General Secretariat for Research & Technology
(GSRT)

Athens, May 23rd 2013

Guidelines

Greek National Roadmap for Research Infrastructures

*Part of **ex-ante conditionality** "1.2 The existence of a multi-annual plan for budgeting and prioritization of investments"*

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Introduction

Research Infrastructures (**RIs**) constitute a vital element of the European Research Area. As mentioned in the flagship initiative "Innovation Union" of Europe2020 policy, **RIs** are synonymous to ***"investment for the future".*** The General Secretariat for Research and Technology (GSRT) adopts definitions and types of RIs stated in the official site of the European Commission, DG Research & Innovation[1]:

*The term '**research infrastructures**' refers to **facilities, resources and related services** used by the scientific community to conduct top-level research in their respective fields, ranging from social sciences to astronomy, genomics to nanotechnologies. Examples include singular large-scale research installations, collections, special habitats, libraries, databases, biological archives, clean rooms, integrated arrays of small research installations, high-capacity/high speed communication networks, highly distributed capacity and capability computing facilities, data infrastructure, research vessels, satellite and aircraft observation facilities, coastal observatories, telescopes, synchrotrons and accelerators, networks of computing facilities, as well as infrastructural centres of competence which provide a service for the wider research community based on an assembly of techniques and know-how.*

***RIs** may be '**single-sited**' (a single resource at a single location), '**distributed**' (a network of distributed resources), or '**virtual**' (the service is provided electronically).*

*These key infrastructures have not only been responsible for some of the greatest **scientific discoveries and technological developments**, but are also influential in attracting the best researchers from around the world and in building bridges between national and research communities and scientific disciplines.*

Upgrading and integrating existing infrastructures of national relevance and establishment of new ones, if necessary, has to be developed via long-term strategic planning and prioritization processes aiming to promote innovation, scientific excellence and international cooperation and to encourage the creation of jobs for highly skilled personnel. The current economic crisis intensifies the requirements for an intelligent planning process.

Given the considerable investments needed for the development and maintenance of Research Infrastructures, the need for a long term strategy and a Roadmap is essential especially in view of the new programming period 2014-2020. Moreover, this particular process is an **ex-ante conditionality** for the support of Research Infrastructures' through Structural Funds: ***EC rules require from each country to identify priorities in order to schedule funding commitments for Research Infrastructures, based on areas with growth potential in science and innovation, as well as on their socio-economic impact*** (see **Annex I, II** for more information).

Within that scope, GSRT, as the state policy making and funding organization for Research and Innovation has already initiated – through the appointment of a **Working Group**, since October 2012 - the elaboration of a concept basis and a systematic process for the formulation of a national strategy and a Roadmap for Research Infrastructures of national relevance[2,3].

Furthermore, to oversee the whole process of the Roadmap a high level **Advisory Committee** was appointed consisting of representatives of the main stakeholders of the research, academic and innovation ecosystems.

[1] http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=what

[2] As a follow-up roadmap of "Greek Large Scale Infrastructures Roadmap: A 10 to 15 Year Outlook", 2006

[3] **Research infrastructures of national relevance** denotes infrastructures open for access to the user communities, in which it is possible to perform all the research activities in individual research processes in the scientific field of the research infrastructure, while at the same time, they operate as units with their own administrative structure enforcing synergies and integration at the national level.

1. Objectives

The main objectives of the National Roadmap are:

- **To support the decision making process in compliance to strategic priorities in Research, Technological Development and Innovation aiming to enhance the effectiveness of investment in Research Infrastructures, at a national and regional levels**

- **To support the development of an evidence based national strategy in the framework of international negotiations, linked to EU priorities and, where appropriate, the European Strategy Forum on Research Infrastructures – ESFRI**

The Roadmap for Research Infrastructures will be an instrument for blueprinting future calls for investment on collaborative research infrastructures of national relevance, through the use of Structural Funds and other funding sources.

To that aim, GSRT initiated a bottom-up approach and launched a **Call for Expression of Interest** addressed to the research community of the country. The process comprises two main phases as follows:

A) 1st **Phase** – initial mapping: collection of brief information of RI proposals – *completed* ***February 17th 2013***

B) 2nd **Phase** - submission of detailed RI proposals: announced May 21st 2013 – open until June 28th 2013.

Its targets have been:

- The assessment of needs of the national research community for sustaining collaborative Research Infrastructures of national priority. For this reason, it is necessary to collect information on both operational infrastructures and infrastructures whose preparatory phases or national networking has already been financed (FP7, Structural Funds, National Funds etc.)

- The identification of needs of the Greek research community for international cooperation in relation to Research Infrastructures

- The identification of direct *or indirect* participation of Greek laboratories in projects of the ESFRI roadmap

- The identification of priorities of the Greek Research and Innovation ecosystem, and in combination to the expected socio-economic benefits for the country and the regional locations of Research Infrastructures host installations or nodes.

This process, based on the evaluation described in a subsequent section, will lead to the National Roadmap for Research Infrastructures by the end of 2013, based on the obligations of Greece towards DG REGIO of the European Commission. The publication of the "***National Strategy and the Roadmap for Research Infrastructures 2014 – 2020"*** will be a significant milestone towards the completion of this process, and will be a useful asset for promoting the national research & innovation policy during the framework of the Greek EU Presidency in the 1st semester of 2014.

Moreover, the development of a National Roadmap is a key step in a multi-level decision-making and quality management process. It will initially lead to earmarking budget for RIs and setting up of priorities, ensuring accordingly evaluation of all proposals based on uniform criteria across all fields of research.

2. Main Guidelines for the National Roadmap for Research Infrastructures

Apart from compliance to the definition of Research Infrastructures given above – the proposals should take into account the following ***guidelines*** (describing the main features of the roadmap):

- **National relevance**

To be included in the Roadmap, Research Infrastructures should, cumulatively:

1. Address a broad national interest *(defined in the strategy for research and innovation plan or the multi-annual Partnership Agreement 2014-2020 with the European Union)*
2. Enable cutting-edge research at the national level, with international visibility
3. Promote innovation at a national and regional levels
4. Form part of a coherent structure, with nodes available at one or more locations in Greece, in terms of distributed research installations or access points
5. Provide access to researchers, industry and the broader public domain in the country and internationally

- **Effective Networking and Synergies**

To be included in the Roadmap, Research Infrastructures should facilitate an effective coordination and networking among relevant research teams and establish critical mass in the corresponding research fields. Therefore it is recommended that Research Infrastructure proposals should:

A) Integrate similar research infrastructures into one network and submit one proposal for that (through its coordinator)

AND

B) Be consistent with experience and priority plans set by the research & innovation ecosystem

These two conditions will be considered in relation to the Research and Innovation Strategy for Smart Specialisation (RIS3), which is currently being drafted by GSRT. *To that aim, **endorsement letters** from user communities and Regional Authorities are encouraged.*

- **Scientific & technical excellence and outstanding strategic importance**

To be included in the Roadmap, Research Infrastructures should respond to the state of the art in the relevant S&T field and receive high marks in the peer review process described in a subsequent section. Furthermore, Research Infrastructures with competitive advantage at the international and regional level (including RIs of the ESFRI Roadmap) will be prioritized.

3. Main Actors and their Roles

A. GSRT Working Group

The GSRT Working Group is responsible for the following:

- Coordination of the two phases of proposals' submission
- Planning, support and overall coordination of the evaluation process
- Support of the Advisory Committee
- Coordination of the open and targeted consultation processes, especially concerning issues of strategic prioritization of the proposed RIs on the basis of the Research and Innovation Strategy for Smart Specialization (RIS3)

B. Advisory Committee

The main task of the Advisory Committee is to supervise the overall evaluation process, in terms of methodology and criteria, leading to the RIs Roadmap.

The members of the high level Advisory Committee are institutional representatives of the main stakeholders of the National Research and Innovation ecosystem, high caliber scientists, and representatives of the private sector and of the Ministry of Development, Competitiveness, Infrastructures, Transports and Networks, which is responsible for the national development strategy for the forthcoming programming period of the Structural Funds (2014-2020).

C. Evaluation Committees

The evaluation procedure has been designed according to international best practices. Following the description below, for the 1st thread of evaluation, all proposals will be evaluated by committees covering the main thematic sectors of the call and comprising of high-level international experts. Each proposal will be evaluated by 3 experts, through an online evaluation platform at GSRT. Upon completion of the evaluation of individual proposals, ***consensus meetings*** will be led by the Chairs of the Committees *(per thematic group of proposals)*

4. GSRT Call for Research Infrastructures National Roadmap

4.1. 1st Phase: Expression of Interest and Proposal Abstract

This phase was launched in February 2013 for submission of abstracts, through the dedicated online platform: https://apps.gov.gr/minedu/institutes/infrastructures/evaluation2013/

The main objective of the 1st Phase was to assist GSRT in creating a preliminary record of the interested parties and to initiate the search for evaluation panels. Interested parties were invited to fill out a brief questionnaire that was accompanied with detailed guidelines for the proposers along with a brief description of the whole evaluation concept.

Upon conclusion of the 1st Phase of the call, GSRT organized an information event (21st of February) in collaboration with the National Documentation Center (National Contact Point for Research Infrastructures Programme in FP7) in order to facilitate the preparation of the 2nd Phase of the procedure.
This event provided an opportunity for extensive Q&A and exchange of views with proposers and other interested parties (such as representatives of the national regions, ministries, etc.).

Further to this event and responding to many requests for information on the submitted proposals, GSRT took the initiative to include an additional, intermediate step in the process. It provided access to all proposers to summary information (*titles and abstracts*) of all proposals submitted in the 1st Phase. The main aim of this intermediate step was to facilitate deeper networking between the research teams and to encourage submission of common proposals in the 2nd Phase.

The 1st Phase of the Call for expression of interest resulted to 138 applications submitted mainly by academic and research institutions.

Distribution of these proposals according to their primary scientific fields is as follows:

· 13 proposals from / in the field of Social Sciences and Humanities,
· 31 proposals from the field of Biological and Medical Sciences,
· 31 proposals from the field of Physical Sciences and Engineering,
· 20 proposals from the field of Material Sciences and Analytic Facilities,
· 9 proposals from the field of Energy,
· 20 proposals from the field of Environmental Sciences, and
· 14 proposals from / in the field of e-infrastructures.

4.2. 2nd Phase: Proposal Submission and Evaluation

The evaluation framework is based to a large extend to relevant practices followed internationally for RIs evaluation and design of RIs Roadmaps at the European Commission level (ESFRI Roadmap) and the Member State level. Moreover, particular attention will be given to socio-economic aspects in view of the possibility to allocate funding from Structural Funds for establishing Regional Partner Facilities[4] for the next programming period 2014 – 2020. The 2nd Phase will consider **targeted proposals**, based on the expressions of interest already submitted in the 1st Phase. Major revisions and consolidations of the aforementioned expressions of interest are encouraged, according to the recommendations given through the present document and the guidelines given through the two open workshops organized by GSRT (February 21st & April 26th 2013).

Upon completion of submission of the comprehensive proposals *(in the 2nd Phase of the procedure, through electronic submission platform – deadline: June 28th 2013)* the evaluation process will commence in **two threads:** The first will concentrate on evaluating the scientific, technical merit and innovation potential of the proposed RIs by panels of international experts. The second will guarantee convergence of the first thread outcome with RIS3 priorities (thematic, sectoral and socio-economic) as planned at the national and regional levels, under the coordination of GSRT.

[4] Definition: **Regional Partner Facility**: Regional Partner Facility (RPF) is a research infrastructure of significant national or regional importance in terms of the socio-economic benefits, training and attraction of researchers and engineers, acknowledged as a "cooperative infrastructure" towards a pan-European ESFRI infrastructure or an international research infrastructure. The quality of the **RPF**, taking into account the level of its scientific services, management and access policy, should have the same standards met at the European-level research infrastructures.

1st thread: Evaluation of the scientific and technical merit and innovation potential of the proposals will be implemented through peer review by high ranking experts of international standing on the basis of the following **group of criteria**:

1. Scientific, technological potential & maturity of the RI
2. Effective networking & synergies within the knowledge triangle[5]
3. Access policy[5], governance and sustainability
4. Innovation potential and socio-economic benefits

Each proposal will be evaluated individually in each of the above criteria as well as in comparison to other proposals.

The Advisory Committee will oversee the whole evaluation process, working closely with GSRT Working Group, and aiming at optimal planning and execution of the evaluation.

The scientific evaluation will be conducted by thematic Evaluation Committees (comprising of a minimum of 3 experts each) covering the main research fields as identified from the 1st stage of submission.

The Advisory Committee will oversee the evaluation process and advise GSRT on the membership of the evaluation panels.

Evaluation of the individual proposals will start in June 2013, upon completion of the on-line submission process.

Each proposal will be individually evaluated by three (3) experts on the basis of an evaluation form that will be provided to them by GSRT.

Upon completion of this step, the thematic evaluation committee will form a consensus opinion for each proposal and will also submit a recommendation regarding the placement of the proposal in the National Roadmap.

Proposals will be graded on the basis of the above criteria with a range of 1 to 5, where:

1- Poor
2- Low / insufficient
3- Average
4- Very good
5- Excellent

For a proposal to be considered for inclusion in the National Roadmap it must attain a grade from 4 to 5 for each of the aforementioned groups of criteria, as an average grade from the evaluators. Only integer grades will be assigned by each evaluator. The total ranking will be based on the sum of the average grades for each evaluation criterion

[5] The National **RIs** may be single sited or distributed in many sites. However, they should promote synergies within the knowledge triangle in the following ways:

- They should be able to sustain **Service Activities** to enable seamless access to **National** and (in cases) **Transnational Access** users (scientists from Universities, Research Centers and Industry). The **access rules** for selection should be well defined and transparent *(necessary condition)*
- They should develop **Networking Activities** for promoting the frontiers of various scientific fields *(optional condition)*
- They should establish **Joint Research Activities** for improving the scientific quality of their **services** *(optional condition)*

The main **evaluation criteria** will be:

1. Scientific, technological potential & maturity of the RI

- The significance of the Research Infrastructure for specific research fields addressed*, including:*
  - *Scientific objectives, main concept of the RI*
  - *Current state-of-the-art*
  - *Expected benefits for the Greek research system as location for conducting cutting edge research at an international level*
  - *International reputation and visibility of the research team, involving the partners and key investigators*
  - *Impact of combating the brain-drain of highly skilled human resources (research & technical staff)*
- Degree of interdisciplinarity
  - *The effect of RI on strengthening interdisciplinary research in Greece*
- Perspectives for scientific & technological breakthroughs in the field of operation of RI
- Maturity of the RI proposal
  - *Proven ability to continuously follow state-of-the-art, experienced human resources & operational readiness*

2. Effective networking & synergies within the knowledge triangle

- Competence complementarity of the partners and added value of the national RI network at the regional, national and international level
- Degree of networking and creation of critical mass
- Extent and types of the user community
- Potential for increasing existing or for creating new research groups in the field of operation of RI
- Education and training for students, researchers, technicians, engineers and administrators of RIs
- Synergies and networking capacity in relation to other Research and Innovation initiatives at the national and international level (*with emphasis on ERA integration effects, e.g. ESFRI participation)*

3. Access policy, governance and sustainability

- Access policy for researchers
  - *Transparent policy, incl. transnational access activities, conditions for provision of access, addressing remote access needs in relation to availability of e-infrastructures and data management issues*
- Access policy for industry (addressing IP rights – if applicable – fees and confidentiality issues)
- The management structure & governance of the proposed research infrastructure
- Technical feasibility, incl. human resource issues & cost-effectiveness of the proposed infrastructure, based on:
  - *Level of requested funding and envisaged sources of funds*
  - *Multi-annual financial plan with funding sources information, as per:*
    - *Cost of investment*
    - *Operational Cost*
    - *Cost for decommissioning*
  - *SWOT analysis*
  - *Long-term sustainability plan of the investment*

4. Innovation potential and socio-economic benefits

- Contribution to increase the potential for innovation and technology transfer through the construction and operation of the RI, based on expected results and spill-over effects of the RI
- Addressing major societal challenges
- The integration of the RI in scientific, business and social environment in Greece and expected socio-economic benefits at the regional and national level

2nd Thread: Strategic prioritization of the proposed RIs, as set within RIS3 at the national and regional levels and the National Strategic Framework for Research and Innovation, as drafted with GSRT's coordination with the guidance of the National Council for Research and Technology (NCRT). The strategic prioritisation will be based on :

1. Expected economic and social benefits for Greece as location for conducting cutting edge research at a national, regional and international level, considering also the importance of cross-border cooperation
2. The relevance of the RI to the national strategic priorities for Research & Innovation
3. Its expected impact on the national and regional development and competitiveness

The assessment of the strategic importance of the proposed RIs (*coordinated by GSRT, in consultation with relevant policy bodies, national and regional authorities)* will also take into consideration the expected impact of the RIs on additional socio-economic issues (e.g. employment, environment, related commercial / business activities) towards the national & regional economy.

The proposals selected through the above procedure will form the core of the National Roadmap. All other RIs that meet the above criteria will also be included in a separate Annex of the Roadmap, and will be eligible for funding in future calls and for inclusion in future revisions of the Roadmap, without specific budgetary commitments. Upon completion of each stage of funding of RIs and on the basis of recommendations of the Advisory Committee, we aim to establish a procedure for periodical revisions of the Roadmap and to form the basis for the creation of a **National Registry of Research Infrastructures**.

All research infrastructure proposals selected through the **two-thread procedure** described above will be included in the National Roadmap development process, irrespective of intended sponsoring and financing.

The detailed process described above is presented schematically in **Fig 1**:

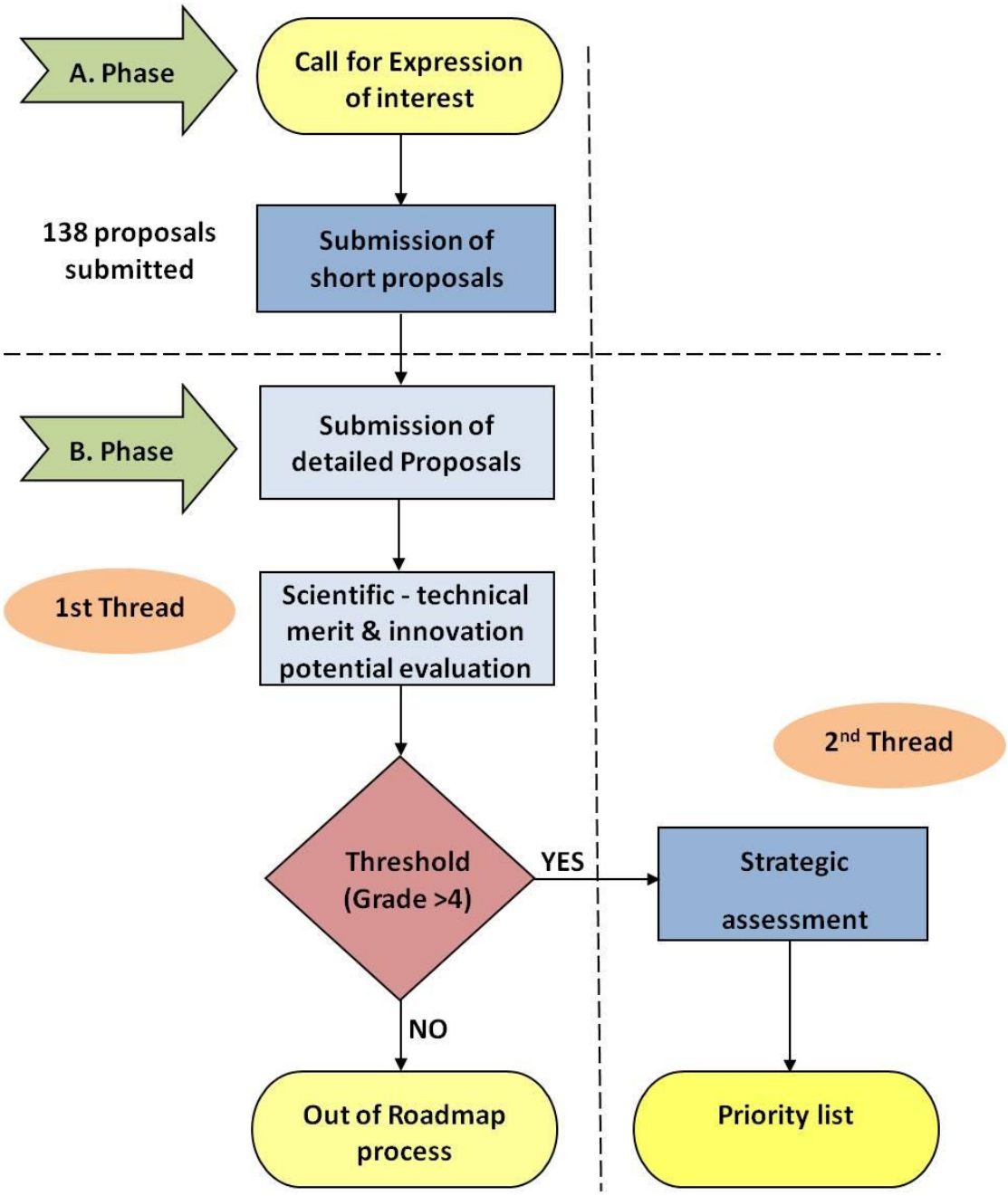

Fig 1: RI proposals prioritization process for the Roadmap

4.3. Summary Background Note on the Second Phase of Proposal Submissions

Greece shapes a National Strategy and a National Roadmap for Research Infrastructures, taking into account the orientations set out by the *Europe 2020* strategy and its two flagship initiatives: *Innovation Union* and *Digital Agenda.*

The Innovation Union Commitment n. 4: "Opening of Member State operated research infrastructures to the full European user community" will be addressed, in particular, through the support of integration of mid-scale research infrastructures at the national level, to provide quality services to both national and international research and innovation ecosystems.

It also responds to the ex-ante conditionality "***1.2 The existence of a multi-annual plan for budgeting and prioritization of investments***" for the allocation of Structural Funds for the construction, update and opening to users in Greece and abroad of Research Infrastructures in Greece, for the period 2014-2020.

To help overcome fragmentation of efforts and funding, enhance international visibility of the Greek research ecosystem based on its scientific performance, as well as its innovation capacity, Research Infrastructures of the National Roadmap should be in priority of national relevance, effectively networked (both at the national and international level) and sustainably governed, making Greece more attractive for Research and Innovation.

The roadmap process will also take into account the need to smoothen the transition to Horizon 2020, allowing strong research teams in Greece to benefit from competitive national research infrastructures, hindering current brain drain trends in science and technology sectors. Research Infrastructures which will be prioritized in the Greek roadmap, in cooperation with international initiatives and research facilities in Europe and beyond will provide trans-national, on-line access and research services to the user community of both the public and the private sector.

In view of establishing the Greek roadmap, submitted proposals will have to consist of:

- ***Part A*** (in accordance with the herewith application form, which includes the overall description of the proposal)

- ***Part B*** (in accordance with the herewith application form, which includes the more explicit elements related to the **Networking**, **Service** and **Joint Research Activities** envisaged, according to the **Integrated Infrastructure Initiative**[6] ***-I3-*** model)

Templates for **Parts A** and **B** of the Application Form are in **Section 6** of this document**.**

[6] The **I3** model has been established by the European Commission (initially in FP6) to describe the level of integration / networking of research facilities to formulate a well networked infrastructure of pan-European relevance and high-standards' operational capacity. This model has been adopted by GSRT for the formulation of proposals on **collaborative Research Infrastructures of national relevance** requested for the Greek Roadmap. See **Annex III, IV** for the description of the model and relevant guidance notes. Please notice that **Transnational Access** activities mentioned in Annex III and related EC instructions are **not** applicable for the proposals of the Greek Roadmap.

5. Evaluation of the Scientific, Technical Merit & Innovation Potential

Evaluation of the **scientific and technical merit and innovation potential** will comprise of **three main steps**, after the submission of detailed proposals at the GSRT – through **online submission** process *(deadline for the submission of proposals: June 28th 2013)*

GSRT will recruit international experts for the evaluations of the proposals and will make sure that the process will be properly supervised, through the GSRT Working Group.

5.1. Individual Evaluation

a) Every proposal will be evaluated individually by three (3) reviewers who will submit **individual evaluation reports** *(based on a predefined evaluation sheet).* The individual evaluation will be based on common criteria for all topics to guarantee an impartial process.

b) Interim reports will be summarized, compiled and presented by the rapporteur *(one of the members of the experts' panel will be the rapporteur)*

The individual evaluations will be discussed in a consensus meeting with the relevant evaluation committee in order to prepare the consensus report for every individual proposal.

5.2. Final Evaluation of Proposals

On the basis of all individual evaluations, the GSRT Working Group prepares a **final evaluation** on the basis of the total grading of individual evaluations.

In case of proposals with equal total grading, priority will be given to those with higher grade in criterion 1 (**Scientific, technological potential & maturity of the RI)**. In case multiple proposals have the same grade in this criterion, criteria 2, 3 and 4 will be considered in that order.

This overall result forms the basis of the subsequent assessment of the proposals.

Targeted hearings / presentations for all proposals graded 4 or above, per scientific area, are foreseen. Presentation and discussion of the proposals with the responsible scientists, involving external reviewers and the policy bodies (GSRT, Advisory Committee, National and Regional Authorities) are envisaged.

Following those hearings, each proposal will receive a **brief evaluation report** and a recommendation for further action that takes account of the proposal's maturity and the urgency of its implementation. Analysis of **strengths and weaknesses within the respective field of research** must be included.

This evaluation will **not** lead to the final ranking of the proposals. The aim is to create a basis for **prioritisation by the political decision-makers** who, in turn, will also take into account the results of the cost assessment, given the preliminary financial considerations for the next programming period 2014-2020.

5.3. Preparation and Approval of the Evaluation Report

GSRT will approve the evaluation report and submit it to the Advisory Committee and the National Council of Research and Technology for the final consultation and assessment of the results.

The **final evaluation report** published by GSRT and the National Council of Research and Technology will also contain a **standardised brief description** of each proposal (as an input for the Registry for Greek Research Infrastructures)

The roadmap will be continuously assessed and revised in 3-years intervals

5.4. Provisional Time-Schedule

Main Phases	***Provisional dates***
Response to the call for expression of interest – 1st Phase (submission of short proposals)	*Deadline February 17th 2013*
1st information event	*February 21st 2013*
2nd information event – announcement of assessment criteria & timetable for the roadmap	*April 26th 2013*
Launching of the 2nd Phase for submission of comprehensive proposals	*May 21st 2013*
Deadline for submission of comprehensive proposals	*June 28th 2013*
Evaluation of proposals – 1st thread	*1st half September 2013*
Consensus meetings / discussion on national & regional priorities	*Mid September 2013*
Submission of evaluation reports from the Panels	*2nd half September 2013*
Targeted meetings / Consultations per thematic area & presentations of high ranked proposals to the evaluation panels → *Strategic prioritization process*	*End of September – 1st half of October 2013*
Formulation of the draft Roadmap (GSRT)	*End of October 2013*
Open consultation	*First week of November*
Publication of the Greek Roadmap for Research Infrastructures	*End of November 2013*

6. Synthesis template for a Research Infrastructure (RI) proposal

6.1. PART A: Overall Description

1. Descriptive title and summary information on the Research Infrastructure (RI)

Fields to be completed / revised:

1.1. Full title

1.2. Acronym

1.3. RI Coordinator & Partners

1.3.1. Name & contact details of Lead Partner (coordinator) - *Attach PDF file of letter of endorsement from the legal representative of proposing institution & short CVs of key personnel – max ½ page each*

1.3.2. Partners (table with contact details of the partners) - *Attach PDF files of letters of endorsement from legal representatives of partner Institution & short CVs of key personnel – max ½ page each*

1.4. Abstract (brief description of the concept and main aims of the RI) - *Attach PDF file, max 1 page*

1.5. Scientific Areas covered *(selection from menu of **ESFRI areas**)*

1.6. RI type
- distributed
- single sited
- virtual

1.7. Location *(location of the main nodes of the infrastructure, selection from menu of **Regions**)*

1.8. Links with ESFRI (Yes/No) - *if Yes please complete Section 15*

1.9. Keywords

2. Partnership case - synthesis of the consortium

Please provide a short report on the partnership of the RI with reference on the following items:

- How the partners have been selected
- International reputation and visibility of principal investigators and partners
- Impact on scientific community, including critical mass issues
- Maturity of the proposal, based on proven ability to continuously follow state-of- the-art, experience of human resources and operational readiness

(Max 2 pages)

3. Science case of the RI

Please provide brief description of the following:

- Main objectives and scientific area(s) addressed via the RI (including e-RI aspects)
- State-of-the-art & added value of the RI within the existing and future landscape of Research and RI's, at EU, Regional and World level
- Expected benefits for the Greek research system as location for conducting cutting edge research at an international level
- Effect of RI on strengthening interdisciplinary research in Greece
- Perspectives for scientific & technological breakthroughs in the field of operation of RI (incl. links to relevant documents, references, bibliographic outlook)
- Suggested Key Performance Indicators

(Max 4 pages)

4. Technical case

Please provide brief description of the following:

- Major technical issues to be addressed by the proposed RI, relevant approaches & risks assessed
- Are preliminary studies necessary? If this is the case are these already completed or planned? Please mention status of implementation for upgrade or integration of research infrastructures
- Provide summary of results (technical specifications) of conceptual and/or technical design studies

(Max 2 pages, incl. list of references/links)

5. Effective networking

Please provide brief description of the following:

- Detailed description of networking level and competence
- Allocation of roles allocation among the partners
- Expected added-value of the national RI network at the regional, national and international level
- Synergies and networking capacity in relation to other Research and Innovation initiatives at the national and international level (with emphasis on ERA integration effects, e.g. ESFRI participation)

✓ *Must be consistent with **Part B** for relevant cost estimates, time schedule & allocation of roles in terms of **Networking Activities***

(Max 2 pages)

6. Access policy & service activities

Please provide brief description of the following:

- Description of services offered by the RI and access policy for researchers (incl. transnational access activities, conditions for provision of access, how remote access needs will be addressed in relation to availability of e-infrastructures and data management issues)
- Description of services offered and access policy for industry (addressing IP rights - if applicable - fees and confidentiality issues)

✓ *Must be consistent with **Part B** for relevant cost estimates, time schedule & allocation of roles in terms of **Service Activities***

(Max 3 pages)

7. Innovation potential

Please describe innovation case of the proposal covering the following :

- Top technological sectors affected via technology transfer through the construction and operation of the RI, based on expected results and spill-over effects of the RI
- Devices, artifacts or products, patents and designs expected to result from the construction and operation of the RI in its first seven years. New services that the RI will be able to supply to the national and global markets on ad hoc or regular basis
- Potential for creation of spin offs and start-ups (links with incubators)
- Spill-over effects

(Max 1 page, incl. references. Please attach as PDF files letters of expression of interest from industrial sector, if any)

8. Synergies within the knowledge triangle

Please provide brief description of the following:

- Beneficiaries (direct and indirect beneficiaries, as well as the extent and types of the user community)
- Impact to the scientific community – including potential for increasing existing or for creating new research groups in the field of operation of RI
- Perspectives for combating the brain-drain of highly skilled human resources - research & technical staff
- Expected impact on creation of critical mass
- Partnership with industries (large companies, SMEs)
- Education and training for students, researchers, technicians and engineers

✓ *Must be consistent with **Part B** for relevant cost estimates, time schedule & allocation of roles in terms of **Joint Research Activities** that RI addresses for the provision of services towards its RI ecosystem*

(Max 3 pages, incl. references. Please attach as PDF files letters of support or expressing interest for working at and using the RI, if any)

9. Political and Strategic context

Please describe briefly the following aspects:

- Strategic, competitive advantage for Greece
- Impact of the RI in reducing fragmentation of the national research effort
- Improving penetration and participation to international scientific networks
- Benefits for regional & cross-border collaboration
- Challenges for being pioneer at a global level & potential to attract top researchers worldwide
- Provision of specialized services to the business enterprise sector
- Legal framework and required adjustments

(Max 1 page)

10. Expected socio-economic benefits, community added value for the region where the RI is located /will be constructed

Please describe briefly the following aspects:

- Major societal challenges
- Development of new technologies
- Effects on training
- Creation of jobs
- Return of investment
- Territorial development (reduction of regional disparities and further regional upgrading)
- Territorial cooperation (new opportunities for inclusion of the RIs in cross-border, transnational and interregional clusters and networks)
- Integration of the RI in scientific, business and social environment in Greece and expected socio-economic benefits at the regional and national level)

(Max 2 pages, incl. bibliographic references – Please attach as PDF files letters of endorsement from Regional Authorities, if applicable)

11. Costs for construction, operation and decommissioning, indications on proposal financing, including a financial plan

Please specify sources of funding already identified and financial commitments already decided (possible funders: EU, Member State, Regions, specific organisations and private funding), as well as perspective ones. Give budget info in M€.

Please fill in multi-annual financial plan 2014-2020 with reference on funding sources – Section 14 - including summary data, as below. Must be consistent with the multi-annual plan in Section 14 and Part B data)

Explanatory text on the financial plan of the proposal
(Max ½ page)

Total preparatory cost *(if applicable)*	Total construction cost *(if applicable)*	Operation cost /year	Decommissioning cost *(if applicable)*
Already spent or committed amounts of preparatory costs *(if applicable)*	Construction costs contributions committed or indicated by possible funders *(if applicable)*	Possible co-funders of operational costs / indicative percentage	Decommissioning costs contributions committed or indicated by possible funders *(if applicable)*

12. Timetable for construction, operation, decommissioning			
Explanatory text on the time plan of the proposed RI *(Max ½ page, with references/links & Gantt chart – as a PDF attachment)*			
Preparatory phase *(if applicable)*	Construction phase *(if applicable)*	Operation	Decommissioning *(if applicable)*
From / To:	*From / To:*	*Year of start:*	*From / To:*

13. Governance & Sustainability of the RI

Please provide detailed information on the following:

- The management structure & governance of the proposed research infrastructure (responsibilities, management rules, current commitments, legal aspects, procedures set)
- Financial and human resources issues and technical feasibility *(incl. relevant level of requested funding and envisaged sources of funds*, *cost-effectiveness of the proposed infrastructure, expected revenues from usage)*
- How the RI will be maintained at the forefront of research and technology at long term
- A summary SWOT analysis
- A brief long-term sustainability plan of the investment

(Max 5 pages)

14. Multi-annual budget plan

Costs (*M€)*	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Investment *National**							
Operation *National**							
Investment *International***							
Operation *International***							
TOTAL Costs							

***** National: Refers to RI costs of purely national coverage

****** International: Refers to RI costs related to international networking (e.g. ESFRI participation / RPFs)

15. Section to be completed for ESFRI related RIs only:

- To which ESFRI ***RI*** is the proposed one related to? Please specify the name, research field and contact point at the central ESFRI Infrastructure *(Select from list / fill in table).*
- Stage of life-cycle of the ESFRI-related RI (preparatory phase/construction phase). Stage of commitments and maturity of the RI *(Max ½ page)*
- Mode of partnership (Regional Partner Facility, Regional Research Infrastructure). Position of the Greek partners (leading position/taking over important work packages?). Have the interests of Greece been adequately taken into account within the concept of the ESFRI Infrastructure? Please explain *(Max 1 page)*
- Please specify the research Institutions participating in the Regional Partner Facility (RPF) and describe their respective roles *(Max 1 page/Institute)*
- Is there a **concrete access policy** in place? If this is the case, please specify the annual number of users from Greek Institutions, EU Member States and third countries *(Max ½ page)*
- **Funding** *(to be consistent with Part B)*

Construction costs	***Participation in the construction phase of ESFRI:***	***Cost for extension or improvement of existing RI:***
Annual fees for subscription to an ESFRI RI:		
Annual **operating** costs:		
Forecast for **total** budget *(presented in annual tranches)* for the period 2014-2020:		

6.2. PART B: Description of Activities as per I3 Model

Networking Activities

Overall Strategy / main focus *(max ½ page)*
Roles of partners *(Description of roles per partner , please provide one paragraph per partner)*
Main components
*See below **indicative titles** of activities* ***NA1**: Coordination / management & governance support (incl. business plan for pooling distributed resources)* ***NA2**: Built-up, coordination and training of user groups (incl. virtual research communities)* ***NA3**: Development of common standards / monitoring tools / methodologies / technology foresight studies for instrumentation* *…….*

Networking Activity	***Partners Involved***	***Estimated budget***
NA1		
NA2		
NA3		
…..		

Networking Activities Budget[7] *(M€)*						
2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**

For all Networking Activities, please state indicative costs of implementing the proposed Research Infrastructures for the Multi-Annual Plan 2014 – 2020

[7] May include ***Operating costs*** *(*Personnel costs, Material costs (also membership fees or other payment of contributions to organizations), other noteworthy investments (replacement purchases) required for keeping the infrastructure and equipment on an adequate level, reflecting the state-of-the-art, at the level of the integral network)

Service Activities

Overall Strategy / main focus *(max ½ page)*
Roles of partners *(Description of roles per partner , please provide one paragraph per partner)*
Main Components
*See below **indicative titles** of activities* **SA1:** *Baseline design and specifications of service activities, incl. setup of "hands-on" or remote access facilities, access policies, operational framework for access services, integration & simulation services* **SA2:** *Procurement and upgrading of relevant infrastructures (incl. databases, repositories, communication, network operation and end-to-end services)* **SA3**: *Resource management and operation* …….

Service Activity	***Partners Involved***	***Estimated budget***
SA1		
SA2		
SA3		
…		

Service Activities Budget[8] *(M€)*						
2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**

For all Service Activities, please state indicative costs of implementing the proposed Research Infrastructures for the Multi-Annual Plan 2014 – 2020

[8] May include ***Investment costs (***Construction / Building, Acquisition of real estate, Special technical equipment, Supply / construction of devices and equipment), ***Operating costs*** *(*Personnel costs, Material costs (also membership fees or other payment of contributions to organizations), other noteworthy investments (replacement purchases) required for keeping the infrastructure and equipment on an adequate level, reflecting the state-of-the-art)

Joint Research Activities

Overall Strategy / main focus *(max ½ page)*
Roles of partners *(Description of roles per partner , please provide one paragraph per partner)*
Main Components
*See below **indicative titles** of activities* **JRA1:** *Implementation of joint research for high performance instrumentation, material testing, software etc.* **JRA2**: *Integration of installations and infrastructures (e.g. into virtual facilities)* **JRA3:** *Development of specific-purpose innovative solutions (incl. software solutions)* …….

Joint Research Activity	***Partners Involved***	***Estimated budget***
JRA1		
JRA2		
JRA3		
……		

Joint Research Activities Budget[9] *(M€)*						
2014	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**

For all Joint Research Activities, please state indicative costs of implementing the proposed Research Infrastructures for the Multi-Annual Plan 2014 – 2020

[9] May include ***Investment costs*** (Construction / Building, Acquisition of real estate, Special technical equipment, Supply / construction of devices and equipment), ***Operating costs*** (Personnel costs, Material costs (also membership fees or other payment of contributions to organizations), Other noteworthy investments (replacement purchases) required for keeping the infrastructure and equipment on an adequate level, reflecting the state-of-the-art)

Annex I: Background Information

1. EU basis for including the *ex ante* conditionality in the CPR proposal

- Conclusions of the Competitiveness Council on 'A reinforced European research area partnership for excellence and growth' (11 December 2012)

http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/intm/134168.pdf

- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Europe 2020 Flagship Initiative Innovation Union (COM (2010) 546 final of 6.10.2010), commitments 24/25 and Annex I "Self-assessment tool: Features of well performing national and regional research and innovations systems":

http://ec.europa.eu/research/innovation-union/pdf/innovation-union-communication_en.pdf

- Conclusions of the Competitiveness Council: Conclusions on Innovation Union for Europe (doc. 17165/10 of 26.11.2010):

http://register.consilium.europa.eu/pdf/en/10/st17/st17165.en10.pdf

- Communication from the Commission "Regional Policy contributing to smart growth in Europe 2020" COM(2010) 1183:

http://ec.europa.eu/regional_policy/sources/docoffic/official/communic/smart_growth/comm2010_553_en.pdf

2. Extracts of relevant documents

- Conclusions of the Competitiveness Council on 'A reinforced European research area partnership for excellence and growth' (11 December 2012)

In these Conclusions, the Council endorses the need for strengthened partnership in the field of research infrastructures and:

> "Emphasises the need for renewing and adapting the mandate of ESFRI to adequately address the existing challenges and also to ensure the follow-up of implementation of already on-going ESFRI projects after a comprehensive assessment, as well as the prioritisation of the infrastructure projects listed in the ESFRI roadmap."

Annex II: Guidance on Ex-Ante Conditionalities

Copy from "**Draft – Part II, European Commission, DG Regional and Urban Policy**" *(pp. 15-17)*

A.1-2 Research and innovation infrastructure[10]

Thematic objectives	Investment priorities	*Ex ante* conditionality	Criteria for fulfillment
1. Strengthening research, technological development and innovation (**R&D target**) (referred to in Article 9(1))	ERDF: - Enhancing research and innovation infrastructure (R&I) and capacities to develop R&I excellence and promoting centres of competence, in particular those of European interest	1.2 The existence of a multi-annual plan for budgeting and prioritization of investments.	– An indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities, and, where appropriate, the European Strategy Forum on Research Infrastructures - ESFRI has been adopted.

1. When to assess applicability?

The conditionality is applicable, if a MS or region is planning to allocate funding to enhance research and innovation infrastructure (R&I) and capacities to develop R&I excellence and promote centres of competence, in particular those of European interest (Art. 5.1 (a) of the ERDF Regulation).

2. Definitions

Research infrastructure means facilities, resources and related services that are used by the scientific community to conduct research in their respective fields and covers scientific equipment or sets of instruments; knowledge-based resources such as collections, archives or structures for scientific information; enabling Information and Communications Technology-based infrastructures such as Grid, computing, software and communication, or any other entity of a unique nature essential to achieve excellence in research[11]. Such infrastructures may be 'single-sited' or 'distributed' (an organised network of resources).

Innovation infrastructures are facilities, such as technology, science or business parks and centres of competence.

[10] The table below is based on the Council compromise text.
[11] In line with Article 2(a) of Council Regulation (EC) N° 723/2009 of 25.6.2009 on the Community legal framework for a European Research Infrastructure Consortium (ERIC), OJ L 206, 8.8.2009, p. 1.

The European Strategy Forum on Research Infrastructures (ESFRI) is a strategic instrument to develop the scientific integration of Europe and to strengthen its international outreach. The competitive and open access to high quality Research Infrastructures supports and benchmarks the quality of the activities of European scientists, and attracts the best researchers from around the world.

An indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities, and, where appropriate, the European Strategy Forum on Research Infrastructures - ESFRI has been adopted. ▪ The strategic policy framework for smart specialisation contains an indicative multi-annual plan for budgeting and prioritization of investments linked to EU priorities: o The prioritisation responds to the needs identified in the smart specialisation strategic policy framework; o The prioritization of investments took into account existing R&I infrastructures and capacities in by Europe and as appropriate, the priorities identified by the European Strategy Forum on Research Infrastructures (ESFRI). o The framework outlines available and foreseen budgetary resources for investments in R& I infrastructures and centres of competences and indicates various sources of finance [and indicative amounts].		

Annex III: The Integrated Infrastructure Initiative (I3) Model

The following text is copied from the ***"FP7 Capacities Work Programme: Infrastructures (European Commission C(2012)4526 of 09 July 2012)"***

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;
- Dissemination and /or exploitation of project results and knowledge, outreach toward industry, contribution to socio-economic impacts, promotion of innovation;
- 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;
- 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 publicize 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. Provided that the majority of users are from Member States or Associated Countries, other third country users can be part of an eligible user team. Only research teams, including industrial users, 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;
- Distributed computing 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.

Annex IV: Guidance Note on Networking, Service & Joint Research Activities

The term ***Integrating Activities*** refers to: bringing together and integrating, 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, 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, data infrastructures, etc.), they harmonise and organise the continuous flux of data collected or produced by these facilities and resources.

The evaluators will be instructed to place significant weight on:

- Identification and quality issues of the ***Networking Activities (NAs)*** and associated cost / time schedule. Specifically, 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.
- Identification and quality issues of the ***Service Activities (SAs)*** and associated cost / time schedule. Specifically, 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.
- Identification and quality issues of the ***Joint Research Activities (JRAs)*** and associated cost / time schedule. Specifically, the extent to which the activities will contribute to quantitative and qualitative improvements of the services provided by the infrastructures.