be covered by projects with sufficient critical mass, whereas (c) will be covered by projects each covering the needs of broad scientific communities (e.g. environment, geosciences, life sciences, social sciences and humanities, physics and engineering etc.). Care should be taken to avoid overlaps with topics INFRA-2011-2.3.1 to INFRA-2011-2.3.4. The Commission will manage projects under points (a), (b) and (c) in a way as to promote complementarities and synergies and to avoid overlaps.

All proposals are encouraged to: consider the international dimension of their activities; address education and training; address social factors and incentives or rewards that would encourage the use of open data infrastructures by scientists; leverage national e-Science initiatives on data; foster the use and deployment of open standards and APIs in order to encourage value-added services by third parties; set up help/support lines for users where appropriate; consider appropriate licensing schemes for open source software; and address financial sustainability.

Expected impact: Increase of the scale of federation and interoperation of data infrastructures, better exploitation of synergies with the underlying e-Infrastructures, reduction of costs, increase of the user base and bridging across disciplines, enabling of cross-fertilisation of scientific results and favouring of innovation. The removal of important obstacles concerning the open access to scientific information and data, as well as the improvement of preparedness to face the data "tsunami" of the next decade. Progress towards the vision of open and participatory data-intensive science.

It is expected that the generic tools and services developed under the e-infrastructure part of the programme could be used for the further development of research infrastructures in Europe and in particular for the implementation of clusters of ESFRI projects.

1.2 Support to new research infrastructures

1.2.1 Design Studies

The aim of this activity is to support conceptual design studies for new European research infrastructures. Major upgrades of existing infrastructures may also be considered, when the end result is the development of a new type or form of research infrastructure with a clear added value at European level.

Topics opened in Call FP7-INFRASTRUCTURES-2011-1 (call N° 8)

This call for proposals for 'Design Studies' will be the last one under FP7.

- **INFRA-2011-2.1.1: Design studies for research infrastructures in all S&T fields**

  A proposal under this topic should address all the key questions concerning the scientific, technical and financial feasibility of a new or enhanced infrastructure, laying down its conceptual foundations. The topic is open to all fields of science and technologies.

Funding scheme: *Collaborative Projects* or *Coordination and Support Actions - coordinating actions*.

Expected impact: This activity should aim at contributing to the technological development capacity and effectiveness as well as to the scientific performance, efficiency and attractiveness of the European Research Area. Each project should provide a conceptual design report, showing the maturity of the concept. These reports will be useful to policy bodies (e.g. ESFRI) for establishing plans and roadmaps for new research infrastructures of European interest.

1.2.2 Construction of new infrastructures (or major upgrades) - preparatory phase

The purpose of this activity is to provide catalytic and leveraging support for the preparatory phase leading to the construction of new research infrastructures or major upgrades of existing ones. The preparatory phase aims at bringing the project for the new or upgraded facility/ research infrastructure to the level of legal and financial maturity required to implement it. The preparatory phase may also include technical work. Project consortia should involve all the stakeholders necessary to make the project move forward, to take decision and to make financial commitments before construction can start (e.g. national/regional ministries/governments, research councils, funding agencies). Appropriate contacts with Ministries and decision makers should be continuously reinforced allowing further strengthening of the consortia. Operators of research facilities, research centres, universities, and industry may also be involved whenever appropriate. During the preparatory phase the European Commission may act as a 'facilitator', in particular with respect to the financial engineering needed for the construction phase. The preparatory phase could include (non exhaustive list):

- Management and logistical work, i.e. (1) plans, in terms of construction (or major upgrade) and operation of the new research infrastructure(2) planning (timing, resources) of staff recruitment to operate the new facility; (3) organisation of the logistic support for researchers, including informatics, etc.;

- Governance work, i.e. plans, in terms of decision-making, management structure, advisory body, IPRs, access rules for researchers, etc.;
- Financial work, i.e. (1) the financial arrangements for the construction, operation and decommission of the facility, using notably the complementarities between national and EU instruments (such as the Structural Funds or the European Investment Bank); (2) studying new mechanisms, e.g. pre-commercial procurement processes, by which public authorities may develop new approaches for financing innovative solutions;
- Legal work, i.e. (1) for the setting-up, construction and operation of the research infrastructure; and (2) the draft agreement between committed countries, in the form of a 'signature-ready' document for the setting-up and the actual construction.
- Strategic work, i.e. (1) analysis of the socio-economic impact of the new infrastructure; (2) the plan to integrate harmoniously the new infrastructure in the European fabric of related facilities in accordance, whenever appropriate, with the EU objective of balanced territorial development; (3) to create or consolidate centres of excellence and/or "regional partner facilities"; (4) the identification of the best possible site to set up the new facility(-ies) and its next generations;
- Technical work, i.e. (1) final prototypes for key enabling technologies and implementation plans for transfer of knowledge from existing prototypes to the new research infrastructure; (2) technical work to ensure that the beneficiary scientific communities exploit the new facility from the start with the highest efficiency, including the introduction of new processes or software.

Funding scheme: Combination of *Collaborative Projects* and *Coordination and Support Actions*.

Expected impact: This activity should help the majority of projects for new research infrastructures identified in the periodic updates of the ESFRI roadmap to reach the level of technical, legal and financial maturity required to enable the construction work to start. Thereby it will contribute to the technological development capacity and to the scientific performance and attractiveness of the European Research Area.

There is NO current call under this topic. The next call for proposals for "Construction of new infrastructures - preparatory phase" is expected to be published at mid-2011. It will consider the projects identified in the update of the ESFRI roadmap to be published in December 2010.

1.2.3 Construction of new infrastructures - implementation phase

The purpose of this activity is to support the implementation phase of the new research infrastructures which are included in the ESFRI Roadmap building on the technical, legal, administrative and financial agreement achieved during the *Preparatory Phase*. EU financial support for the implementation phase may be provided only to those projects for which there is a critical need for such support.

This activity is implemented in two modes:

a) Support to common needs of a cluster of projects in the same field and

b) Support to specific needs of an individual project.

a. Support to common needs of a cluster of projects in the same field

The work carried out under the *Preparatory Phase* projects for the new or upgraded European research infrastructures has unveiled the existence of common challenges on a large spectrum of issues, many related to the data aspects of these infrastructures. To exploit synergies, to optimise technological implementation, and to ensure a larger harmonisation and interoperability between these research facilities, an EU financial support will be provided, through a targeted approach, to clusters of ESFRI infrastructures for their implementation phase. This support is aiming at implementing common and efficient solutions on issues ranging from architecture of distributed infrastructures to distributed access management, from development of critical components to new/revised data acquisition, access and deposit policies. The expected outcomes of these projects would be ready-to-use services, systems, standards or other types of components that will be common elements of the ESFRI infrastructures, contributing to the development of a consistent European research infrastructures ecosystem in a given field.

A cluster is intended to include all the ESFRI projects in a given field (as defined in the topics below) that have sufficiently progressed in their preparatory phase and that have ensured a clear commitment for their construction from Member States and International Organisations. Cluster consortia should include key participants of these projects as well as other partners needed to develop the expected solutions. Consortia could also include participants of other ESFRI projects which could benefit from these solutions.

The projects should build, whenever feasible, upon the state of the art in ICT and e-Infrastructures for data, computing and networking. It is also noted that data e-Infrastructures, when not part of the construction of specific ESFRI projects, are addressed by topic INFRA-2011-1.2.2. In any case, whenever appropriate, a strong interaction is expected between ESFRI infrastructure and e-infrastructures stakeholders.

Funding scheme: Combination of *Collaborative Projects* and *Coordination and Support Actions*.

Expected impact: This activity should help the ESFRI-related research infrastructures to advance in their construction promoting synergies among initiatives in the same field and the implementation of common solutions to respond to common needs, thereby fostering harmonisation, cost-efficiency and interoperability.

Note: Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the Call fiche for details of these limits.

Topics opened in Call FP7-INFRASTRUCTURES-2011-1 (call N° 8):

- **INFRA-2011-2.3.1: Implementation of common solutions for a cluster of ESFRI infrastructures in the field of "Social Sciences and Humanities".**

  A project under this topic should implement harmonised solutions for the ESFRI Infrastructures in the field of Social Science and Humanities on issues like, for example, metadata frameworks, registries, single-sign-on systems and permanent identifiers.

- **INFRA-2011-2.3.2: Implementation of common solutions for a cluster of ESFRI infrastructures in the field of "Life sciences".**

  A project under this topic should implement harmonised solutions for the ESFRI Infrastructures in the field of Life Sciences on issues like, for example, architectures for

centralised and decentralised infrastructures, registries, standards and interoperability, data security and restricted access for sensitive data.

- **INFRA-2011-2.3.3: Implementation of common solutions for a cluster of ESFRI infrastructures in the field of "Environmental Sciences".**

  A project under this topic should implement harmonised solutions for the ESFRI Infrastructures in the field of Environmental Sciences on issues like, for example, architectures for centralised and decentralised infrastructures, standards and interoperability, metadata frameworks and other ICT related issues.

- **INFRA-2011-2.3.4: Implementation of common solutions for a cluster of ESFRI infrastructures in the field of "Physics, Astronomy and Analytical Facilities".**

  A project under this topic should aim at synergies in the development of key critical components common to the ESFRI Infrastructures in the field of Physics, Astronomy and Analytical Facilities such as, for example, accelerator elements, targets, detectors, or radiation protection and safety components, that are needed for their implementation.

b. Support to specific needs of an individual project

Topics opened in Call FP7-INFRASTRUCTURES-2011-2 (call N° 9):

- **INFRA-2011-2.3.5: Second implementation phase of the European High-Performance Computing (HPC) service PRACE**

  The implementation phase should include all appropriate coordination activities as well as the relevant technical work. Project consortia should involve all the stakeholders necessary for this implementation phase (e.g. national/regional ministries/governments, research councils, funding agencies, operators of research facilities, research centres and universities, as well as industry whenever appropriate). In line with the ESFRI roadmap, this supercomputing infrastructure should address the ever growing computational and simulation requirements of advanced scientific communities to allow them to stay at the forefront of research; as well as those of industry to boost its innovation capabilities. The eco-system of HPC resources comprises[9]:

  (a) Hardware components and platforms (current and future national and European HPC installations);

  (b) A networking and middleware infrastructure interlinking the computational resources (already largely available through the GÉANT network and DEISA) with the aim to provide a seamless and efficient service to users;

  (c) System software and tools, from operating systems and software accelerators to parallelising compilers, which are adapted to multi-peta-flop performance;

  (d) Software tools, algorithms and standards for modelling, simulation and related pre- and post-treatment (e.g. visualisation) for state-of-the-art supercomputing environments, including tools for the validation and verification of application programmes;

[9] This call does not make funding available for all of these resources as explained at the end of this topic

(e) Scientific software for a broad range of applications that runs efficiently on machines for state-of-the-art supercomputing environments;

(f) A framework to conduct technology evaluations and prototyping of hardware components, systems and software;

(g) Training that enables both the academic and industrial research communities to stay at the forefront of scientific breakthroughs;

(h) Mechanisms to share best practice and operational procedures across HPC systems.

The objective of this second implementation phase is to advance in the procurement and deployment of the new eco-system of computational resources with peta-flop performance already started at the first implementation phase and support the porting of applications to the new machines and architectures,. It also aims at integrating within PRACE (and at providing access to) the existing HPC resources shared at European level notably through the DEISA infrastructure.

The present action and budget concern 2011; additional support may be provided in 2012 depending on progress.

Coverage in the proposal of all strategic, policy, technical, financial and governance aspects of providing the above supercomputing capability is indispensable. Proposers are also strongly encouraged to clearly address the following issues in particular: the articulation of the European supercomputing infrastructure with national HPC installations and their evolution in time; effective mechanisms for joint procurement and joint ownership of machines; effective mechanisms of access to the infrastructure, including by publicly funded European projects relying on access to Tier 0 machines, and peer-review procedures for the allocation of computing time; policies for the upgrade, maintenance and sharing of scientific and system software and tools, including clear criteria for selecting the application codes to be ported to the Tier 0 machines, as well as for ensuring interoperability between software components where necessary; policies for the provision of services, notably simulation; the approach for attracting and involving both large industry and SMEs - as users, suppliers or technology providers - and attracting private funding; an approach to international cooperation; financial and environmental sustainability ("green computing"); and any other issue deemed essential for the long term success and sustainability of this infrastructure.

Work proposed for funding should concern:

(1) peta-scaling of applications in synchrony with the PRACE procurement plans, including the adaptation of libraries to new hardware architectures; user communities should have a leading role in this activity and vendors should be also involved as appropriate;

(2) the integration of DEISA-type resources and services in PRACE;

(3) prototyping of new architectures/machines and technology and system evaluations to ensure that European supercomputing stays at the forefront of technology as under point f above;

(4) industry involvement as partners – be it vendors, users or technology providers; and

(5) training and sharing of best practice as under points g and h above.

Funding scheme: Combination of *Collaborative Projects* and *Coordination and Support Actions*.

Expected impact: The deployment of a state-of-the-art HPC capability in Europe (at petascale level as of 2010, moving to exascale by 2020). This new infrastructure will help Europe stay at the forefront of scientific breakthroughs, strengthen its international position in computational sciences and intensify the exploitation of the benefits of computing by its scientific and industrial communities. The emphasis on the early porting of applications to the new machines/architectures will ensure the most efficient and effective use of the machines and the highest benefit for the researchers.

1.3 Support to Policy development and Programme implementation

The aim is to support, in the context of building up the European Research Area, the co-ordination of national and/or regional policies and programmes in the field of research infrastructures, as well as the work of ESFRI and e-IRG (e-Infrastructure Reflection Group). This will help providing the necessary conditions for pooling talent, maximising resources, and ensuring the best outcome of rationalised research infrastructures investments in Europe. While it is vital for Europe to strengthen and consolidate intra-European co-operation, it is also essential to do so with a global perspective in mind, so that European science can have an impact on, and contribute to, world class scientific achievements.

Funding scheme: *Coordination and support actions*

Expected impact: Support measures are expected to strengthen the development of a consistent and dynamic European policy for research infrastructures. They should also help involving a broader set of actors in their development, operation and use, and to address specific needs for international cooperation in this field, thus achieving critical mass and driving global policies.

Furthermore, support measures in the field of e-services are expected to contribute to the emergence of sustainable approaches for the provision of cross-disciplinary research services as well as to encourage the pooling of resources between infrastructure operators at European level in order to face future challenges and to foster a culture of co-operation between them, spreading good practices and encouraging infrastructures to develop in complementary ways.

Finally, the NCP network is expected to lower the entry barriers for newcomers to the programme, improve efficiency in the design, construction and operation of Research Infrastructures, and improve the bases for policy development in the area.

Topics opened in Call FP7-INFRASTRUCTURES-2011-1 (call N° 8):

- **INFRA-2011-3.1: ERA-NET supporting cooperation for research infrastructures in all S&T fields.** In line with the objectives of the ERA-NET scheme, projects to be supported under this topic should aim at developing and strengthening the cooperation and coordination of national programmes and policy actions for research infrastructures. ERA-NETs could also focus on issues such as the regional dimension of research infrastructures or exchange of best practices for evaluation of research infrastructures at national and pan European level.

  This topic is open to all fields of science and technology. An ERA-NET may be specific to a type of research infrastructures or generic. Eligible partners are only programme owners, which are typically national/regional ministries/governments responsible for defining, financing or managing programmes and policy actions for research infrastructures, such as research councils or funding agencies[10].

- **INFRA-2011-3.2: Coordination actions, conferences and studies supporting policy development, including international cooperation, for research infrastructures in all fields of S&T.** This topic is targeted, in particular, to support (i) policy oriented groups such as ESFRI or EIROForum, (ii) actions contributing to new policy developments, i.e. the Europe 2020 strategy and its flagship initiative Innovation Union, and (iii) the specific needs of the global ESFRI projects that require more efforts to negotiate with

[10] Where Structural Funds managing authorities are funding agencies, they can of course participate.

international potential partners. Other relevant international cooperation activities related to research infrastructures projects or policies could also be supported.

- **INFRA-2011-3.3: Study for the development of a possible future EU action on scientific instrumentation.** The project to be supported under this topic should aim at studying the feasibility and maturity of a possible EU action to strengthen the European industrial capacity in developing and exploiting the potential of scientific instrumentation used in research infrastructures.

Topics opened in Call FP7-INFRASTRUCTURES-2011-2 (call N° 9):

- **INFRA-2011-3.4: Coordination actions, conferences and studies supporting policy development, including international cooperation, for e-Infrastructures**

Proposals will aim at providing support for e-Infrastructures in the following domains:

(a) laying the theoretical foundations of e-Infrastructure development, drawing on theory and experience from the development of other infrastructures;

(b) actions involving teachers and pupils in e-Science through the use of e-Infrastructures in order to attract the young to scientific careers; as well as actions to promote the involvement of citizens – including decision makers – in e-Science through the use of e-Infrastructures;

(c) an analysis of social and human aspects (including the building of trust) in operating and using the e-Infrastructure;

(d) the development of skills and curricula for information and data scientists;

(e) an analysis and evaluation of possible business models for supporting open science so as to achieve financial sustainability;

(f) International cooperation in Research and Education Networking addressing (i) the extension of the European infrastructure to China and (ii) the feasibility of direct transatlantic connectivity between Europe and Latin America.

Note: Limits on the EU financial contribution apply. These are implemented strictly as formal eligibility criteria. You must refer to the Call fiche for details of these limits.

- **INFRA-2011-3.5: Trans-national co-operation among NCPs**

Support a network of National Contact Points (NCP) for Research Infrastructures in the Seventh Framework Programme, promoting trans-national co-operation. The network should provide value added services across Europe, including for lowering the entry barriers for newcomers to the programme, supporting policy design by maintaining a repository of data and undertaking analyses of national and European policies, budgets and programmes for Research Infrastructures per area, and establishing a forum of exchange of best practices and lessons learned among Public Authorities, infrastructure operators and NCPs. This may entail various mechanisms such as data collection, benchmarking, joint workshops, training, and twinning schemes. Practical initiatives to benefit cross border audiences may also be included, such as trans-national brokerage events. There should be up to one partner as officially appointed representative per country.

III. IMPLEMENTATION OF CALLS

Call N° 8 - call identifier: FP7-INFRASTRUCTURES-2011-1

- **Date of publication**[11]: 20 July 2010
- **Deadline**[11]: 25 November 2010, at 17.00.00, Brussels local time.
- **Indicative budget**[12]: EUR 163.45 million[13]

Line of action/Activity	**Funding scheme(s)**	**EUR million indicative**
1.1 Support to existing research infrastructures		
1.1.1 Integrating Activities	Combination of Collaborative projects and Coordination and Support Actions (CP-CSA)	103.95
1.2 Support to new research infrastructures		
1.2.1 Design Studies	Collaborative projects (CP) or Coordination and Support Actions - coordinating actions (CSA-CA)	20.00
1.2.3 Construction of new infrastructures (or major upgrades) - implementation phase	Combination of Collaborative projects and Coordination and Support Actions (CP-CSA)	30.00
1.3 Support to policy development and programme implementation	Coordination and Support Actions (CSA-CA or CSA-SA)	9.50

[11] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication. Also, the Director-General responsible may delay this deadline by up to two months.

[12] The final budget of the call may vary by up to 10% of the total value of the call and any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget for the call.

[13] Under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority.

- **Topics called**

1.1.1 Integrating Activities

Social Sciences and Humanities

- INFRA-2011-1.1.1. Language Resources and Tools for cross-disciplinary research in social sciences and humanities.
- INFRA-2011-1.1.2. European Data Infrastructure for multidisciplinary research in the socio-economic behaviour of individuals and households, related to sustainability policy, climate change policy and environmental risk.
- INFRA-2011-1.1.3. Integrating Digital Archives and Resources for Research on Medieval and Modern European History.
- INFRA-2011-1.1.4. Integrating Archives for research on Contemporary European Social History.

Life Sciences

- INFRA-2011-1.1.5. Facilities and resources for multinational clinical trials.
- INFRA-2011-1.1.6. Facilities and resources for protein structure determination at synchrotron radiation sources
- INFRA-2011-1.1.7. Life sciences bio-molecular data resources and services.
- INFRA-2011-1.1.8. Facilities and resources for plant phenotyping.
- INFRA-2011-1.1.9. Facilities and services for livestock physiology and phenomics.

Environmental Sciences and Earth Sciences

- INFRA-2011-1.1.10. Research Infrastructures for Carbon Cycle Observations.
- INFRA-2011-1.1.11. Integrated non-CO2 greenhouse gas Observing Systems.
- INFRA-2011-1.1.12. Integrated observatories and centres for marine and freshwater biodiversity and for long-term ecosystems research.
- INFRA-2011-1.1.13. Research infrastructures for forestry research.
- INFRA-2011-1.1.14. Multidisciplinary Marine Data Centres.

Energy

- INFRA-2011-1.1.15. Research Infrastructures for thermo-chemical biomass conversion.
- INFRA-2011-1.1.16. Research Infrastructures for Hydrogen & Fuel Cells facilities.

Materials and Analytical Facilities

- INFRA-2011-1.1.17. Infrastructures for Neutron Scattering and Muon Spectroscopy.
- INFRA-2011-1.1.18. Synchrotron radiation sources and Free Electron Lasers.
- INFRA-2011-1.1.19. Laser sources.

Physics and Astronomy

- INFRA-2011-1.1.20. Research Infrastructures for hadron physics: Studying the properties of nuclear matter at extreme conditions.
- INFRA-2011-1.1.21. Research Infrastructures for advanced radio astronomy.
- INFRA-2011-1.1.22. Research Infrastructures for optical/IR astronomy.
- INFRA-2011-1.1.23. Research Infrastructures for astroparticle physics: High energy cosmic rays, multi-messenger approach.

1.2.1 Design Studies

- INFRA-2011-2.1.1: Design studies for research infrastructures in all S&T fields.

1.2.3 Construction of new infrastructures (or major upgrades) - implementation phase
o INFRA-2011-2.3.1: Implementation of common solutions for a cluster of ESFRI infrastructures in the field of "Social Sciences and Humanities". o INFRA-2011-2.3.2: Implementation of common solutions for a cluster of ESFRI infrastructures in the field of "Life sciences". o INFRA-2011-2.3.3: Implementation of common solutions for a cluster of ESFRI infrastructures in the field of "Environmental Sciences". o INFRA-2011-2.3.4: Implementation of common solutions for a cluster of ESFRI infrastructures in the field of "Physics, Astronomy and Analytical Facilities".
1.3 Support to policy development and programme implementation
o INFRA-2011-3.1: ERA-NET supporting cooperation for research infrastructures in all S&T fields. o INFRA-2011-3.2: Coordination actions, conferences and studies supporting policy development, including international cooperation, for research infrastructures in all fields of S&T. o INFRA-2011-3.3: Study for the development of a possible future EU action on scientific instrumentation.

- **Eligibility conditions:**
  - The general eligibility criteria are set out in Annex 2 of this work programme and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.
  - The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation and presented in the table below.

Funding scheme	**Minimum conditions**
Collaborative Projects	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Combination of Collaborative projects and Coordination and Support Actions (CP-CSA)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and Support Actions - coordinating action (CSA-CA)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and Support Actions - supporting action (CSA-SA)	At least 1 independent legal entity.

  - For activity 1.1.1 (Integrating Activities) the following additional eligibility criteria apply in this call:
    - The requested EU contribution shall not exceed EUR 10 million with the exception of topics INFRA-2011-1.1.17 and INFRA-2011-1.1.18 where the maximum EU contribution is EUR 15 million.

- Proposals must address all the three categories of activities (*networking activities*, *trans-national access* and/or *service activities,* and *joint research activities)* of the I3 model as defined in Section VII.

- For activity 1.2.3 (Construction of new infrastructures – implementation phase) the requested EU contribution shall not exceed EUR 15 million.

- For ERA-NET proposals (topic INFRA-2011-3.1) the minimum number of participants is three independent legal entities which finance or manage publicly funded national or regional programmes and/or policy actions for research infrastructure. Each of these must be established in a different Member State or Associated country.

  Partners for ERA-NET actions eligible to satisfy the above condition are:

  - Programme owners: typically national ministries/regional authorities responsible for defining, financing or managing programmes and/or policy actions for research infrastructure carried out at national or regional level.
  - Programme 'managers' (such as research councils or funding agencies) or other national or regional organisations that implement research infrastructure-related programmes and policy actions under the supervision of the programme owners.
  - Programme owners (typically national ministries/regional authorities) which do not have a running or fully fledged programme or policy action at the moment of submitting an ERA-NET proposal, but which are planning, and have committed, to set up such a programme, are also eligible if their participation is well justified and adds value to the overall programme coordination. As such, countries or regions which have less diverse programmes (in particular new Member States and candidate Associated countries) will find their involvement in the ERA-NET scheme greatly facilitated.

  Please note that research organisations or universities which are not programme/policy action owners or managers are not eligible partners for ERA-NET actions.

  In addition to the minimum number of independent legal entities mentioned above, private legal entities (e.g. charities) which manage programmes may participate if their participation is well justified and adds value to the overall programme coordination.

  Sole participants (as referred to in Article 10 of the Rules for Participation) may be eligible if the above-mentioned specific criteria for eligible ERA-NET partners are respected. A sole participant shall explicitly indicate which of his 'members' forming a sole legal entity is either a programme owner or programme manager in the proposed action and indicate for these members, the respective national/regional programmes which are at the disposal of the proposed ERA-NET action.

- Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

- **Evaluation procedure:**

  - The evaluation criteria and scoring scheme are set out in Annex 2 of the work programme.

  - Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS. The Commission will instruct the experts to disregard any

pages exceeding these limits. The minimum font size is 11. All margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).

- A one stage submission procedure will be followed.
- Experts will carry out the individual evaluation of proposals remotely.
- The procedure for prioritising proposals with equal scores is described below. It will be applied successively for every group of ex aequo proposals requiring prioritisation, starting with the highest scored group, and continuing in descending order:
  (i) Proposals that address topics not otherwise covered by more highly-rated proposals, will be considered to have the highest priority.
  (ii) These proposals will themselves be prioritised according to the scores they have been awarded for the criterion *impact*. If necessary, any further prioritisation will be based on other appropriate characteristics, to be decided by the panel, related to the contribution of the proposal to the European Research Area and/or general objectives mentioned in the work programme.
  (iii) The method described in (ii) will then be applied to the remaining ex aequos in the group.
- Specific selection and award criteria for activities 1.1.1 and 1.2.3 are set out in section VII.2 and VII.3 replacing those of annex 2 to the Capacities work programme.
- For the evaluation of ERA-NET (topic INFRA-2011-3.1) the general criteria and thresholds applicable to Coordination and Support Actions given in Annex 2 are complemented by the following sub-criteria:

  1. Scientific and/or technological excellence - Quality of coordination (Threshold 3/5)
  - Level of ambition in the collaboration and commitment of the participants in the proposed ERA-NET action to coordinate their national/regional programmes and/or policy actions for research infrastructures.

  2. Quality and efficiency of the implementation (Threshold 3/5) – no additional criteria

  3. Potential impact (Threshold 3/5)
  - Contribution to establishing and strengthening a durable cooperation between the partners and their national/regional programmes and/or policy actions for research infrastructures.
- A reserve list may be produced of projects that pass the evaluation but fall below the available budget in case additional budget becomes available.

- **Indicative timetable:**
  - Evaluation results: estimated to be available within some 4 months after the closure date.
  - Grant Agreement signature: it is estimated that the first grant agreements related to this call will come into force before the end of 2011.
- **Consortia agreements:** Participants in activities 1.1.1 and 1.2.3 are required to conclude a consortium agreement.
- **The forms of grant and maximum reimbursement rates** which will be offered are specified in Annex 3 to the Capacities work programme.
- **Particular requirements for participation, evaluation and implementation** (not to be applied as formal eligibility criteria)**:**

- For activity 1.1.1 (Integrating Activities) it is recommended that the duration of a proposal is 4 years and that at least one third of the EU contribution is allocated to the transnational access/service activities. In general, each topic corresponds to a given class of research infrastructures and consortia are encouraged to be as comprehensive as possible on a European scale to avoid competing proposals under the same topic.
- For activity 1.2.1 (Design Studies) it is recommended that the duration of a proposal is 3-4 years with a requested EU contribution in the range of EUR 2 million to 5 million.
- For activity 1.2.3 (Construction of new infrastructures (or major upgrades) – implementation phase) it is recommended that the duration of a proposal is 3-4 years. A proposal for a cluster of projects should include all the ESFRI projects in a given field (as defined in the topics) that have sufficiently progressed in their preparatory phase and that can demonstrate a clear commitment for their construction from Member States and International Organisations through e.g. letters from Ministries or signed Memoranda of Understanding.
- For the topic "3.1 ERA-NET", it is recommended that the duration of a proposal is 2-3 years with a requested EU contribution in the range of EUR 1 million to 2 million.
- For topic "3.2 Coordination actions, conferences and studies supporting policy development, including international cooperation, for research infrastructures in all fields of S&T" it is recommended that the duration of a proposal is 2-3 years with a requested EU contribution in the range of EUR 0,5 million to 1 million.
- For topic "3.3 Study for the development of a possible future EU action on scientific instrumentation" it is recommended that the duration of a proposal is one year with a maximum requested EU contribution of EUR 0,5 million.
- In the context of developing synergies and complementarities between FP7 and cohesion policy, projects applicants are encouraged to check the operational programme for Structural Funds applicable in their regions and to contact the related managing authorities for complementary or alternative support (see: http://ec.europa.eu/regional_policy/atlas2007/index_en.htm).

- **Flat rates to cover subsistence costs:** In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

Call N° 9 - call identifier: FP7-INFRASTRUCTURES-2011-2

- **Date of publication**[14]: 20 July 2010
- **Deadline**[14]: 23 November 2010, at 17.00.00, Brussels local time.
- **Indicative budget**[15]: EUR 95 million[16]

Line of action/Activity	**EUR million indicative**
1.1 Support to existing research infrastructures	
1.1.2 ICT-based e-Infrastructures	70.00
1.2 Support to new research infrastructures	
1.2.3 Construction of new infrastructures (or major upgrades) - implementation phase	20.00
1.3 Support to policy development and programme implementation	5.00

- **Topics called**

Line of action/Activity	**Topics called**	**Funding scheme(s)**	**EUR million indicative**
1.1 Support to existing research infrastructures			
1.1.2 ICT-based e-Infrastructures	INFRA 2011 1.2.1: e-Science environments	Combination of Collaborative projects and Coordination and Support Actions (CP-CSA)	27.00
	INFRA 2011 1.2.2: Data infrastructures for e-Science		43.00
1.2 Support to new research infrastructures			

[14] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication. Also, the Director-General responsible may delay this deadline by up to two months.

[15] The final budget of the call may vary by up to 10% of the total value of the call and any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget for the call.

[16] Under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority.

1.2.3 Construction of new infrastructures (or major upgrades) - implementation phase	INFRA-2011-2.3.5: Second implementation phase of the European High Performance Computing (HPC) service PRACE	Combination of Collaborative projects and Coordination and Support Actions (CP-CSA)	20.00
1.3 Support for policy development and programme implementation			
1.3	INFRA-2011-3.4: Coordination actions, conferences and studies supporting policy development, including international cooperation, for e-Infrastructures	Coordination and Support Actions (CSA-CA or CSA-SA)	4.0
	INFRA-2011-3.5: Trans-national cooperation among NCPs		1.0

- **Eligibility conditions**
  - The general eligibility criteria are set out in Annex 2 of this work programme and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.
  - The minimum number of participating legal entities required, for all funding schemes, is set out in the Rules for Participation and presented in the table below.

Funding scheme	**Minimum conditions**
Combination of Collaborative projects and Coordination and Support Actions (CP-CSA)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and Support Actions - coordinating action (CSA-CA)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and Support Actions - supporting action (CSA-SA)	At least 1 independent legal entity.

  - For activity 1.1.2 (ICT-based e-Infrastructures) proposals must address all the three categories of activities (*networking activities, service activities,* and *joint research activities*) of the I3 model as defined in Section VII.
  - Specifically for topic 1.2.1 (e-Science environments), proposals will address at least two of the four sub-topics that are presented as bullet points in the description of the above topic under section 1.1.2 of this document.
  - Specifically for proposals to 1.2.3 (Construction of new infrastructures – implementation phase), the following additional eligibility criteria apply: (a) existence in the proposal of the overall investment plans and budget for the entire Research Infrastructure as well as existence of a description of a set of activities that are fundable

by the EU; and (b) sufficient on-going financial commitment of Member States or other stakeholders for the whole Research Infrastructure (notably through letters of commitment by the relevant Ministries or national agencies).

- Specifically for topic 3.4 (Coordination actions, conferences and studies supporting policy development, including international cooperation, for e-Infrastructures), the requested EU contribution shall not exceed EUR 0.5 million per proposal unless the proposal addresses domain b and/or point (i) of domain f in which case the requested contribution may be up to 1 million EUR (see description of topic 3.4 under section 1.3 of this document).
- Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

- **Evaluation procedure**
  - The evaluation criteria and scoring scheme are set out in Annex 2 of the work programme.
  - Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS. The Commission will instruct the experts to disregard any pages exceeding these limits. The minimum font size is 11. All margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers).
  - Specific selection and award criteria for activities 1.1.2 and 1.2.3 are set out in section VII.2 and VII.3, respectively, replacing those of annex 2 to the Capacities work programme.
  - A one stage submission procedure will be followed.
  - Experts will carry out the individual evaluation of proposals remotely.
  - The procedure for prioritising proposals with equal scores is described below. It will be applied successively for every group of ex aequo proposals requiring prioritisation, starting with the highest scored group, and continuing in descending order:
    (i) Proposals that address topics not otherwise covered by more highly-rated proposals, will be considered to have the highest priority.
    (ii) These proposals will themselves be prioritised according to the scores they have been awarded for the criterion *impact*. If necessary, any further prioritisation will be based on other appropriate characteristics, to be decided by the panel, related to the contribution of the proposal to the European Research Area and/or general objectives mentioned in the work programme.
    (iii) The method described in (ii) will then be applied to the remaining ex aequos in the group.
  - A reserve list may be produced of projects that pass the evaluation but fall below the available budget in case additional budget becomes available.

- **Indicative timetable**
  - Evaluation results: estimated to be available within some 4 months after the closure date;
  - Grant Agreement signature: it is estimated that most of the grant agreements related to this call will come into force before the end of 2011.

- **Consortia agreements:** Participants in activities 1.1.2 and 1.2.3 are required to conclude a consortium agreement.

- **The forms of grant and maximum reimbursement rates** which will be offered are specified in Annex 3 to the Capacities work programme.

- **Particular requirements for participation, evaluation and implementation** (not to be applied as formal eligibility criteria)**:**
  - For the topic 3.5 (Trans-national co-operation among NCPs), project applicants are recommended to follow the "Guiding principles for setting up systems of NCPs for FP7"[17].
  - In the context of developing synergies and complementarities between FP7 and cohesion policy, projects applicants are encouraged to check the operational programme for Structural Funds applicable in their regions and to contact the related managing authorities for complementary or alternative support (see: http://ec.europa.eu/regional_policy/atlas2007/index_en.htm).

- **Flat rates to cover subsistence costs:** In accordance with Annex 3 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

- **Dissemination.** Grant agreements of projects financed under this call for proposals will include the special clause 39 on the "Open Access Pilot in FP7". Under this clause, beneficiaries are required to make their best efforts to ensure free access to peer-reviewed articles resulting from projects via an institutional or subject-based repository.

[17] Accessible under the CORDIS FP7 website: http://cordis.europa.eu/fp7/ncp_en.html

IV. OTHER ACTIONS

- ***External expertise***

  - The use of appointed external experts for the evaluation of project proposals and, where appropriate, for the reviewing of running projects.
  - The set up of groups of external experts to advise on or support the design and implementation of EU research policy.

  Funding scheme: *Coordination and support actions*[18]

- ***Studies***

  One study addressing the scoping and road-mapping of e-Infrastructure future activities and the assessment of impact of past activities. DG INFSO plans to launch the call for tenders during the first semester 2011, and conclude indicatively the contract before year end.

  Funding scheme: *Coordination and support actions*[19]

- ***RSFF:*** In addition to direct financial support to participants in RTD actions, the EU will improve access for them to private sector finance by contributing financially to the 'Risk-Sharing Finance Facility' (RSFF) established by the European Investment Bank (EIB).

  The EU contribution to RSFF will be used by the Bank in accordance with eligibility criteria set out in section VII.4 of this Work Programme. RSFF support is not conditional on promoters securing grants resulting from calls for proposals described herein, although the combination of grants and RSFF-supported financing from EIB is possible. Further information on the RSFF is given in section VII.4 The Commitment and Payment Appropriations for the RSFF in 2011 will be EUR 50.00 million[20].

[18] In compliance with Article 14(c) of the Rules of Participation and Article 168 of the Implementing Rules of the Financial Regulation.

[19] In compliance with Article 14(b) of the Rules of Participation and Article 168 of the Implementing Rules of the Financial Regulation.

[20] This amount corresponds to primary-credit appropriations. It will be complemented by an additional amount of EUR 1.19 million (corresponding to the allocation to RSFF of the EFTA credits of 2.38 %). It may be further increased by Third Countries appropriations. It should be released under the condition that the draft budget for 2011 is adopted without modification by the budgetary authority and according to the conclusions of the interim evaluation of the RSFF

V. BUDGET

Research Infrastructures - Indicative budget

	Budget 2011 EUR million[21]
FP7-INFRASTRUCTURES-2011-1	163.45
FP7-INFRASTRUCTURES-2011-2	95.00
Other actions • RSFF (EUR 50.00 million[22]). • Independent experts (EUR 0.52 million) • Studies (EUR 0.3 million)	50.82
Estimated total budget allocation	**309.27**

Budget figures in this work programme

All budgetary figures given in this work programme are indicative. The final budgets may vary following the evaluation of proposals.

The final budget awarded to actions implemented through calls for proposals may vary:

- The total budget of the call may vary by up to 10% of the total value of the indicated budget for each call; and
- Any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget for the call.

For actions not implemented through calls for proposals:

- The final budgets for evaluation, monitoring and review may vary by up to 20% of the indicated budgets for these actions;
- The final budget awarded for all other actions not implemented through calls for proposals may vary by up to 10% of the indicated budget for these actions.

[21] Under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority

[22] This amount corresponds to primary-credit appropriations. It will be complemented by an additional amount of EUR 1.19 million (corresponding to the allocation to RSFF of the EFTA credits of 2.38 %). It may be further increased by Third Countries appropriations. The foreseen amount should be released according to the conclusions of the interim evaluation of the RSFF.

VI. INDICATIVE PRIORITIES FOR FUTURE CALLS

The table below provide information about calls already published and indicative priorities for futures calls. Dates indicated for future calls are tentative call deadline.

Activity	**Call 1** Feb07	**Call 2** Sep07	**Call 3** Feb08	**Call 4** Sep08	**Call 5** Mar09	**Call 6** Dec09	**Call 7** Nov09	**Call 8** Nov10	**Call 9** Nov10	**Call 10** Nov11	**Call 11** Nov11	**Call 12** Nov12
Integrating activities			278			*168*		*104*		*X*		
e-Infrastructures	44	50		115	4		85		*70*			*X*
Design studies	29							*20*				
Construction – support to the preparatory phase	147					44				*X*		
Construction – support to the implementation phase							20	*30*	*20*		*X*	
Support to policy development	8	13	4		5	5	10	*9.5*	*5*	*X*	*X*	
Budget (EUR million)	227	63	281	115	10	217	115	*163.5*	*95*			

VII. COMPLEMENTARY INFORMATION

1. The Integrated Infrastructure Initiative (I3) model

Integrated Infrastructure Initiatives (I3) should combine, in a closely co-ordinated manner: (i) *Networking activities,* (ii) *Trans-national access and/or service activities* and (ii) *Joint research activities*. All three categories of activities are mandatory as synergistic effects are expected from these different components.

(i) Networking activities. To foster a culture of co-operation between the participants in the project and the scientific communities benefiting from the research infrastructures and to help developing a more efficient and attractive European Research Area. Networking activities could include (non exhaustive list):

- joint management of access provision and pooling of distributed resources;
- strengthening of virtual research communities;
- definition of common standards, protocols and interoperability; benchmarking;
- development and maintenance of common databases for the purpose of networking and management of the users and infrastructures;
- spreading of good practices, consultancy and training courses to new users;
- foresight studies for new instrumentation, methods, concepts and/or technologies;
- promotion of clustering and coordinated actions amongst related projects;
- coordination with national or international related initiatives and support to the deployment of global and sustainable approaches in the field;
- dissemination of knowledge; internal and external communication;
- promotion of long term sustainability, including the involvement of funders and the preparation of a business plan beyond the end of the project.

(ii) Trans-national access and/or service activities.

Trans-national access activities

To provide trans-national access to researchers or research teams to one or more infrastructures among those operated by participants. These access activities should be implemented in a coordinated way such as to improve the overall services available to the research community. Access may be made available to external users, either in person ('hands-on') or through the provision of remote scientific services, such as the provision of reference materials or samples or the performance of sample analysis. EU financial support should never exceed 20% of the annual operating costs of the infrastructure to prevent it from becoming dependent on the EU contribution and should not include capital investments. This financial support will serve to provide access 'free of charge' to external users, including all the infrastructural, logistical, technological and scientific support (including training courses, travel and subsistence for users). Access costs will be defined on the basis of 'user fees' related to the operating costs of the infrastructure.

The research infrastructures must publicise widely the access offered under the grant agreement to ensure that researchers who might wish to have access to the infrastructure are made aware of the possibilities open to them. They must maintain appropriate documentation to support and justify the amount of access reported. This documentation shall include records of the names, nationalities, and home institutions of the users within the research teams, as well as the nature and quantity of access provided to them.

The selection of researchers or research teams shall be carried out through an independent peer-review evaluation of their research projects. The research team, or its majority, must

come from countries other than where the operator of the infrastructure is established (when the infrastructure is composed of several research facilities, operated by different legal entities, this condition shall apply to each facility) except in the case of a distributed set of resources or facilities offering remote access to the same services. Only research teams that are entitled to disseminate the knowledge they have generated under the project are eligible to benefit from research services to the infrastructure under the grant agreement. The duration of stay at a research infrastructure shall normally be limited to three months.

Service activities for Integrating Activities

To provide access to scientific services freely available through communication networks (e.g. databases available via Internet). Only services widely used by the community of European researchers will be supported. In such case, projects of potential users would not normally be subject to peer review. However, in such cases, the services offered to the scientific community will be periodically assessed by an external board.

Service activities for e-Infrastructures

To provide specific research infrastructure related services to the scientific community. This may include (non exhaustive list):

- procurement and upgrading communication infrastructure, network operation and end-to-end services;
- Grid infrastructure support, operation and management; integration, test and certification; services deployed on top of generic communication and computing infrastructures to build and serve virtual communities in the various scientific domains;
- deployment, quality assurance and support of middleware component repositories;
- data and resources management (including secure shared access, global scheduling, user and application support services) to foster the effective use of distributed supercomputing facilities; federated and interoperable services to facilitate the deployment and wide use of digital repositories of scientific information.
- vertical integration of the different services in support of specific virtual research communities, including virtual laboratories for simulation and specific workspaces.

(iii) Joint Research activities. These activities should be innovative and explore new fundamental technologies or techniques underpinning the efficient and joint use of the participating research infrastructures. To improve, in quality and/or quantity, the services provided by the infrastructures, these joint research activities could address (non exhaustive list):

- higher performance methodologies and protocols, higher performance instrumentation, including the testing of components, subsystems, materials, techniques and dedicated software;
- integration of installations and infrastructures into virtual facilities;
- innovative solutions for data collection, management, curation and annotation;
- innovative solutions for communication network (increasing performance, improving management, exploiting new transmissions and digital technologies, deploying higher degrees of security and trust) and introduction of new end-to-end services (including dynamic allocation of resources and innovative accounting management);
- novel grid architecture frameworks and policies, innovative grid technologies, or new middleware solutions driving the emergence of high level interoperable services;

- advanced Service Level Agreements and innovative licensing schemes, fostering the adoption of e-Infrastructures and the use of other types of Research Infrastructures by industry;
- innovative software solutions for making new user communities benefit from computing services.

2. Evaluation criteria for Integrating Activities and ICT based e-Infrastructures

1. *Scientific and/or technological excellence (relevant to the topic addressed by the call) (award)*

   - Soundness of concept and quality of objectives
   - Progress beyond the state-of-the-art (e.g. improved performance and capacity of the proposed integrated Research Infrastructures and e-infrastructures)
   - Quality and effectiveness of the methodology to achieve the objectives of the project, in particular the provision of integrated services.
   - Quality and effectiveness of the Networking Activities and associated work plan. The extent to which the co-ordination mechanisms will foster a culture of co-operation between the participants, and enhance the services to the users.
   - Quality and effectiveness of the Trans-national Access and/or Services, and associated work plan. The extent to which the activities will offer access to state-of-the-art infrastructures, high quality services, and will enable users to conduct high quality research.
   - Quality and effectiveness of the Joint Research Activities and associated work plan. The extent to which the activities will contribute to quantitative and qualitative improvements of the services provided by the infrastructures.

2. *Quality and efficiency of the implementation and the management (selection)*

   - Appropriateness of the management structure and procedures.
   - Quality and relevant experience of the individual participants
   - Quality of the consortium as a whole (including complementarity, balance, critical mass).
   - Appropriate allocation and justification of the resources to be committed (staff, equipment…), by work package and participant.

3. *The potential impact through the development, dissemination and use of project results (award)*

   - Contribution at the European level towards structuring the European Research Area taking into account the EU objective of balanced territorial development for optimising the use and development of the best research infrastructures existing in Europe.
   - Appropriateness of measures for the dissemination and/or exploitation of project results and knowledge, for the management of intellectual property and for spreading excellence.
   - Contribution to socio-economic impacts, including for promoting innovation and developing appropriate skills in Europe.

Notes:

- Evaluation scores will be awarded for each of the three criteria, and not for the sub-criteria. Each criterion will be scored out of 5. No weightings will apply. The threshold for individual criteria will be 3. The overall threshold, applying to the sum of the three individual scores, will be 10.
- The second criterion corresponds to the **selection criteria** in the meaning of the financial regulations (OJ L248 16.9.2002, p1, article 115). It will be the basis for assessing the 'operational capacity' of participants. The remaining criteria and sub-criteria correspond to the **award criteria**.

3. Evaluation criteria for Construction – implementation phase

1. Scientific and/or technological excellence (award)

- Clarity and appropriateness of the proposal to reach the fundamental objective of offering a world-level service in response to needs of users from the research community.
- Contribution to European scientific excellence and to the co-ordination of high quality research in Europe.
- Quality and effectiveness of the co-ordination mechanisms, and associated work plan, for the development, construction and operation of the proposed infrastructure(s).

2. Quality and efficiency of the implementation and the management (selection)

- Appropriateness of the proposed management structure, procedures and implementation plan to achieve the objectives of the project.
- Appropriateness of the proposed governance and service models for ensuring sustainability and European added value
- Quality of partnership: the extent to which the proposal demonstrates the relevant commitment and experience of participants, and brings together all relevant parties that need to work together in order to realise the proposed project.
- Appropriate allocation and justification of the resources to be committed (staff, equipment…), by task and participant.

3. Impact (award)

- Contribution of the infrastructure(s) to technological development capacity, the attractiveness of the ERA and the EU objective of balanced territorial development;
- Contribution to the reinforcement of research-based clusters of excellence around such new infrastructure(s).
- Added Value of the required European Union financial support

Note:

- Evaluation scores will be awarded for each of the three criteria, and not for the sub-criteria. Each criterion will be scored out of 5. No weightings will apply. The threshold for individual criteria will be 3. The overall threshold, applying to the sum of the three individual scores, will be 10.
- The second criterion corresponds to the **selection criteria** in the meaning of the financial regulations (OJ L248 16.9.2002, p1, article 115). It will be the basis for assessing the 'operational capacity' of participants. The remaining criteria and sub-criteria correspond to the **award criteria**.

4. Risk-Sharing Finance Facility

Improving access to loans for RTD actions require public support to overcome market deficiencies for the financing of European RTD actions which often involve a high level of risk. In accordance with Annexes II and III of the Specific Programme, the European Union has provided a contribution to the European Investment Bank (EIB) for a Risk-Sharing Finance Facility (RSFF), with a view to foster primarily private but also public sector investment in research, technological development and demonstration (RTD) as well as innovation. This new financing instrument has been designed by the European Investment Bank with the support of the Commission.

Private investment in research and innovation in Europe is below the level necessary to achieve the headline target of the Europe 2020 Strategy. In addition to grants, other mechanisms are being increasingly used to leverage private investment by firms, to mobilise the financial markets and to diversify funding sources for European RTD actions, including research infrastructures.

Approach

Within the framework of a maximum contribution of EUR 1 billion for the period 2007-2013, the European Union has provided its first contributions (Coordination and Support Action) to the EIB for RSFF for a maximum amount of EUR 500 million for the period 2007-2010[23], EUR 100 million of which coming from the Capacities Specific Programme (Research Infrastructures). For 2011, it is expected that the EU will transfer EUR 250 million to the EIB, out of which EUR 50[24] million from the Capacities Specific Programme (Research Infrastructures). The Bank is the sole beneficiary of this European Union action. Pursuant to a decision by the EIB Board of Directors, endorsed by the Bank's Governors on 9 June 2006, the EU contribution will be matched by an equivalent amount from the EIB (up to EUR 1 billion for the period 2007-2013).

The level of the European Union risk coverage for each operation shall depend on the financial risk evaluation carried out by the EIB. The level of total provisioning and capital allocation for the majority of RSFF operations is expected to fall within the range of 15%-25% – possibly higher in duly justified cases – of the nominal value of such operations. In no case shall the level of total provisioning and capital allocation amounts of the European Union contribution exceed 50% of the nominal loan or guarantee value. There will be risk sharing under each operation, according to the methodology established in the Agreement to be concluded between the Commission and the EIB. The percentage of risk covered by the European Union contribution for each operation will be variable and will depend, inter alia, on the risk grading of such operation as well as its maturity.

The co-operation agreement between the European Union (EU) and the European Investment Bank (EIB) in respect of the Risk-Sharing Finance Facility (RSFF) – the RSFF Co-operation agreement – was approved by the Commission (Commission Decision C(2007)2181 –

[23] An amount of EUR 70 million was front-loaded from the 2010 budget to the 2009 budget in response to the financial and economic crisis for the Cooperation Specific Programme. A EUR 1.5 million advance in 2009 was accepted by the budgetary authority for the Capacities Specific Programme.

[24] This amount corresponds to primary-credit appropriations. It will be complemented by an additional amount of EUR 1.19 million (corresponding to the allocation to RSFF of the EFTA credits of 2.38 %.) It may be further increased by Third Countries appropriations. It should be released under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority and according to the conclusions of the interim evaluation of the RSFF

25/05/2007) and signed on 5 June 2007 by former Research Commissioner Janez Potočnik and President Philippe Maystadt and amended by the Commission (on the basis of the Commission Decision C(2008)8058–12/12/2008 authorising the Director-General of the Directorate-General for Research to conclude further amendments of the Agreement on behalf of the Commission on a number of points specified in the decision). A first amendment entered into force on 26 February 2009 and a second one on 8 September 2009.

This Agreement defines terms and conditions related to RSFF and, in particular, to the use of the European Union contribution in RSFF, the risk-sharing methodology, the indicative annual budget, the reporting conditions, the governance, the rules for establishment of network of financial intermediaries in all Member States and Associated Countries and its relating conditions. The first amendment seeks to simplify and harmonize the financial reporting requirements and rules for asset management with other Commission funds managed by the EIB. The second technical amendment specifies the EU contribution for 2009 and simplifies reporting dates.

International Co-operation

In accordance with the provisions of the Specific Programme, the EIB may only use the European Union contribution to RSFF to cover risk of operations limited to those borrowers or beneficiaries of guarantees from legal entities from third countries other than Associated countries who participate in FP7 projects and whose costs are eligible for European Union funding or, in the case of Research Infrastructures, if the beneficiary is able to demonstrate that either the infrastructure(s) ownership or operation(s) (will) involve independent legal entities in at least three Member States or Associated Countries, or the infrastructure(s) services are (will be) used or requested for use by research communities from at least three Member States or Associated Countries.

Dissemination actions

Since 2006, the EIB has carried out an intensive awareness raising campaign to reach stakeholders in as many Member States and Associated Countries as possible. Awareness raising will continue in 2011, with special focus on the most research-intensive sectors in Europe and, in the case of Research Infrastructures, on the ESFRI Roadmap.

RSFF will involve the development of financial engineering solutions adapted to the needs of European research infrastructures. The EIB has already introduced a dedicated instrument under RSFF, the ESFRI Risk Capital Facility (ERCF) – to provide financing to research infrastructure projects helping to bridge temporary financing gaps. The ERCF could thus help to speed up the implementation of European Research infrastructures. Such innovative financing solutions will be further developed and tested by the EIB and its financing partners.

A number of workshops for representatives of the Member States and Associated Countries have been held since the launch of the RSFF to disseminate such financial engineering solutions and seek other co-operation opportunities. Initiatives of this kind will be continued in 2011, both at European and national level.

Contacts with potential clients

The awareness raising activities started in 2006 have resulted in concrete discussions, negotiations and also applications for financing from promoters of European research infrastructures. In parallel, the EIB has addressed research infrastructure promoters, both public and private, directly to discuss their very concrete financing needs. This has resulted

in the signature of a first RSFF loan allocated to a Research-Infrastructure project in 2009 and the approval of several other projects.

RSFF will be offered in all Member States and Associated Countries in order to ensure that all legal entities, irrespective of size (including SMEs and research organisations, including universities) in all Member States and Associated Countries, may benefit from this facility for the funding of their activities in eligible actions. The EIB shall use all reasonable efforts to ensure that RSFF is also offered by means of EIB financial intermediary partners active in each Member state and Associated Country, in order to support eligible small and medium sized RTD projects in accordance with the EIB's usual rules and procedures. The attention of the Member States and Associated Countries is drawn to the fact that, in case of difficulty arising (meaning, no financial intermediary partner interested to join EIB network for RSFF purpose), there will be a dependence on the best efforts of the Member States and Associated Countries themselves to ensure that there is no consequential damage to the interests of participants in their countries.

Governance

RSFF is managed by the EIB in accordance with its own rules and procedures, with due regard to terms and conditions of the RSFF Cooperation Agreement (as amended) between the Commission and the Bank. RSFF implementation, and in particular the use of the European Union Contribution, is supervised by a Steering Committee, consisting of at least four members appointed by the Commission at Director level and at least four members appointed by the Bank at Director level.

The Commission will continue to closely monitor the effective use of the European Union Contribution, including ex-post assessments of the successful features of the action, and to regularly report to the Programme Committee. In addition, the Commission will include main findings in this respect to the annual report on research and technological development activities which it will send to the European Parliament and the Council pursuant to Article 190 TFEU.

In addition, no later than 2010, the Commission shall have carried out, with the assistance of external experts an interim evaluation referred to in Annex II of the Framework Programme, in accordance with the procedure set out in Article 7(2) of the Framework Programme. The Commission shall communicate a report notably containing information on the participation per type of legal entities, the fulfilment of the FP7 selection criteria, the kind of projects supported and the demand for the instrument concerned, the duration of the authorization procedure, the project results, and the funding distribution.

Selection of Projects for Financing and the Eligibility Criteria

The EIB was recognised as a beneficiary of the European Union action in the Council and Parliament decision adopting the 7th Framework Programme. In accordance with the principles established in the Specific Programme, the EIB will use the European Union contribution on a 'first come, first served basis,' as provisions and capital allocation within the Bank to cover part of the risks associated with its operations supporting eligible research infrastructures.

The development of research infrastructures funded by the European Union shall be automatically eligible. Other research infrastructures, located within or outside the territory of the European Union, shall be eligible if they demonstrate that their ownership or operation (will) involve entities in at least three Member states or associated countries and that their

services are (will be) used or requested for use by research communities from at least three Member states or associated countries.

The EU contribution to RSFF may only be used to support activities which can be classified as 'fundamental research', 'industrial research' or 'experimental development' as defined in the European Union Framework for State Aid for Research and Development and Innovation. Prototypes and pilot projects, which are part of 'experimental development', may be eligible if they fulfil the conditions specified therein. Innovation activities intended to prepare the commercial use of research results (such as training, technology management and transfer) are eligible if they are linked to and complementary to research, technological development and demonstration activities, the later constituting the bulk of any eligible European RTD action. Other innovation activities of a commercial nature are eligible for RSFF only via the use of the EIB's own contribution.

The RSFF Cooperation Agreement with the Bank comprises a list of exclusions from financing with support of the European Union contribution, reflecting political agreement between the Commission, the Member States and the European Parliament as documented in the Seventh Framework Programme and the Specific Programme 'Capacities'.

The Commission Right to Object to the Use of the European Union Contribution

The Commission has a right to express its opinion on each and every financial operation proposed by the EIB to its Board for decision under Article 21 of the EIB Statutes. Where the Commission delivers an unfavourable opinion, the EIB Board may not grant the loan or guarantee concerned, unless it votes unanimously in its favour, the Commission nominee abstaining. Should the Bank proceed with financing despite the Commission's negative opinion the European Union contribution to RSFF may not be used. In accordance with Rules of Participation, the Commission may object, in duly justified cases, the use of the European Union contribution for provisioning and capital allocation for a loan or a guarantee proposed by the EIB. If such a case arises the Commission may conduct an independent, internal or external, review of such a case.

Under the Capacities Programme, only the Research Infrastructures actions contribute to RSFF. In compliance with Annex II to the 7th Framework Programme, the European Union financial contribution to RSFF from the Research Infrastructures actions of the Capacities Programme will reach the amount of EUR 50 million in 2011[25].

European Union Contribution to RSFF in 2011[26]

The European Union financial contribution to RSFF from the Research Infrastructures actions of the Capacities Programme may reach a maximum amount of EUR 200 million for 2007-2013.

As stated in Annex II to FP7, "for the period 2010-2013, there will be the possibility to release up to an additional EUR 500 million following the evaluation of the European Parliament and the Council in accordance with the procedure set out in Article 7(2) of this Decision on the basis of a report by the Commission containing information on the participation of SMEs and universities, the fulfilment of the Seventh Framework Programme

[25] Under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority.

[26] Under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority and according to the conclusions of the interim evaluation of the RSFF.

selection criteria, the kind of projects supported and the demand for the instrument concerned, the duration of the authorisation procedure, the project results, and the funding distribution".

According to the procedure set out in Article 7(2) of FP 7, "no later than 2010, the Commission shall carry out, with the assistance of external experts, an evidence-based interim evaluation. The Commission shall communicate the conclusions thereof, accompanied by its observations and, where appropriate, proposals for the adaptation of this Framework Programme, to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions".

In compliance with Annex II to the Seventh Framework Programme, the Commission will commit, in 2011, an amount of EUR 250 million, of which EUR 50 million coming from the Research Infrastructures Programme.

Process for Recovering and Reallocating Unused European Union Funds

In order to mitigate the risk of accumulation of unused funds the multi-annual planning will be adjusted on the basis of reports including pipeline report (summary of information on projects considered for financing) and demand forecasts. Amounts committed but not earmarked, blocked or paid to the EIB – i.e. not used for the operations of RSFF – will be reallocated to other activities of the contributing themes.

Notwithstanding the above and unless the Council adopting the 8th Framework programme decides otherwise the Commission will recover from the EIB any unused funds of the European Union contribution (including interest and income) which on 31 December 2013 have not been used or committed to be used or are required to cover eligible costs.