

TECHNOPOLIS



INTERFACE

Institut für Politikstudien

**RECOMMENDED GUIDELINES FOR EVALUATING
THE PERTINENCE AND IMPACTS OF
THE EU SUPPORT TO
RESEARCH INFRASTRUCTURES**

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1 Introduction

These guidelines¹ set out the structure and methods for an assessment of EU support for Research Infrastructures under FP6.

The guidelines includes two types of evaluation that need to be conducted:

- The development of a methodology to measure the **pertinence** or relevance of the instrument and its implementation, with a particular consideration to the *needs* of scientific communities and other stakeholders
- The development of a methodology to measure the **impact** of the Community Actions, to be applied by future ex-post evaluators

Although the issues of pertinence and impact sometimes need a different evaluation approach they cannot be easily disconnected. The pertinence question relies strongly on whether the programme's activities have had an impact; otherwise it would be supporting ineffective activities. Impacts are mainly valuable if they address the objectives of the programme and thus activities that are relevant to the 'owners' of the programme. This does not mean to rule out unintended positive effects, but the main purpose of the programme is that its goals are being achieved on the basis of the activities that have been funded. Therefore, although we sometimes address the issues separately, the ultimate analysis should combine both pertinence and impact.

In FP6 the thematic area Research Infrastructures has five activities:

- 1 Trans-national Access: this provides access for research teams and individual researchers (TA)
- 2 Integrating Activities (I3)
- 3 Communication Network Development (CND)
- 4 Design Studies (DS)
- 5 Construction of New Infrastructures (CNI)

The guidelines focus on those activities that were new in FP6: the Integrated Activities (I3) the Communication Network Development (CND), Design Studies (DS) and the Construction of New Infrastructures (CNI).²

The remainder of this report is structured as follows:

¹ These guidelines were developed in the framework of a service contract with the Directorate – General for Research (contract n° RTD B.03 Impact Assessment 2005-1).

² Before FP6 the main type of support given to Research Infrastructures (RIs) was through increasing Trans-national Access (TA) for individuals or groups of researchers. In FP6 this is still an important type of activity. Several evaluation methods and surveys have been developed in FP6 and its predecessors, to assess the quality and impact of TA thus these will remain outside the scope of this report.

- Chapter 2 provides background information useful for understanding the task at hand, and in particular the issue of defining the pertinence of the RI activities
- Chapter 3 discusses the challenges of making an impact assessment of the RI activities
- Chapter 4 provides an overview of the whole assessment exercise, with its different phases and tools that could be used
- Chapter 5 describes the tasks that are necessary in Phase One of the assessment exercise and particularly focuses on the complete collection of projects
- Chapter 6 discusses the case studies which need to be conducted in Phase two of the exercise
- Chapter 7 deals with the aggregation and synthesis of the finding at the programme level
- Finally, Chapter 8 describes how the findings should be fed back to the Commission and possibly other stakeholders involved

2 Analysing the pertinence and relevance of EU support to Research Infrastructures

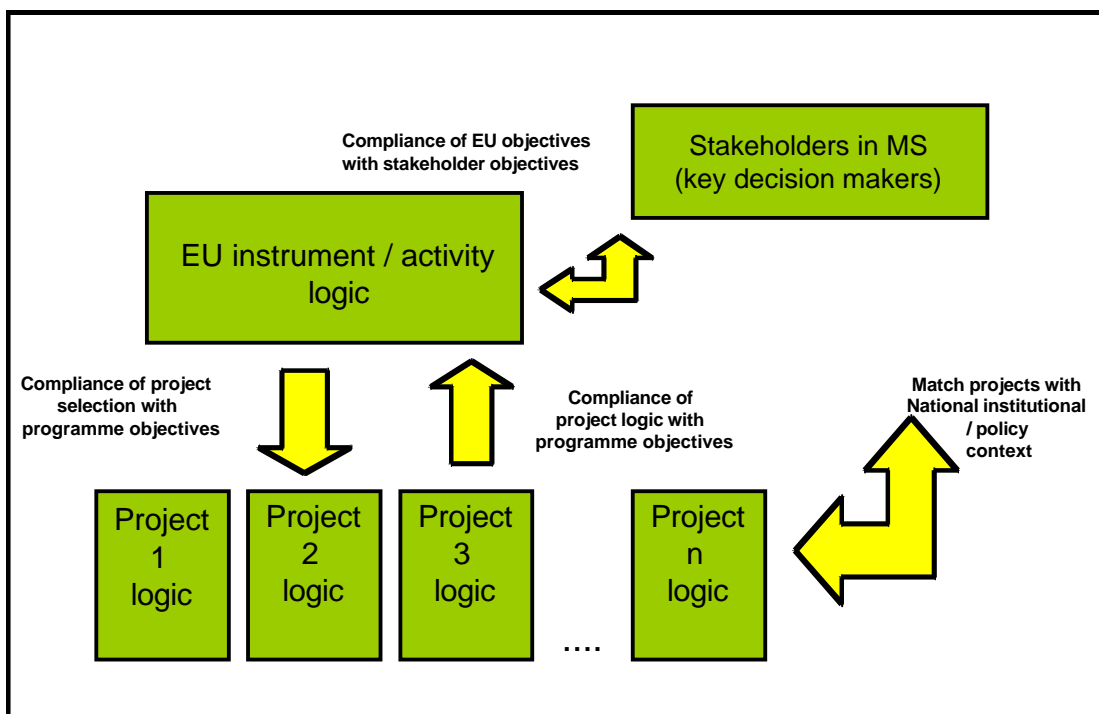
2.1 Understanding the bigger picture of RIs and RI support

The analysis of the pertinence or relevance of the EU's FP6 intervention into research infrastructures should be tackled by a multi-layered approach, it ought to:

- 1 Assess whether the FP6 Activity and its different action lines have European added value and an effect on the research excellence and competitiveness of Europe
- 2 Assess whether the individual projects supported by the FP6 intervention contribute to the objectives of the FP6 Research Activities
- 3 Assess whether decision makers (managers, funders, ...) and stakeholders concerned with the launch and development of research infrastructures (mostly concerned with national, bi-lateral, multi-national, regional RI initiatives) benefit from the FP6 Activities and the individual projects.

[Exhibit 1](#) gives an overview of these three main levels, which need to be taken into account when looking at the entire EU action.

Exhibit 1 Overview of pertinence issues across different levels



2.2 Understanding the intervention logic of ‘Support for Research Infrastructures’

In order to evaluate the pertinence of the European activity “Support for Research Infrastructures” the evaluators need to have a clear understanding what the programme is aiming to achieve. Particularly as the EU actions are an ‘additional’ support to a mainly national or multi-national effort, the European added value of these actions need to be clearly identified.

It is becoming common practice in policy management to use ‘programme theory’ or logic models in evaluation as a means to explain how a programme is understood to contribute to its intended or observed outcomes. This element of ‘new public management’ is used more and more in European countries, for both the programme design – to understand the aims – and for the evaluation of a programme, to understand whether the intended objectives have been met by the effects of the programme. Evaluators have developed variations of Logic Models showing what the programme is aiming to achieve and through which intervention logic. With this reference model the evaluators have a clearer picture of what the programme is aiming to achieve and through which types of inputs and interventions. It is also helpful as a tool to discuss with Commission officials how they reflect on the aimed objectives and how the Commission’s activities influence these aims.

We have applied the logical framework model to the RI activity using the Work Programme 2004-2006 as the basis. Using the cited objectives in the work programme (at the activity level) it is possible to construct a logic model of what types of results are expected from which activities. If agreement is reached between evaluation team and Commission on this model the types of expected impacts and results can be better identified.

The RI activity is one element of the specific programme for research, technological development and demonstration: *Structuring the European Research Area*. The overall objective of the activity is to promote the ***development of a fabric of research infrastructures of the highest quality and performance in Europe and their optimum use on a European scale based on the needs expressed by the research community*** (WP page 1). The fabric of RIs as such, already exists and is determined mainly by regional, national and multi-national investment efforts. The European RI initiative focuses on the European added value by networking researchers and RIs through various support mechanisms.

The RI activity has five schemes for support:

- 1 Trans-national Access
- 2 Integrating Activities
- 3 Communication Network Development
- 4 Design Studies
- 5 Construction of New Infrastructures

Each of these schemes has a different (set of) intermediary objective(s) contributing to the overall objective. These have been included in the logical framework. The Accompanying Measures are not covered by this methodological exercise.

Contractually these schemes fund the participants through Specific Support Actions (SSAs) and Coordinated Actions (CAs).

[Exhibit 2](#) shows the overall intervention logic of the RI activity, and was created on the basis of a detailed analysis of the Work Programme, Third Update – November 2004. This has been used as a test in order to develop this particular tool. In the full evaluation exercise this would need to:

- Be done on the basis of the sequence of all Work Programmes used in FP6 in order to identify changes in the goals and priorities over the years
- Also include the how the programme fits within the wider objectives of FP6

The types of activities that are being supported in the five schemes are:

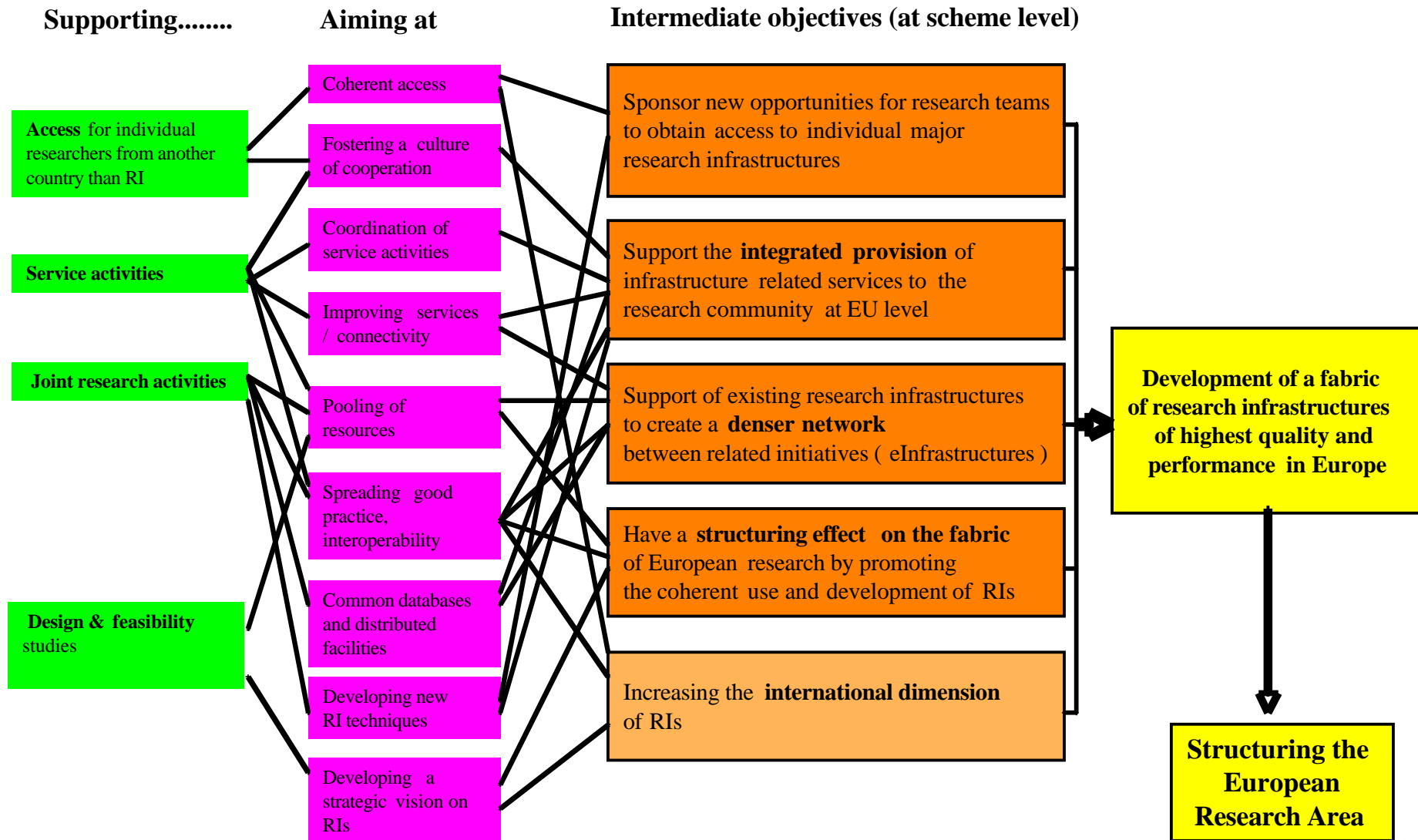
- **Trans-national access** to individual researchers to use a world class facility which is not in his or her own country
- The **networking** between the operators and managers of RIs
- The development of **e-infrastructures for research**
- **Joint research activities** to improve the services that the RIs can offer
- The development of **strategic views** to test the feasibility of the design new infrastructures and/or the construction of the RIs

The evaluation of each individual RI project should be held against this logical framework analysis of the Activity as a whole. Evaluation questions that derive from this analysis include:

- Which of the aims does the project intend to address?
- Which of the I3 activities does this particular project include and at what weights?
- Has the widening of the network created added value?
- In the case of Design Studies and CNIs, in how far did the action enable a strategic view on new RIs and how much were the decision makers of key stakeholders involved?
- Did the project really do what they proposed or was there a decision to shift the emphasis to another allocation of activities (e.g. more trans-national access)?
- On which of the intended aims did the project have an effect, intended or non-intended?
- Given the effect, what is the likely influence of the project on the intermediary goal(s)?

The logical framework analysis can be used as a benchmark for individual projects. It can also be used as an analytical framework to assess the achievements of the programme as a whole, after the project level fieldwork has been completed.

Exhibit 2 Intervention Logic for Support to Research Infrastructures



3 Impact Assessment of Research Infrastructures

3.1 Specific methodological issues surrounding the evaluation of the EU support scheme

The terms of reference for this exercise are to focus on two aspects of evaluation: evaluating the pertinence or relevance of the **RI programme** and assessing the **impacts** of the **RI programme**. These are two specific evaluation issues that have been highlighted for this exercise (e.g. other issues such as efficiency of the programme management are not included).

In current Commission terminology, the scope of ‘evaluation’ covers work to quality-assure policy and programme designs, test their rationales and potential benefits and judge the attractiveness of funding alternative projects, in addition to the more traditional, backwards-looking work of understanding performance. Thus:

- ‘Ex ante evaluation’ is used to denote a design review, which may revisit the rationale for an intervention and the programme planning
- Sometimes ‘ex ante’ evaluation is also used to mean appraising alternative project proposals and deciding which ones to fund
- ‘Mid term’ and ‘ex post’ evaluations are backward-looking exercises done during or after programme implementation
- The Commission uses ‘impact assessment’ in two ways. One is ex ante: a study that forms part of the programme planning process and which intends to estimate the consequences (for example, costs and benefits) of making an intervention. The other is ex post: a study that tries to measure or estimate the effects of a past or current intervention

The exercise for which these guidelines prepare can be seen as an ex-post evaluation and impact assessment exercise, although many RI projects are still ongoing. The assessment of impacts of R&D programmes has many methodological difficulties as the evaluation literature shows. If we look at R&D evaluation more generally, it struggles (as does evaluation in many other domains) to cope with:

- A time lag between the intervention and the effects that occur
- Attribution – deciding how much ‘credit’ an intervention should have for positive changes that occur after it is launched. This is particularly true for the RI activities, as these EU funded projects are only a small additional resource on top of larger regional, national and multi-national funding resources
- Measuring ‘dead weight’ – namely, positive changes that would have happened even in the absence of the intervention
- Comparing with the ‘counterfactual situation’ – that is, since it is not possible to run history twice (once with and once without the intervention) and to compare the two, finding a situation that approximates to a world without the

intervention. Before/after studies and control groups are the usual tactics, but both are imperfect

- The ‘project fallacy’ – the fact that what is administratively defined and funded as a ‘project’ may bear little relation to the beneficiary’s ‘real’ project or agenda, complicating any attempt to understand and disentangle the effects of the administratively defined project. Again, for RIs this is particularly true as the EU project is one of many EU network types of activities that the RIs engage in
- ‘Skew’ – the fact that commercially successful R&D projects or projects with a high economic impact normally make up a very small proportion of any portfolio, and the fact that the majority of subsidy may therefore be ‘wasted’. (Techniques for predicting which projects will succeed are not well developed)

The RI Activity has a number of other peculiarities that make the exercise complicated:

- The RI-projects are extremely diverse ranging from large physical facilities that have a long European history, e-infrastructures which link networks to small collections and databases, which have only just started to collaborate in European networks. The scientific disciplines involved are also quite diverse with different dynamics for engaging with potential user communities
- As pointed out, the different RI activities each have their own intervention logic and aims. The assessment exercise has to keep in mind the RI projects aim to achieve different goals
- The EU support is an ‘add on’ to existing national or multi-national infrastructures. This makes it difficult to isolate the EU action from the ‘normal operation’ of the RIs
- The mind set of many contractors is on the immediate ‘research user’, not on a wider set of impacts or group of beneficiaries
- Time scale to do an impact assessment (economic & societal) is very long, while many projects are very young

The assessment therefore has to be realistic in terms of the ‘hard data’ that can come out of this study. In line with the challenges sketched above we should not expect to find many quantifiable data, particularly economic impacts.

3.2 Types of impacts that can be expected from different types of infrastructures

The potential impacts of RIs should be considered as widely as possible. As many RIs deal with fundamental research, the direct socio-economic benefits are less evident and could occur many years after research activities have taken place in an RI. However to identify the full spectrum of possible impacts, the evaluators should consider a wide set of beneficiaries as well as a wide set of possible beneficiaries of the RI activities, as well as types of impacts. (Potential) beneficiaries can be identified as:

- The participating RIs and research organisations
- The research community (incl. private sector users) that use these RIs and have improved access or services or new scientific opportunities
- The European science and research policy and research management community who could benefit from better strategic planning processes and more efficient use of public funding
- National, regional and local stakeholders who benefit from the direct socio-economic impact of an RI in their community
- The business sector including industrial users of RIs, specialised equipment suppliers and other suppliers
- The society at large, represented by societal groups such as in the environmental and medical areas or young researchers

In the exploratory phase, the following types of outputs and impacts were mentioned in interviews by those directly involved in the projects (see [Exhibit 3](#)).

Exhibit 3 Overview possible impacts according to participants of RI projects

Scientific community
Enabling virtual science communities
Enabling cross-fertilization between disciplines
Reducing R&D costs / Making R&D more efficient
Setting standards and protocols
Development of meta-data
Creation of more critical mass
New knowledge, materials
Access to research networks outside Europe
Improving quality of research
Enabling new networks
Training of users
Attraction of young talented scientists
Research Infrastructures
Setting standards and protocols
Improving quality of RI services
Improving quality of physical RIs (e.g. national grids)
Generating new concepts
Media coverage
International visibility and reputation
Further cooperation / synergies among different RI-projects
Research policy /strategy
Political pressure to improve standards of national RIs
Creating awareness amongst national policymakers of specific character/needs RIs and collections
Generating more funding through quality label RI programme
Reinforcing EU leadership (Géant / EGEE)
Keeping researchers in Europe (instead of US / Japan)
Leveraging national research funding
Networking national funders/operators
Discover and develop emerging research fields
Economic/ industrial impacts
Opening up of IT/telecoms markets
Developing concepts/ processes in the research environment to be adapted in industry
Push innovation in industry
Improving competitiveness of EU equipment suppliers
Creation of extra-jobs in the region
Wider societal impacts
Avoiding brain drain
Dissemination / popularization in society/schools
Cohesion effect: improving the quality of RIs in lagging countries
Reducing the digital divide
Access of researchers from developing countries

3.3 The life cycle of RIs and networks of RIs

3.3.1 Duration, evolution, and most suitable organisational setting

Life cycles of research infrastructures can last for decades, and so do networks of RIs. This is particularly true for equipment intensive infrastructures, and also for collections, which are more valuable the older they are. For the purpose of assessing pertinence and impact of interventions in research infrastructures, it is critical to have the 'big picture' and its evolution over time, its services, dominant actors and dominating issues for management. Thus, the question arises for the most suitable organisational setting and related management and governance. The exploratory phase showed that some RI consortia – particularly in physics but also in e-infrastructures - have a very long history of working together and exchanging work experience and are quite use to their European role. Others coming from scientific fields without a long tradition of European networking are newcomers to the EU support schemes and need time to 'learn to integrate'.

3.3.2 Life cycle and interdisciplinarity

Different scientific and technological fields contribute or benefit differently at different stages of the life cycle of a research infrastructure. Typically, these are:

- Research inputs from one or several research or technology areas, in which the research infrastructure is positioned
- From specialised equipment suppliers, which are often linked with corresponding scientific disciplines
- Benefits to other disciplines in terms of 'services' and thus input to other research areas. Active involvement of all three parties is thus a constituent characteristic of research infrastructure planning and implementation

The assessment should engage in questions of whether the EU funding helps the RIs to widen the type of scientific users and particularly foster multi-disciplinary work.

3.3.3 Pertinence and impacts are a dynamic concepts

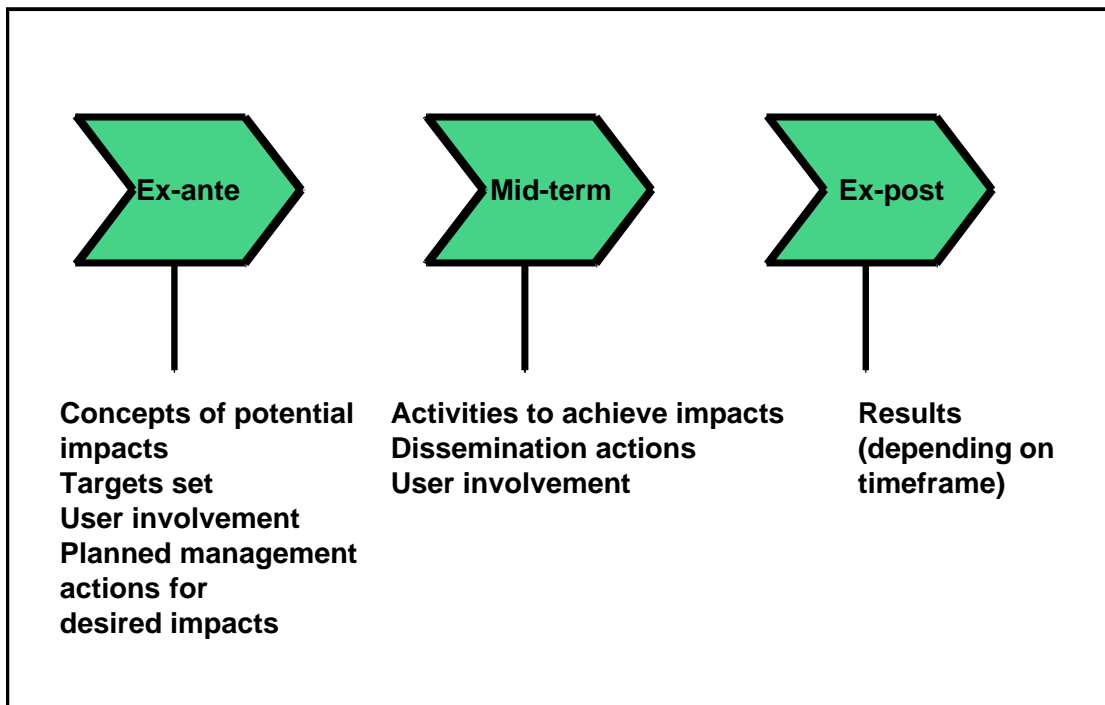
The existence of life cycles has, in turn, implications for assessing 'pertinence' which is then not only relevant in the early stages of the life cycle of a research infrastructure or related services. Since a given research infrastructure can be transformed in the course of time due to the adoption of new elements and due to new (external) requirements, the question of pertinence should be raised from time to time. Thus pertinence is a universal issue, which can and should be raised at each phase in the life cycle. A particularly interesting issue is here to understand the evolution of the dominant actors in the course of time. Accordingly, the content of 'pertinence' will undergo changes. The same is true for impact assessment.

Following the life cycle of RI activities, the way to assess impact has a bearing on changes in nature. In an early phase we cannot expect to find many impacts. Nevertheless it is possible in the early stages to see whether the RI-project participants foresee impacts and what actions are developed to increase these impacts.

We call this assessing ‘the road to impacts’ from the early planning stages of an RI project, to the actual outcomes once the RI project has been in place.

[Exhibit 4](#) shows how, in the course of time, the emphasis on impact evaluations could change. There are three moments where the issue of impacts can be tackled. In the ex-ante stage (whether it concerns an Integrated Action (I3), a Design Study or a Construction of a New RI), one can assess whether participants have considered impacts and ways to ensure that these are achieved. In a mid-term evaluation one can assess whether the actions have been put in place to enhance these impacts (e.g. user involvement, dissemination activities, et cetera); and in an ex-post evaluation one can assess whether these actions have led to results. The RI case studies should take into account where the consortium is in terms of this life cycle, and whether the individual partners are on the same time path or maybe in quite different phases of their development. This could be an issue for the effectiveness of the consortium.

Exhibit 4 A dynamic approach to evaluating ‘the road to impact’



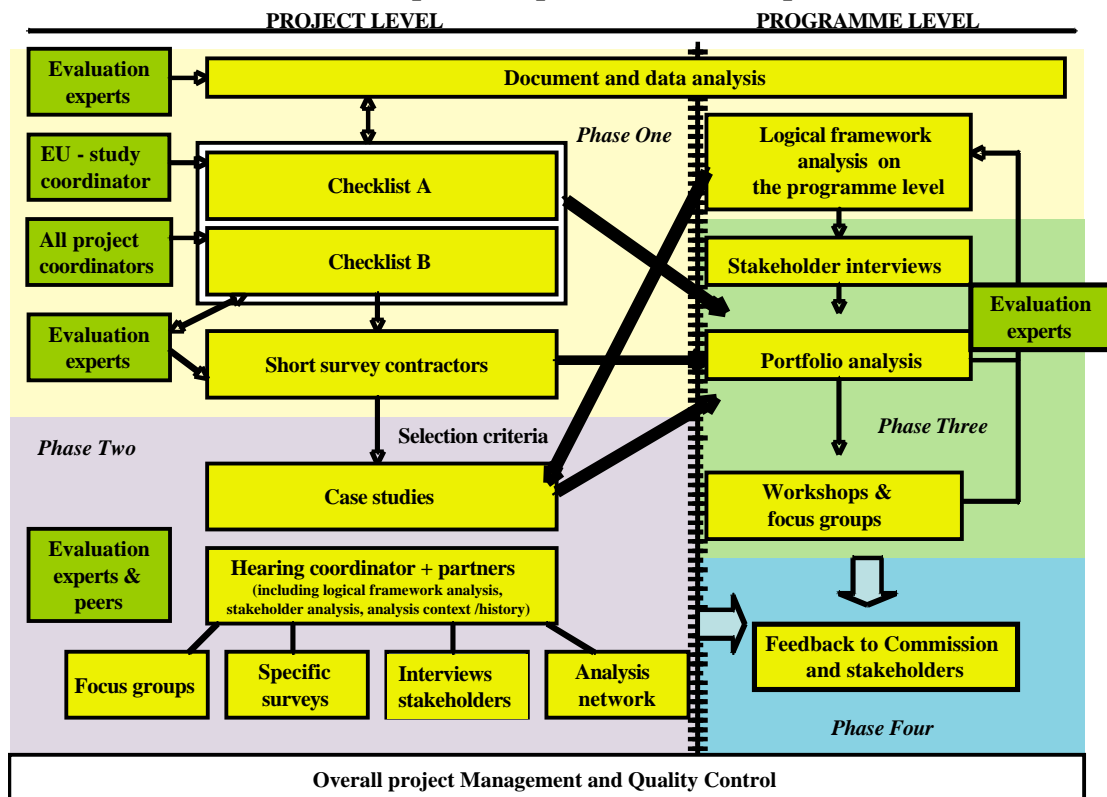
4 The overall evaluation approach

This chapter gives an overview of the different phases, the different types of tools used and where the generic and specific approaches need to be taken across the RI support schemes.

The objective of the evaluation is to assess the pertinence and impacts of the overall **programme level**. In order to achieve this we need to understand the goals and progress of the individual **projects** within the programme. On the basis of an understanding of the collection of projects we can make a **portfolio analysis** using different dimensions to understand how the collection of projects match with the overall objectives of the programme.

[Exhibit 5](#) provides an overview of the different steps during the entire evaluation exercise. Various tools can be used within these phases and this report goes on to describe the main tools that can be applied for different purposes.

Exhibit 5 Overview of steps in the pertinence and impact assessment



Basically the overall approach is divided into **Four Phases**:

- 1 **Phase One** is the fact-finding phase where all ongoing projects within the programme are being assessed. In addition, at the programme level, a systematic assessment of the European Commission's objectives with the programme is conducted
- 2 In **Phase Two**, a deeper analysis is made of the goals and achievements on the basis of a selection of projects (case studies). This is to keep the assessment exercise within reasonable time and resource limits
- 3 **Phase Three** serves to synthesise and aggregate the information gathered in the first two phases to make judgements at the programme level
- 4 **Phase Four** feeds back the lessons and findings of the evaluation to the Commission, stakeholders and users of the programme

Each phase consists of a number of evaluation activities for which these guidelines give a more detailed explanation of the purpose of the activities and the chosen approach. In some cases the evaluation team should make a choice between various options. In those cases we provide some criteria on the basis of which these choices can be made. During the whole exercise Project Management and Quality Control activities need to be conducted. We have not elaborated on this in these methodologically oriented guidelines.

The overall assessment is separated into four phases. Based on the underlying model, overall analysis (based on available information sources), in-depth analysis (in selected cases), the allocation of resources for the contractors per phase is estimated as follows, based on an earmarked budget of around EUR 400.000:

- Phase One: fact finding
 - 20-25 % of resources (80-100,000 EUR)
- Phase Two: case studies
 - 50-60% of resources (200-240,000 EUR)
 - This includes the resources needed for independent experts (2 or sometimes 3 per case) based on a normal 'expert contract fee' of EUR 450 and estimating that each expert will have 3 days per case
- Phase Three: analysis and synthesis on the programme level
 - 15-20% of resources (60 - 80,000 EUR)
- Phase Four: feedback to Commission and stakeholders
 - 5% of resources (approx. 20,000 EUR)
- Overall management and Quality Control Tasks
 - 5% of resources (approx. 20,000 EUR)

The following Chapters discuss the approach and its components in more detail.

5 Phase One: Fact Finding

5.1 Introduction

The first phase serves to conduct fact finding on the basis of all ongoing and finished projects under the RI programme in FP6. In this first phase, the evaluation team works in close cooperation with the project officers and the project coordinators. The criterion chosen for this phase have been:

- To avoid a too heavy burden on all contractors and coordinators to provide extensive evidence on their projects
- To make use of the large source of information already available to the Commission and the EU project officials
- To gather information from all contractors only once in the evaluation process in order to have a broader view than just that of the co-ordinators

Overview of inputs in Phase 1	
People contributing to this phase	Evaluation team EU project officers Project coordinators All Contractors
Estimate of external resources needed for these activities	20-25% of total resources
Lead time needed for all activities	2-3 months and updated during the exercise

The role of the external contractor in this Phase would be:

- Prepare and familiarise with RI programme and its support schemes and activities
- Liaise with Commission on filling in Checklist A
- Send out Checklist B to the project coordinators
- Analyse results of Checklists A + B
- Develop database with RI project details
- Prepare, send and analyse survey to all contractors
- Analyse results of survey and identify further issues coming from survey

5.2 Document analysis on the RI programme and initiatives

The evaluation team needs to first build a good picture of the Research Infrastructure Initiative and its objectives. Each of the different activities has a different philosophy in terms of the European added value as well as a different history. Trans-national Access was the key component of the RI programme in FP5, and many long time participants of the programme are familiar with this activity. The developments of the Communication Network Development build on IST - FP5 activities in high-speed communication networks and grids. Other activities such as Design Studies and Construction of New Infrastructures are new in FP6.

The information for understanding this context includes general information on RIs in FPs and its work programmes as well as specific information published by DG Research, DG Information Society and Media, and other organisations committed to RIs (e.g. ESFRI, ISTAG, ESF, et cetera). The evaluation team can find most information on the CORDIS website and will have to liaise with the Commission to identify the most important documents.

Obvious sources of documentation to use by the evaluators are:³

- Council decision adopting a specific programme for research, technological development and demonstration: "Structuring the European Research Area" (2002-2006) (2002/835/EC) - 30.09.02
- The Research Infrastructure work programme and its updates (four updates up to March 2005)
- Strategic documents and reports published by ESFRI and its working groups (<http://cordis.europa.eu/esfri/home.html>)
- Previous evaluation and studies on the RI impacts and achievements. Examples are the EU wide survey of Research Infrastructures carried out by The European Commission (EC), the European Science Foundation (ESF) and the EuroHORCs (http://cordis.europa.eu/infrastructures/survey2_introduction.htm) and the FP5 Technical Review of Research Infrastructures.
- Research Networking in Europe - Striving for global leadership' (2002)
- Changing the way research is done - The user perspective on e-Infrastructure' (2003)
- E-infrastructure Building blocks for the European research area' (2004)
- E-Infrastructure - Computer and network infrastructures for research and education in Europe' (2005)
- Building the e-Infrastructure - Computer and network infrastructures for research and education in Europe - A pocket guide to the activities of the Unit Research Infrastructure' (2005)
- FP7 Commission's Amended proposal: Research Infrastructures, 28.0606
- Working Document on Research Infrastructures in FP7, 29-10-2004
- Report of Recommendations of Expert Group on the setting up of a European Strategy Forum on Research Infrastructures, 05.02.2002
- Council Conclusions on Infrastructures in the European Research Area, Luxembourg, 26.06.2001
- European Commission working document A European Research Area for Infrastructures, 27.02.2001
- Contract data on individual projects to be provided by the Commission

These documents are necessary to analyse and understand the basic philosophy of the Research Infrastructures programme in FP6, the differences between the types of activities and their goals and objectives. The documents needed to analyse the

³ Mostly available on <http://cordis.europa.eu/ist/rn/ri-cnd/publications.htm> and <http://cordis.europa.eu/infrastructures/home.html>

individual RI projects are described in section 5.4.1 and rely on collaboration with the project officers.

5.3 Conducting a logical framework analysis on the RI programme level to understand the pertinence issues

In Chapter 2, a first Logical Analysis is made of the RI programme, its activities, intermediate objectives and final objectives. This exploratory exercise was conducted on the basis of analysis of the Work Programme - Third Update November 2004.

During the assessment, this exercise should be done in full:

- Taking all work programmes that have been published up to date and comparing whether changes have occurred in the stated objectives and/or activities
- If necessary adding more elements and possibly linking this with an analysis of financial resources dedicated to the various sub-activities
- Have further discussion with the Commission to understand the intervention logic better and if needed adapt the framework

The logical framework analysis is an important tool, serving as an analytical reference in the conclusion and synthesis phase.

5.4 Preparing the analysis on the project level

The emphasis of the guidelines and the assessment exercise is on *Integrating Infrastructure Initiatives (I3)*, *Design Studies* and *Construction of New Infrastructures*, as these are new approaches in FP6. An overview of the current Research Infrastructures funded projects shows that there are in total 142 contracts, of which 43 are Integrated Initiatives (I3), including Communication Network Development and 28 are Design Studies or Construction of New Infrastructures. Thus the total relevant population of the assessment is 71 projects (see [Exhibit 6](#)).

Exhibit 6 Overview of RI contracts per types of activities (Spring 2006)

Number of RI projects funded by EU by instrument and support scheme										
Area	Existing Research Infrastructures							New Research Infrastructures		Total
	I3		CA		SSA			SSA		
	IA	CND	IA	CND	TA	CND	AM	CNI	DS	
	Analytical Facilities	2				3			1	
Engineering, Energy and Nanotechnologies	4				8			1	1	14
Physics	10		4		4			2	9	29
Environment and Earth Sciences	7		4		10		2	1	3	27
Life Sciences and Biotechnologies	4		2		2		1	3	4	16
Mathematics and Supercomputers	2				2				1	5
eInfrastructures		4		1		13				18
Géant		1								1
Grid		6		1		5				12
Social Sciences & Humanities	3				3		3	1	1	11
RI Policy							3			3
Sub-Total	32	11	10	2	32	18	9	9	19	
Total	43		12		59			28		142

Source: European Commission

Instruments

CA - Coordination Action
I3 - Integrated Infrastructure Initiatives
SSA - Specific Support Action

Support schemes

TA - Transnational Access
CND - Communication Network Development
IA - Integrating Activities
CNI - Construction of New Infrastructures
DS - Design Studies
AM - Accompanying Measures

As the expected additionality is not similar for all projects, the evaluators have to distinguish between the different types of projects and choose some clusters and case studies to further assess the pertinence and impact of the portfolio and the whole programme. The remaining chapter concentrates on assessment of the individual projects. Chapter 6 elaborates on the case studies.

The following sections will describe the preparatory 'fact finding' on the project level to be conducted in Phase One. Basically this consists of three elements of fact finding:

- 1 First, the EU project officers together with the evaluation team prepare information on all projects. This does not need to wait for the evaluation exercise but could be included as part of the regular project monitoring exercise

- 2 Secondly, all project coordinators are asked to give some additional information on the project and the consortium
- 3 Thirdly, to avoid all information coming only from the coordinator, we recommend developing a short survey for all contractors who receive funding from the EU project

The following sections elaborate on these three elements.

5.4.1 Involving the EU project officers

The main purpose of involving the Commissions project officers is to provide the evaluators of the RI programme in FP6 with useful information (knowledge) on the different projects within the programme before the start of the assessment. Therefore, this checklist is one of the first activities in Phase One, and has to be filled in by the EC project officer/s responsible for the (groups of) projects.

There are several important reasons for this activity to be performed by the EC project officers. First, they have access to all documentation needed to fill in the checklist. Second, they can use the outcomes as well to monitor the individual contracts as part of the quality assurance of the RI programme. Third, by asking the EC project officers for this core information, the consortium will not be burdened with basic questions that can be found in existing documentation, which they already had to deliver to the EC. Together with checklist B (see a description below) the information derived from this checklist will provide the evaluators with a better understanding of the types of RI, their users, related activities, and expectations in order to select cases for the further assessment of pertinence and impact of the RI programme.

Put simply, the EC project officers are asked to provide the evaluators in this phase with critical information on the different projects. Therefore they will have to collect and analyse existing material on the Research Infrastructures contracts. The material to be used is outlined in [Exhibit 7](#). The evaluators should also use this documentation as reference material in the preparation of the study.

Exhibit 7 Reference material to be used by EC project officers and evaluators

Types of documents
• Survey of European Research Infrastructures
• Annual reports of projects
• Fact sheets projects by coordinators
• Fact sheets projects by EC
• Proposals projects (final)
• Evaluators reports on project proposals
• Participation lists and contact details
• User surveys (The questionnaire is submitted once by each user group as soon as the experiments on the infrastructure come to end by the user group leader)
• User case studies (IST)

5.4.2 CHECKLIST A for EU Project Officers managing RI projects

The checklist asks project officers (POs) to collect existing material and raw data. Project details are essential for the further analysis of the portfolio. Annexe A contains the full Checklist A, with the complete set of questions. They cover the following categories:

- A. General Information**
- B. The time frame**
- C. Domains and interdisciplinarity**
- D. Project objectives and expected impacts**
- E. Budgets**
- F. Stakeholders**
- G. Direct users and user groups of Trans-national Access activities**
- H. Achievements**
- I. Use and Dissemination of Knowledge**

The mapping of stakeholders and users is an essential part of understanding the potential impact. As well as providing basic information on the projects like scope, costs and involved contractors, it is helpful to conceive the RI projects as (multi-actor) systems. Research infrastructures are different from mainstream disciplinary research activities and typically involve some sort of 'third parties', being (i) the 'providers' of specialised equipment or networks, (ii) acting as 'users' of (services of) research infrastructures, and (iii) not the least, the fact that research infrastructures are typically designed and operated by consortia. Projects within the different types of schemes will also have to deal with different groups of stakeholders. While the Trans-national Access scheme has a direct relevance for the individual researchers and research groups involved, the Design Studies will typically have to deal with a policy and political arena in order to receive support for the plans. The project officers probably only have a partial view on who these stakeholders and users are. Similar questions therefore have to be asked to the project coordinators.

The complete set of forms should be filled in for each of the projects in the I3s, the Design Studies and Construction of New Infrastructures schemes. These will then be sent to the evaluation team for further analysis. They should also be sent to the Project coordinator to check whether the information is accurate.

Based on the evidence compiled by the Commission staff (Checklist A), quite a number of observations and conclusions can be derived, which are both instrumental for subsequent analysis as well as having a value in their own right. This exercise provides strong evidence, particularly about inputs and contributions from project partners (planned and achieved), and operative project characteristics including milestones and outcomes (desired and achieved). On the other hand, information about actual performance and the outcomes and impacts achieved so far is more difficult to obtain by the Commission staff. Checklist B includes additional information that will be gathered by the consortium leaders.

Exhibit 8 can be used to make an initial analysis of each of the projects by the **project officers** and subsequently aggregated by the evaluators. This will provide the evaluation team with a ranking list of projects. The scores do not present a 'hard assessment' but serve to obtain a quick overview of which projects could be assessed

more thoroughly in Phase 2. Projects with an average score of 18 points or higher would warrant a closer inspection. But the evaluation team should also look into projects with exceptionally low scores on items B to F, as they could possibly be ‘success stories’ which are interesting for demonstration purposes.

Exhibit 8 First grid for selection of RI projects

		Score
A) Maturity of the consortium (also in the light of its predecessor projects)	1 =very young / 5=long-term experience 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	
B) Actual relevance for research community	1= across many disciplines / 5= focused on single discipline 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	
C) Likelihood to have short to medium-term impact on wider stakeholder group beyond the direct research users	1= very high / 5 =very low 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	
D) Awareness within consortium of potential impact outside the direct research users	1 =very high / 5 =very low 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	
E) Size of project in terms of EU funding	1 =very small / 5 =very large 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	
F) Dissemination activities of consortium beyond the research user community	1= very active / 5 =not active 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	

The underlying assumptions are that:

- Very young consortia will probably have less impacts to show and therefore an impact assessment is best performed at a later stage of its development
- It can be argued that those cases where RIs projects only concern one single discipline, the scope of their impact is much smaller than those cases where the benefiting research community comes from across many disciplines. This however can not be taken as a simple measure as some RIs networks operate ‘upstream’ in fundamental science areas with a potential long term impact
- For those RIs that have a low or very low impact beyond the direct research user groups, it needs to be assessed whether this is due to the nature of the research work or the structure and objectives of the RI project
- RI projects receiving large or very large sums of funding would need to be taken into account in the evaluation exercise
- A lack of dissemination activities would suggest that the consortium is not highly committed to spreading the results of their activities to potential stakeholder or user groups. This would need to be looked at in Phase 2.

5.4.3 Evaluation preparation for all coordinators: CHECKLIST B

The consortium leader will receive Checklist A and be asked to check for accuracy and to provide updated and additional information if needed.

This section gives a commented checklist of questions (CHECKLIST B, see Appendix B) that need to be raised in the evaluation and which should be addressed

by the **consortium coordinators**, possibly with input of (some of) the contractors. It is up to the coordinator to decide whether to involve other contractors in this exercise or not.

The following subjects are covered in this checklist:

- A) Description of the consortium and its partners**
- B) Description of the activities in the consortium**
- C) Description of the type of users of the created network of RIs (for I3s only)**
- D) Likely effects of your project**
- E) Description of the intended impacts**
- F) Plans for dissemination of results and continuation of the network**

After all project coordinators have filled in Checklist B, the evaluators should run through the checklists and score the projects on a number of simple characteristics. Again we will most likely have a group of RI projects scoring low and a group scoring very high (more than 18). The score cannot be used as a straightforward metric. For example, the dimensions heterogeneous versus homogeneous cannot be characterised as good or bad, but will be good in some cases and bad in others. The evaluators have to see this in the perspective of the project and their goals.

Exhibit 9 Second grid for selection of RI projects for Checklist B

		Score
A) Heterogeneity of the consortium	1=very heterogeneous / 5 =very homogeneous 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	
B) Weight of integration activities in I3s	1= very high / 5 =very low 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	
C) Change of users through RI project (I3s only)	1= very wide / 5 =very narrow 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	
D) Weight of expected effects (number of items where project reports substantial effects)	1 =substantial / 5 = limited 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	
E) Scope of DS and CNI activities (e.g. only technical feasibility or wider strategic considerations)	1 =very wide / 5 =very narrow 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	
C) Likelihood to have medium to long-term impact on wider stakeholder group beyond the direct research users	1= very high / 5 =very low 1 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5	

5.4.4 Short survey to all RI contractors

One important consideration is that the evaluation should not pose too much of a burden on the large group of participants as they already have several reporting and survey obligations. Nevertheless, in our view it is crucial to have the view of the coordinator who is probably the best informed person in the consortium with an overview of all activities and organisations involved. There are a number of issues that would also need input from the whole set of contractors. This section therefore describes how this survey could be conducted (for a survey example see 8.2Appendix C). After consultation with the Commission and an expert group in June 2006, it was

agreed that this should be kept as short as possible. For simplicity, the survey is generic and can be used across the different support programmes.

The main focus of the evaluation lies on the **added value** of the European instruments and schemes, in addition to national and multi-national efforts to support RIs. It raises the issue of the pertinence and the relevance of the EU RI funding to further leading edge research in Europe, to diffusion of knowledge in Europe, its application and exploitation, as well as potential societal impacts. For the issue of impact assessment, we take a broad approach including impacts on the researcher community (beyond the users alone) and the European Research Area, along with impacts on economy/industry as well as on society as a whole. Another important issue we would like to address with the contractors concerns the degree of integration that is taking place within the consortium. Many of the RI activities assume a more intensive cooperation between the partners, through networking, common development of tools, methods and standards, through better division of labour between RIs etcetera. How do they see what the project is aiming at?

5.4.4.1 Practical arrangements

We suggest conducting this survey electronically, online. Consortium partners are well connected by electronic mail and the Internet, so we can expect them having easy access to the required electronic addresses and to be up to date. In consultation with the Commission, it is considered possible to identify a contact person -who is not the administrative responsible – for each contractor. We propose to use Internet based packages such as the Sphinx online-survey tool (www.sphinx-survey.de) or another application such as Survey Monkey. These Internet applications allow contractors to fill in the questionnaire online. They will receive an electronic mail with the link to the questionnaire and the collected data will be stored on a temporarily rented web-space. The Internet applications have the advantage of making ulterior data-compilation superfluous, they also can automatically generate basic descriptive analysis, to make comparisons across the projects and to give a first overview of the results. The data can then be exported to excel or SPSS for further in depth analysis.

5.4.4.2 Using the results of the survey

This survey will not be used to select case studies as the time frame needed to conduct this survey and for its analysis will not be in line with the timing of the start of case studies. The analysis can be used for the portfolio analysis of the whole programme. The introduction will be very short, as the project code in combination of organisation can be used as identifier. The limited number of questions chosen address pertinence and impact issues:

- The benefits and results for the partners
- The degree of networking together and thus of ‘integration activities’
- The view of how far the consortium contributes to a number of objectives of the various RI support programmes
- Their view on what impacts can be expected beyond the direct users from the research community

6 Phase Two: Case Studies

6.1 Introduction

Given the number of ongoing RI contracts that are relevant for the pertinence and impact assessment and the available resources and time for such an undertaking, the selection of a number of projects to analyse in more detail has to be made. This Chapter discusses how this choice could be made, what assessment activities should take place and which additional activities could be undertaken.

Overview of inputs in this phase	
People contributing to this phase	Evaluation team Independent experts Project coordinators and possibly some contractors
Estimate of external resources needed for these activities	50-60 % of total resources
Lead time needed for all activities	12-18 months, with case studies in batches

The tasks of the external contractor in this phase would be:

- Make specific choice of case studies
- Assist the Commission in selecting independent experts using the Commission's expert database
- Conducting preparatory interviews with coordinators and supporting them in providing self-assessment impact report
- Organise and prepare the hearings with project representatives and experts
- Analysing the self assessment reports
- Participate in hearings
- Decide on necessary additional tools to be used for specific case studies (e.g. workshops, additional stakeholder interviews, additional survey or network analysis)
- Write case studies

The timing of the case studies depends on the Commission's overall timetable. The purpose of the cases is to eventually draw conclusions at the programme level. This means that final conclusions can only be made if sufficient case studies have been completed. For practical reasons it would be better to spread the case studies over a period of time. As we suggest; to complete 30 case studies (see below) a practical approach would be to conduct 10 case studies in a period of 6 months. This would then take a total of 18 months.

6.2 The selection criteria for case studies

From the larger group of projects, the evaluation should make a selection for analysing in more detail. This section describes what selection criteria could be employed in order to get a full picture of the evaluation question.

Without restrictions to time, money, and readiness to cooperate, it would be tempting to analyse as many cases as possible, taking into account the fact that the concept of research infrastructure is rather broad and specific from one case to another. Given, however, restrictions of available resources, a selection has to be made to distinguish between cases, which are interesting enough to carry out a detailed study. On the basis of a rough estimation of available resources for an external assessment, including independent experts and an evaluation team, we suggest choosing approximately 30 cases from the population of 71.

As the ultimate goal is to analyse the pertinence and impacts of the EU funding – and thus the programme level, the collection of cases should represent the whole RI programme. So the number of cases per support instrument should roughly reflect their distribution across the programme’s portfolio in order to say something about each activity. Thus approximately 18 of the I3 projects should be chosen (during the preparation of these guidelines DG INFSO argued that of the IST related I3s, only three larger projects were suitable for a further impact assessment), 8 Design Studies and 4 CNI projects. However, as some projects are still very young (particularly in the CNI support scheme) and have few results to show, these numbers should be taken as guidelines. Within these broad categories there are a number of features that point towards interesting characteristics of individual projects. [Exhibit 10](#) provides an overview of additional selection criteria for the individual case studies.

Exhibit 10 Additional selection criteria for case studies

Criteria	Sub-criteria	Justification / logic
Size		
	Project costs	The more expensive the project / funding contribution, the more relevant the question of the use of public money and thus pertinence
	Number of participants	The larger the number of participants, the more difficult to create impacts on the side of the individual partners, particularly of the smaller ones
Heterogeneity		
	Many involved disciplines / interdisciplinarity	The more disciplines involved, the more difficult to collaborate, the stronger the need for learning and improvement, the stronger the need for careful management. However the EU added value might be larger than in single discipline oriented RIs
	Different types of institutions (universities, museums, public research organisations, etc.)	The more variety in the type of involved institutions, the more specific their cultures and histories, the more difficult to collaborate, the stronger the need for learning and improvement, and, likewise, for careful management
Novelty		
	Radical new approaches (thus significantly different from prior practice and experience)	Radical new approaches are inherently risky, thus monitoring and evaluation of conduct and performance / impact are critical.
Asymmetry amongst actors		
	Strong presence of users vs. absence of users (= providers as users)	The stronger the roles of users, the more likely the creation of impacts; the more likely the absence of users, the more likely the (disciplinary) lock-in (i.e. creation of self-referential research

Criteria	Sub-criteria	Justification / logic
		infrastructure)
	Heterogeneous distribution of roles amongst partners (some with major roles, some with minor roles)	The bigger the role of individual partners the more relevant is their history and context, including complementary policies; the smaller the role, the smaller is their potential to appropriate the results and outcomes of the projects, thus the higher the need to fully finance the respective contribution
	With / without additional support from other policies	Comparing projects with and without additional support, particularly from national / regional policies might reveal valuable differences in creation, implementation, and achievement of results ⁴
Potential for wider impact and EU added value		
	Obvious potential for wider impacts	In order to identify some of the successful projects in the programme, the case studies should also include some of the <i>potential</i> success stories
	Potential for EU added value	In those areas where international networking is relatively new or where new geographical areas are opened up by the activities, the potential for EU added value might be found
A-typical cases of research infrastructure		
	In the social sciences	Research infrastructure in the social sciences looks somewhat unfamiliar at first glance, learning is thus of high relevance
	Research infrastructure focusing on standards	Standards can be understood as immaterial (research) infrastructure, which, like research infrastructures in the social sciences, deserve specific attention to broaden the scope of research infrastructure and their functioning
	Collections	The older collections are, the more valuable they are, which in some regards clashes with average scientific research, whereupon the most recent results are the most valuable; thus understanding the respective cultures and possible conflicts (e.g. between universities and museums) can provide learning
	Research infrastructures, which could also fit into other programmes	Support by other policies (at different levels) can be ambivalent, as on the one hand further support can increase the propensity to create further and stronger impacts; on the other hand it can reduce additionality, potentially created by EU funding

The evaluation team who have studied the programme level material, (Checklists A and B), can use these guidelines to make a final choice of projects for case studies. The Analysis grids used for Checklist A and B are a first indication of projects that have a particular profile. Most of the above criteria are included in these grids but to avoid complexity additional criteria (e.g. novelty, a-typical infrastructures) are left out as these are characteristics difficult to establish by those directly involved in the project.

⁴ Support from national / regional policies is, however, not beneficial per se!

So in summary the collection of approximately 30 case studies should:

- Take account of the distribution per support scheme (and in case of I3s sufficient activities besides Trans-national Access) and DG research /IST supported projects
- Have at least a considerable number of the very large sized projects (in budget and partnerships)
- Include some that have shown a potential for impacts and EU added value
- Include some that are complex in structure (multidisciplinary, heterogeneity, asymmetry amongst partners)
- Ensure a good mix of the main scientific areas covered by the RI programme
- Include some cases that fall outside the typical physical and ‘hard’ sciences areas

6.3 The complete toolkit for case studies

6.3.1 Selection of tools for each case study

The above illustrated that if we make a selection of approximately 30 case studies out of the total population of RI projects, we will have a collection of projects with quite some variety and quite a number of different issues that we would like to elaborate on in more detail.

In the cases where we are interested particularly in the **potential socio-economic impact** of a project on the participating research-infrastructure (e.g. in case where new RIs are designed or planned or in case a E-Network is extended to regions /countries with limited European network access before, or in the cases where key equipment suppliers play a crucial role in the success of the RI-project), more emphasis could be given on:

- Interviews with a wider set of stakeholders (e.g. regional development authorities, local industrial associations, chambers of commerce, (potential) industrial users...)
- Workshops with potential beneficiaries
- A survey or interviews with the relevant key equipment suppliers (for an example see Appendix D)

In the cases where we are interested particularly in the impact on the **wider research community** (scientific quality, effectiveness, ...) using one or a group of RIs in a particular thematic domain, the evaluation team could opt for:

- Specific focus groups or workshops organised to discuss the effects of the RI activity on the research community that is using them
- Specific focus groups or workshops organised to discuss the effects of the RI activity on research communities that are not using the RIs but could be expected to use this in the future

In those cases where the **degree of integration of the consortium** is an issue (e.g. where the key objective of the programme is joint development of standards, methods

and techniques, better coordination of activities etc.), a wider survey amongst all members of the consortium could be an option, and possibly more detailed network analysis.

6.4 Expert reviews and ‘impact self-assessment reports’ by the project co-ordinators

Each case study should start with the preparation by the project coordinator of a self-assessment impact report, which serves as documentation for the evaluators and the external reviewers. These questions go further than those already addressed in **CHECKLIST A**, which the EU project officers have filled in with support of the evaluation team, and **CHECKLIST B** filled in by all project coordinators.

The following paragraphs describe the issues that need to be addressed:

- 1 In the self assessment impact reports by the coordinators
- 2 During an interview with the evaluation team preparing the case studies
- 3 At a hearing in the presence of a number of independent experts together with the coordinator and some additional contractors

In the following tables of issues, we have indicated what the main source of information should be and which issues are addressed in the self-assessment report, interviews and/ or hearings.

6.4.1 Evaluation preparation for project coordinators in case studies through interviews and hearings

This section describes how to prepare the project coordinators and possibly some of the contractors for the interview/ hearing by external experts. Some of the issues should be documented prior to the interviews / hearings, others are the subject of direct dialogue during interviews / hearings. Accordingly, the respective issues are indicated regarding the preferred mode of information gathering.

The most effective source of information in addition to the Commission staff is the project co-ordinators. On the one hand they are the most familiar both with the overall project as well as the contributions of the respective partners, particularly with regards to their contributions to achieve the overall goals and impacts. The meaning of 'effective,' results from the fact that access to and a reasonable 'exploitation' of, this source of information can reduce the need to conduct other, more costly or cumbersome exercises or methodological approaches. Accordingly, the list of issues to be addressed to the project coordinators should be quite extensive.

The main steps taken are:

- 1 The project coordinator is asked to prepare **an impact self-assessment**, on the main topics described below. The key messages and data should be put on paper. This should not be more than 10-15 pages and sent to the evaluators
- 2 The evaluator will organise an **interview** with the coordinator to ensure that all items are understood and covered well. If necessary the coordinator is asked to complete the material. The evaluator and coordinator discuss the upcoming

hearing and who should take part on the side of the contractors. The evaluator writes a short memo of this interview

- 3 A **hearing** is organised, inviting two independent experts to a face-to-face meeting with the project coordinator and some key partners. This meeting should not take longer than one day. This could be held in a central place (e.g. Brussels) or on site of one of the contractors. The disadvantage of the latter is a possible ‘distraction’ by the physical presence of the RI facility in those cases where there is a physical component. In addition, the logistics are more difficult to handle. As the evaluation is not about individual RIs a central location is preferable. The independent experts are chosen from the EU database of experts and the evaluators are assisted by the EU project officers to select the experts from the database (and possibly other sources)

The following sections describe the themes that the self-assessment report, the interview by the evaluators and the hearings with independent experts should at least cover.

6.4.1.1 Perception of needs and opportunities and purpose

A major part of the pertinence issue is covered in this step. The **key is to understand**, whether the project coordinators / partners are fully aware of their context and the relative contribution of the funded project to the overall research infrastructure and research activities. Thus understanding of precedent activities, integration into scientific networks and therefore of research trajectories and schools of thought is critical. Furthermore, experienced limits to growth and / or perception of missed opportunities, even breakthroughs prior to funding can contribute to understanding the relative contribution / value added from the funded project. A comparison of the views (i) of the project coordinator / partners, (ii) of their higher management level, and (iii) of lead users, sometimes of key suppliers can contribute to understand the coherence of the views and expectations of three major types of actors.

Issue	Source ⁵
Describe relevant preceding activities which ultimately led to the launch of the funded project	SA, I, H
Describe the (perceived) limitations and / or unexploited opportunities amongst main actors, which existed before the conduction of the project	SA, I, H
Describe already existing networks and collaborations amongst (parts of) the partners; describe separately those partners, which have joined the network for the first time on the occasion of the funded project	SA, I, H
Describe the role of EU funding to overcome the limitation / exploit opportunities	SA, I, H

Strengths

The strengths likely to be met in this step emerge from the readiness to prepare a documentation of high quality. It will be the litmus test for addressing the 'perception' and 'context' issue. Particularly, it should be possible to understand whether the project is merely another source of funding to continue on established trajectories or whether the RI action can contribute / has contributed to a significant change towards 'Europeanisation' of the scientific routines so far. Both types of outcome are valuable. A hearing can contribute to further clarification.

⁵ SAR = Self-Assessment Report, I = Interviews, H = Hearing, Bold: Main source.

Limitations

The limitations likely to be faced in this step can be quite serious as much of the perception of the situation and related strategies prior to funding remains implicit, intuitive, and hardly an issue for discrete action. Even more, for many partners, but also project coordinators, funding might be considered as a further opportunity to continue some of their prior work, which then leads to an underestimation of contexts and thus of the possibility to assess the relative contribution of the funded project to the overall research infrastructure and wider activity portfolio.

6.4.1.2 Awareness raising, lobbying, and need assessment activities

Since the **European** dimension and added value of the research infrastructure initiative has a high priority, the question for the selection of the most appropriate partners arises. Often, collaborative projects are driven by opportunities and existing networks. Furthermore and as a consequence, we assume that the preparation of proposals require a need assessment, involvement of (future) users, and not least the involvement of higher-level management. Both users and higher-level management are critical (i) for the acceptance of the new or modified research infrastructure and related services, and (ii) for the continuation of work after accomplishment of the funded project. Inadequate understanding of user needs / user involvement and poor involvement of higher-level management can lead to a severe limitation of impacts.

While **need assessment** and **roadmaps to impact** are the cognitive approaches to ensure pertinence and impact, the involvement of users and higher-level management, sometimes national or even regional policy makers can help to ensure a better compliance with and integration into overall strategies and thus funding.

Issue	Source	Coverage
Describe the (potential) beneficiaries, if there are any, which were not participating in the funded project. For what reasons? Will they become involved in a later phase, within the given project or beyond?	D, I, H	Case Study
Which partners have been envisaged and which have actually joined the consortium? Did the missing of some of the intended partners lead to a change in the work packages?	D, I, H	Case Study
Describe the role of critical suppliers and the ways, in which they are involved in the project	D, I, H	Case Study

Strengths

The strengths likely to be exploited in this step are to test whether the representatives of the project have taken care to involve two rather critical actor groups (users, higher level management / policy makers). Furthermore, it will be possible to better understand whether the activities within the funded projects are rather conservative (i.e. continuing existing networks / following established trajectories) or whether the project has triggered 'new combinations' or even radical new research infrastructures and / or services.

Limitations

The limitation likely to be faced in this step is the difficulty to look behind the 'official statements' of user involvement and need assessment. Interviews and hearings can contribute to touching these critical issues by investigating the process and outcome of the respective exercises in greater detail.

6.4.1.3 Feasibility studies and planning activities

This step goes further in understanding the quality of preparation. The key here again is user involvement and planning for the time after completion of the funded project. It is important to demonstrate user involvement and post-completion-planning with documents. This should be an appropriate issue in the case of larger projects. In some regard, post-completion-planning can be conceived as a specific type of planning of specific impacts, notably of desired impacts. Accordingly, it will be critical for the (coordinating) partners, to present some sort of a **roadmap to impact**. In those projects where trans-national access is the main activity, one can expect that less preparatory work will have been conducted, as this activity is for many RIs a continuation of existing activities (unless they are newcomers to the programme). In the case of Design Studies and Construction of New Infrastructures one should expect considerable work into this planning activity, which goes beyond the assessment of technical feasibility.

Issue	Source
Describe planning activities which particularly went beyond the end of the funded project	
- Outline the 'roadmap to impact'	SA, I, H
- Describe the envisaged impacts	SA, I, H
- Describe the critical steps to be done to realise the intended impacts	SA, I, H
- Indicate those impacts / steps, which are within and which are beyond the scope of the funded project	SA, I, H
- Describe which stakeholders were involved in the planning stage	SA, I, H

The **strengths** likely to be exploited in this step are rather obvious, as the criteria used in this step have a high explanatory power as regards to impacts.

The **limitations** likely to be faced are quite moderate, as the existence of planning documents can easily be tested. It will be possible to test planning activities aimed at the operation of research infrastructure beyond the funding period and achieving impacts during and beyond funding. At the same time, the absence of planning documents can be conceived as a warning signal for poor awareness and limited commitment to consider further impacts.

6.4.1.4 Financing

The type of financing can have strong impacts on scope and quality of a network of research infrastructures. A specific aspect of financing emerges from **co-funding and funding of pre- and post-completion activities**. Thus, a better understanding of financing modes contributes to a better understanding of pertinence and impact. At the same time, a too close fit with overall strategies / profiles / policies should raise the doubts of limited additionality. This will be of particular importance when assessing DS and CNI projects.

Issue	Source
Describe the funding modalities for the foreseen RI / for the continuation of your RI consortium	SA, I, H
What other stakeholders have been involved /committed to co-fund the activities?	SA, I, H

Strengths

The strengths likely to be exploited in this step result from the strong explanatory power of the modes of co-funding and post-completion. Availability of post-completion funding can be considered as a quite significant precondition for long-term impact and pertinence. Absence of post-completion funding should increase awareness with regard to being 'lost in the universe of projects'. Co-funding, on the other hand, provides an indication of compliance with actual overall strategies / profiles / policies.

Limitations

There are hardly any limitations likely to be faced in this step, as it will be easy to acquire the necessary information regarding co-funding and post-completion funding.

6.4.1.5 Establishment, testing, and trial use

Particularly for the development of e-infrastructures (CND), design studies (DS) and for the construction of new infrastructures (CNI), the establishment, testing, and trial use of new networks and RIs are dependent on learning and interaction between project partners, but even more important, with lead users. We can assume, that the more intensive and broader the efforts for testing and trial use are (also going beyond the mere technical feasibility), the more likely the orientation of potential users will be. For obvious reasons, sometimes **suppliers** or providers can play a critical role in this phase.

Issue	Source
Describe the steps made / envisaged to involve users / suppliers in the establishment, testing, and trial use phases	SA , I, H
What aspects were included in the testing and trial phases (e.g. technical feasibility, feasibility to attract users, potential support from national and regional policy makers and funders, potential support from industry, societal stakeholders, feasibility to attract complementary financial resources,...)?	SA , I, H

Strengths

Provided that experts with a certain awareness for the provider-user relationships are sufficiently available, the outcomes of this step will contribute much to a better understanding of learning, transfer, user orientation and timing, and the (additional) effort to achieve impacts (to be carried out in the case studies). In the absence of experts with double-qualification, a mix of 'providers' and 'users' is advisable, anyway.

Limitations

The most severe limitation likely to be faced in this step is the availability of domain expertise in the respective fields. Thus the documentation, combined with interviews and hearing, are essential methodological approaches to assess the 'portfolio of attention' and the appropriation of project results and related learning.

6.4.1.6 Management of the project and status within collaborating RIs

This step addresses the every-day task of executing the funded project. It can be assumed that most of the project partners are also involved in other projects. Thus the **integration into the 'portfolio of attention'** within the respective partner organisations is critical. Furthermore, the EU funded project can be one of many activities that are conducted by the RI partners. It is important to understand the status of the project within the RIs strategic management and hierarchies.

Issue	Source
Describe the status of the project leaders, representing the overall coordinator and dominant partners within the respective overall organisations, particularly with the respect to the appropriation of project results and impacts	I, H
Describe the status of the funded research infrastructure project within the overall portfolio of the respective organisations of the dominant partners	I, H
In how far is the management of the key partners directly involved in the operation of the project?	I, H

6.4.1.7 Regular operation

In research environments there is hardly a clear distinction between testing, trial use, and regular operation. Nevertheless, it **might** be worthwhile to understand whether there is **some** regular operation at all, which implies that a certain number of regular services and regular users exist, able to create some income or collaboration. A specific issue here is to understand the – expected – net contribution from the modification of the research infrastructure through the funded project. Particularly, the question can be raised for new users or research partners, but also for indirect beneficiaries. In order to corroborate the findings about new users / research partners, the number and volume of new 'businesses' / partnerships should be provided. It is likely, that the involvement of new users will not operate as a trade, but rather as additional funding for additional research projects, mainly from public sources. This can be dismissed as 'organised prey for public money', but also as a proper organisation enabling a new type and quality of interdisciplinary research.

Issue	Source
Describe the more 'regular' activities, enabled by the project funded by the research infrastructure action and related income / potential for collaboration etc.	D, I, H
Describe how the EU funded project will affect the scope and type of research users of the RI	
How does your organisation distinguish between EU-funded activities and (mainstream) activities funded through other sources?	

Strengths

The strengths of this step are quite obvious, as the main impacts from the project-driven modification of the (use of) research infrastructure or design of new research infrastructure will typically result from regular operation. Understanding regular operation is thus the precondition for understanding and assessing impacts.

Limitations

The limitations likely to be faced in this step may arise from a rather vague idea of 'regular' businesses, which itself may have to do with insufficient planning, notably of the post-project period. While the project coordinator will have some more or less developed ideas about post-project activities due to the fact that the coordinator typically holds the maximum of 'ownership' (at least) of the funded project, the

average project partner will face problems of appropriating the results of the joint effort.

6.4.1.8 Creation of impacts

This is undoubtedly the core of the whole exercise, as this evaluation deals with impacts. The methodological issue is to distinguish between impacts on actors, which are or have been addressed from the outset and those that have not been addressed during the execution of the RI Action project. We expect a clear picture of the benefits and impacts within the (controlled) target group and a steep decrease of awareness and knowledge about the non-addressed group, not to mention the respective impacts on them.

As far as directly involved / addressed actors are concerned, it is furthermore important to distinguish between the project co-ordinator and the project partners. In the best case scenario, the whole project, as well as its parts, can be appropriated by the majority of participants. The worst case scenario, obviously, comes along when and if the partners are not in a position to appropriate a significant share of the whole project.

While there will be some impacts on the involved actors (project coordinator, project partners), we presume that the creation of impacts on non-involved actors will not proceed automatically. We assume that the creation of further impacts requires deliberate strategies (cf. 'roadmap to impact'), purposeful action, and thus additional resources, particularly for the time **after completion** of the project. Furthermore, much of this is determined by the organisational setting and of the persons, who are responsible for the whole project and its parts.

Issue	Source
Describe measures which have been implemented / are foreseen to address those actors, which are not / have not been directly involved in the conduction of the project but could be beneficiary or stakeholder of the RI activities	D, I, H
Describe the actual impacts at participating, particularly at non-participating actors	D, I, H
Describe, how the participating / non participating actors changed over time	D, I, H
Describe, how the respective impacts changed over time	D, I, H
Give an estimate on the resources (financial, managerial, human resources, time) required to address and involve non-participants	D, I, H
Estimate the required / earmarked resources to continue with the activities after completion of the funded project	D, I, H

Strengths

The strengths are evident as this step identifies impacts and the respective roadmaps to achieve impacts. In particular, it will uncover the issue of not addressed actors and the time after completion.

Limitations

The limitations likely to be faced in this step may arise from poor awareness of impacts amongst marginal partners, not to mention those not directly involved actors, and for the time after completion of the project. The existence (of pieces) of 'roadmaps to impact' will be critical to identify benefits, but also for identifying detrimental impacts and furthermore to assess them.

6.4.2 Additional tools to be used in relevant cases

The preparation of an impact self-assessment report, an interview with co-ordinators and a hearing are the minimal requirement for all case studies. In addition, when specific issues arise during these exercises the evaluation team can decide to employ additional tools for a particular case or a group of cases. Due to limited resources this cannot be done for all cases. Decisions on this should be taken during Phase Two. Therefore resources (approximately 10-15% of the resources for Phase Two) for these additional actions should be set-aside during the entire period allocated for the case studies.

6.4.2.1 Stakeholder analysis and interviews with potential beneficiaries

Each of the cases is unique and will trigger a unique set of additional questions that cannot be answered by interviewing the coordinators or contractors. For a number of case studies additional interviews with external stakeholders should be held.

Depending on the issue at hand (economic impact, societal impact, effect on multi-disciplinary use of the RIs, effect on policy planning in member States, effects on regional employment), different approaches and interviewees have to be chosen. At this stage it cannot be foreseen what the exact interview issues are and which are the most appropriate interviewees. We can only suggest a number of issues that could be addressed to different types of stakeholders. The following list is not comprehensive and should be adapted by the evaluation team depending on the case or group of cases when there are overarching issues. Chapter 7 has lists of questions that specifically address issues at the programme level. Here we are dealing with the project level.

Two examples have been worked out below in

[A very specific group of beneficiaries are specialised equipment suppliers to RIs. Direct economic benefits can be expected from this type of actor. It is however difficult to distinguish what the effects are of EU funding and other funding sources. Nevertheless, particularly in DS and CNI types of activities, we could identify these types of private sector suppliers that directly benefit from EU actions. As an example we have included a survey that can be used for this activity at Appendix D.](#)

| **Exhibit 11.**

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Exhibit 11 Example Interviews

SUBJECT: regional impact of the launch of a new physical RI supported by FP6 (through DS or CNI)
INTERVIEWEES: regional development agencies, regional policy makers responsible for innovation policy and or structural funds, chambers of commerce, local representatives of industry,
<ul style="list-style-type: none">• What regional stakeholders have been actively involved in the plans for the RI?• Has an impact assessment been made of the potential impacts of this new facility? By whom, what methods, results,..)?• What are the expectations for local suppliers to benefit from this?• What are the effects on human resources in the vicinity of the RI? Will this trigger new education and training activities? Will the local university be a partner?• In how far has the private sector been involved in /committed to the design and later implementation phase?• In how far have other potential beneficiaries been involved in /committed to the design and later implementation phase?• Is the regional/local government launching any additional activities /funding to leverage the RI activities into the community?
SUBJECT: to increase the access / improve services a (new) group of users
INTERVIEWEES: for instance current industrial users of RIs, companies that could be expected to use RI facilities, specific type of user groups (e.g. hospitals which could use E-infrastructures)
<ul style="list-style-type: none">• In how far is your organisation aware of the type of services provided by the RI network?• Have the network of RIs ever approached you directly or communicated indirectly what they have to offer?• What makes these services attractive to use?• What are the bottlenecks to use these types of facilities effectively?• What have been the benefits so far of accessing these facilities?• What is the added value that these facilities are now connected to a wider set of EU partners?• Can you describe results and/or impacts that have occurred so far?• What results and impacts do you expect in the future?

6.4.2.2 Workshops and focus groups

This section describes how workshops and focus groups could be used to have better input on scientific, societal and economic impacts for specific projects or clusters of projects.

Interactive methods can be used to identify long-term, indirect impacts of RI projects that are difficult to identify by individual stakeholders. Furthermore, these types of methods can be useful to further analysing the cases by bringing together different stakeholders. In particular, the impact of RI on the research community (beyond the users alone), and the societal impacts are difficult to assess by methods like surveys or interviews for instance.

Bringing together different stakeholders with different roles and backgrounds in the project or clusters of projects, will stimulate them into thinking together about (possible) impacts of the project(s), by discussing their viewpoints and experiences and developing a mutual discourse. By choosing the format and the participants of these interactive exercises carefully, less foreseeable impacts might be identified. Moreover, the evaluators have the opportunity to cluster stakeholders of different RI projects according to the chosen cases in order to get a broad picture of (possible) impacts without focusing too much on one project and its impacts.

Based on this rationale and the objective to gain insight into indirect effects of RI on the research community and the society at large, we suggest that the evaluators organise focus groups or workshops to reach this objective.

6.4.2.3 Workshops to assess the impact of RI projects

Policymakers and researchers often use workshops to support the design, implementation, evaluation and assessment of their programmes. It is important that:

- The participants, to a certain degree, have control over the communication process and are willing to develop a mutual discourse
- There is a clear target group and broad representativity of this group
- There are sufficient resources for good facilitation and moderation in order to reach the objectives by convergence and divergence of different opinions and information
- The process is transparent for the participants
- There are opportunities for feedback and learning

Workshops normally have a duration of from half a day up to a few days. Moreover, a workshop usually consists of a group of at least 30 heterogeneous stakeholders. Because of these characteristics, there is room for different types of activities in a workshop: plenary sessions to inform the participants and create a common 'knowledge level' and group or parallel sessions where small groups of participants can discuss specific topics, problems or needs.

The reason to use workshops instead of other methods (questionnaires, interviews [face-to-face] or observation), is to gain insight into the stakeholders' attitudes, feelings, beliefs, experiences and reactions within the group context. Workshops are of particular interest where there are power differences between participants and policy makers, where the evaluator wants to explore the degree of consensus on a given topic or where the culture of particular groups is of interest. In practical terms, by organising a group meeting information can be obtained in a rather efficient way since different stakeholders gather in one location and stay there for the duration of the meeting and probably even will have some social get-together. Other advantages are that interaction between participants highlights their view of the world, and it enables them to ask each other questions and re-evaluate their opinions. Moreover, workshops have an empowering effect on the participants: they feel valued as experts and taken seriously, and they get the chance to be involved in decision- or policy-making, and possibly future change.

Regarding the impact assessment of (clusters of) RI projects, workshop methods can contribute directly to:

- Provide insight into the generated impacts of RI project(s) and the value of these impacts for the different stakeholders
- The improvement of the RI project(s) by the discovery of previously unknown and unrecognised problems or potentials in the RI project(s)
- Interactivity and involvement with stakeholders to bring forth further research requirements from groups of stakeholders who might not normally be located near the research infrastructure but more closer to the social periphery.

Interactive methods like workshop methods are very suitable for the impact assessment on society and the research community at large, because common measures for benefit or probability of benefit in these areas are relatively absent. Certainly since benefits likely take some years to become apparent, group processes with different stakeholders can help identify or estimate the benefits rather than provide an actual measurement of it.

6.4.2.4 Objectives and results of the workshops

For the assessment of impacts on the scientific community at large, and societal impacts, we suggest a typical workshop methodology that combines smaller focus group methods with larger workshop groups. This method focuses on a few key issues, but with a rather large heterogeneous group of stakeholders a number of objectives in the evaluation of impacts of RI project(s) could be realised:

1. Explore (or generate hypotheses of) possible impacts
2. Specify (future) stakeholder needs and issues
3. Develop questions or concepts for questionnaires and interview guides for specific surveys or interviews

The workshop could be useful to explore the possible impacts expected of the RI project(s), or actual impacts already achieved. What kind of targets will be or have been already set could be defined under this forum. Also barriers to reaching the expected impact could be discussed. The participants should be selected depending on the focal point of the workshop (impact on science community or social impacts). Typically, participants are stakeholders that will be impacted or could notice possible impacts of the RI. In the case of expected impacts for the science community this will likely be leading researchers in the fields related to the RI project (e.g. from public and private labs), representatives of scientific organizations or communities, communicators of science (science journalists and publishers), science policy makers and/or science policy experts.

When assessing expected impacts for the society at large, the group of participants can be much broader. Preferably a specific social area related or impacted by activities of the RI (project) will be chosen (such as environment, health or cultural heritage) to assess possible impacts on it. Participants to the workshop could be policymakers in these areas, suppliers, representatives of societal (pressure) groups; representatives of professional organisations (in the case of health: representatives of

hospitals, pharmacists); representatives of intermediary organisations like patient groups, consumer organizations or environmental organisations.

Secondly, the workshop can help to examine whether the RI project(s) serve the stakeholders as they were intended, and specify future needs and issues.

Thirdly, the evaluators can use the workshop to also help them develop and validate the right questions or concepts for specific questionnaires and interview guides to be used for further analyses of the cases.

6.4.2.5 Risk assessment

- Workshops should not be the only means of data collection since there are major differences between what people say they do, and what they actually do, or because of the group dynamics, et cetera. Participants always will speak in a specific context, within a specific culture so it might be difficult to identify an individual message
- Indirect impacts on the science community and social impacts need time to establish. Therefore, it should be recommended that the impact evaluators might check for impacts in more than one point in time if possible
- It should be taken into account that the information generated in a workshop will be subjective and qualitative. On the other hand, it can result in a general sense of satisfaction of the users, and the outreach of the impacts generated by the programme/project

6.4.2.6 Checklist for the organization of a Focus-on-impact workshop

Preparation

For the preparation of the workshops four aspects are of importance for the evaluators:

- Formulate the main objective(s) and main questions: decide on the types of outcomes
- Choose the right participants
- Find a convenient location and make practical arrangements
- Develop a plan to analyse and disseminate

Beforehand, the **objectives of the workshop** should be determined. Based on these objectives, the evaluator has to formulate 5-10 questions that he wants to be answered during the workshop. He will have to make a quick scan of stakeholders and users by using the information of the stakeholder analysis, and develop a **long-list of possible participants** to the workshop. Ideally, the workshop will take from half a day to a maximum of 1 day, and it should take place at a central location for the participants. In order to stress the importance of the workshop for the European Commission, the Commission could contribute by **arranging the location** and/or sending out the invitations for the workshop. Finally, the evaluators have to decide how the participants will receive **feedback** on their efforts and how **analyses** will be made and reported in order to best serve as an input to the portfolio analyses at a programme level.

Process

Intensive group working in heterogeneous and homogenous groups of participants should characterise the workshop process. During different parallel group sessions a short list of questions will be discussed. By regrouping the participants during the session, certain outcomes can be further elaborated in a different setting and made specific by confronting the participants with each other's prior statements.

Usually a group session includes 5 to 6 open-ended and one-dimensional questions to be prepared by the organiser. 'Why' and closed questions (to be answered with 'yes' or 'no') should be avoided.

Outcomes

The outcomes of the group sessions can be for instance lists of activities undertaken by the different stakeholders in order to achieve certain impacts; lists of (possible) impacts, with remarks on existing barriers to fully achieve these impacts or measures to avoid unwanted impacts; and remarks on the stakeholder involvement. The preferred types of outcomes have to be clear at the start of the workshop for all the participants.

6.4.2.7 Example workshop designs

A focus-on-impact workshop can be useful to both focus on a set of questions that are hard to answer by individuals alone, and at the same time to have groups of stakeholders in one place to exchange ideas, stimulate each other in answering the questions and giving the evaluators feedback on their preliminary findings and move the analyses forward. The choice of focus and types of participants depends very much on the character of the cases chosen in the previous steps. An example will be given here.

6.4.2.8 Impact on the science community

A major difficulty is to assess the impact RI projects have or can have on **the science community**. Important objectives of the RI relate to the possible positive impacts on the science community at large, which could indirectly lead to the further structuring and strengthening the European Research Area. Possible impacts of Research Infrastructures on the science community could be:

- Improved science quality
- International standardisation and characterisations of research and science
- Development of (analytical) techniques and new technologies
- Optimisation of processes and investigation techniques
- Improved networking and multidisciplinary science
- Improved efficiency in the use of R&D funding
- Attraction of extra funding
- Improved human capacity and training
- Attraction of youngsters to science

In this example the workshop design could be organised to assess the (possible) impacts of the RI projects on the science community at large. The evaluators could invite 30 participants, all related to a cluster of projects (e.g. based on the type of activity (synchrotrons or collections); based on the disciplinary background (physical sciences or social sciences and humanities); or based on the type of measure (Design study or I3). The workshop will provide the best results if the participants form a heterogeneous group, this could be leading scientists, representatives of scientific communities or Academies of Science, science publishers, and science policy makers or experts in the specific fields. A number of key questions need to be developed by the evaluators. Example questions could be:

- Does the science community need more RIs in a particular field or can we gain by using existing ones better?
- Did the RI help the advancement of state-of-the-art in its field and put Europe on the global map in its field?
- Did the RI contribute to an efficient use of European resources?
- What opportunities can be used to attract new disciplines to the RI?
- Does the appropriate scientific community at European level support the RI?

Besides inviting the right participants, a critical success factor for the workshop is the programme, which the evaluators should carefully plan. A suggestion is to have slots in the programme. In the first slot, three or four groups of participants with a fairly homogenous background (related to the discipline or type of RI) sit together and discuss (possible) effects and impacts of the RI project(s) on e.g. the state-of-the-art in its specific field. They come up with a list of (possible) impacts and suggestions how to measure this (in the future).

In the second slot, the groups are shuffled into heterogeneous groups, but in a way that they can best answer a specific question the evaluators think is of importance. One group could discuss e.g. the (possible) impacts on efficient use of resources and funding, while another group discusses the (possible) impacts on interdisciplinarity. The outcomes will be a set of (possible) impacts experienced by the participants on the different topics, possibly with suggestions on how to measure this.

Finally, in a plenary session the evaluators or the facilitator can wrap up the findings and there could be a panel discussion on the most important outcomes, or on for example the question of how to measure these impacts and added values of future RI projects.

The facilitator should also be selected carefully. He should be instructed by the evaluators and have time to prepare the sessions. It is important to have ground rules that sustain participation, keep participants focused and maintain momentum.

6.4.3 Additional survey among the contractors in a consortium

In those cases where the networking and direct involvement of all contractors in a consortium is crucial for the impact of the project, this section describes how all contractors in the consortium could be surveyed and how basic network analysis could be done. This is only relevant for those cases where the active interaction and integration of all partners is a prerequisite for its success and impacts. In the

preparatory expert workshop it also became clear that Network Analysis only could be useful and feasible for smaller projects. By means of a quantitative electronic survey of members of the network, Network Analysis allows us to gather the following statistical indices :

- *Participation* within the network (Number of (mutual) contacts between network-actors)
- *Centrality* (how central or marginal is an actor in a given network?)
- *Density* (is the potential of contacts fully exploited?)
- *Graphical presentation* of the structure of the network

The main aim of using a Network Analysis method for assessing the impact and pertinence of the Research Infrastructures is to assess if:

- The intensity of networking between the project partners and the stakeholders has changed
- The quality and character of the contacts has changed or improved
- The positioning and roles of given actors inside the network has changed
- The network itself expanded or decreased

7 Phase Three: synthesis and analysis on the programme level

7.1 Introduction

In Phase Three, the results from the analysis at the project level need to be translated back to the programme level. An intermediary step is to look at the portfolio of projects, which can be clustered according to relevant dimensions such as the type of scheme they belong to, their age, etc. This will be described in more detail in paragraph 7.4.1.

Overview of inputs in this phase	
People to contribute to this phase	Evaluation experts European Commission Stakeholders and potential users
Estimate of external resources needed for these activities	15-20% of total resources
Lead time needed for all activities	6-9 months of which at least 3 after the completion of case studies
Sources to be used	Results from Phase 1 Results from case studies External studies/ policy papers on RI developments in Europe and member States Documentation on the project evaluation process Overview of the rejected proposals

7.2 Stakeholder interviews

7.2.1 Testing the pertinence of Design Studies and Construction of New Infrastructures

In particular, the Construction of New Infrastructures (CNI) and the Design Studies (DS) have an impact on the European Research Area as they aim to create a new node in the research system. The objective of the CNI scheme is to optimise European infrastructures by providing limited support for the development of a restricted number of projects for new infrastructures **in duly justified cases where such a support could have a critical catalysing effect in terms of European added value.** On the basis of the current fact sheets, a hypothesis could be formulated that a share of the consortia mainly focus their efforts on testing the technological feasibility of their proposed RI, but neglect to assess the need for this RI in the research community, as well as the likelihood that the construction of such an infrastructure will be supported by sufficient stakeholders (top management as well as potential funders). These questions are addressed at the project level in Checklist B and the case studies. In Phase three we need to understand in how far this hypothesis holds for the complete portfolio of projects, and if so why did this occur?

Questions that the evaluators need to understand are:

- Have the consortia made an appropriate assessment of the scientific needs for such an infrastructure in the research community (is it unique? does it add value in relation to existing RIs in this field? is it state-of-the art?)
- Have the consortia made an appropriate assessment of the support and potential financial backing from key decision makers and stakeholders who would eventually finance this new RI?

In order to have external views on these questions the evaluators can decide to hold additional interviews with relevant stakeholders:

- National policymakers who would be involved in funding decisions for new research infrastructures in their own country or the co-funding decisions in other countries
- Representatives that have a good overview of the European situation of particular type of RIs in specific areas of science and research (e.g. from national and Science Foundations and Agencies, or Academies of Sciences, or from specific user groups of these RIs)

7.2.2 Interviews with national policy makers and other key stakeholders

To understand the ‘bigger picture’ of the role of the RI programme in ERA it is essential to have sufficient interviews with policy makers from the Members States who play a role in taking decisions on the investment in research and research infrastructures in particular. In terms of pertinence, in particular the EU efforts to encourage integrative actions, and to increase the level of strategic vision on new infrastructures needs to be seen in the light of how it affects Member States’ efforts. In some cases where regional governments have a role to play in co-funding research infrastructures (e.g. Germany, France) these stakeholders also need to be addressed. As Structural Funds will be more directed towards RTD in the future, this will become more important.

Under FP6 a number of DS and CNI projects have been launched that explore the possibilities of constructing new Research Infrastructures. The pertinence of these new initiatives is typically something that needs to be discussed with key stakeholders in the EU countries. In our view this would not need full geographical coverage, rather a selection of countries in the EU.

In terms of the **pertinence** questions, the following issues should be included:

- How far are you aware of and/or involved in the EU RI activities?
- Have the DS and CNI activities, which involve participants in your country, involved you or your organisation in their development work? If yes at what stage? Have you provided additional support to these activities? What is your opinion on their strengths and weaknesses?
- How far have these activities had an influence on policy decisions in your organisation/country?

- Is the EU support a trigger to provide more/less national financial support into the RI involved?
- Has it changed the structure of the RI landscape in your country or will it have the power to do so in the future?
- In principle, is the design of the EU activities helpful for more efficient or effective decision-making?
- Is the bottom-up principle where individual groups of RI and research organisations take the initiative to launch a DS or CNI project appropriate?
- How far can ESFRI provide strategic direction to this process?
- What improvements can be made to make this process more effective and to create a real European added value to these activities?

In terms of **impact** these DS and CNI activities are still quite young to be able to draw many conclusions. However, some of the Integrated Actions could have drawn the attention of policymakers, in particular the large-scale e-Infrastructures projects (Géant, grids). Points for discussion in interviews would be:

- How far are you aware of any of the I3 projects that involve research organisations from your country?
- What is your opinion on their strengths and weaknesses?
- Could you point out any concrete results that have evolved from these projects?
- Have they benefited those directly involved in your country? Are there other beneficiaries of these activities (e.g. suppliers, user groups, societal groups)?
- In your opinion, do the participating RIs communicate their activities and the results of their work sufficiently to other communities (e.g. high school pupils, students, young researchers, societal groups, policy makers, ...)?
- What incentives would be necessary to encourage the RIs to do this more intensely?

The answers to these questions are critical to the analysis of some of the key questions of the assessment at the programme level:

- Have they contributed to the support of the **integrated provision** of infrastructure related services to the research community at EU level?
- Did they have a **structuring effect on the fabric** of European research by promoting the coherent use and development of RIs?
- Did they support existing research infrastructures to create a **denser network** between existing initiatives?
- Did they help to increase the **international dimension** of RIs?

7.3 Focus groups and Expert panels

To have a better input to scientific, societal and economic impacts at the programme level, the evaluators could organise additional focus groups or expert panels with the specific stakeholder groups from within and outside the RI community. Although many of the issues already discussed in Section 6.4.4. apply to focus groups or expert

panels as well, some differences have to be taken into account when addressing issues at the programme level rather than the project level.

There are some differences between focus groups and workshops that have to be taken into account. In general, focus groups consist of 6-10 selected participants who discuss 5 to 6 questions by sharing their views and experiences on the topic involved. The method is useful for obtaining different perspectives about the same topic. Focus groups can be used to assess the pertinence and impact of the RI programme at large and assess future improvements and directions. The session would usually take about 2 hours and should be moderated by a facilitator.

The main objectives of the focus group or expert panel could be twofold:

First they could have a role to provide feedback to the assessment results:

1. Verify main findings from the case studies and outcomes from stakeholder interviews
2. Draw some general, and for all parties agreeable, conclusions on these findings on a programme level related to impacts (keeping in mind the logical framework)
3. Formulate recommendations for the future design and structure of the RI programme based on these findings

Each focus group or expert panel should focus on a specific dimension such as type of funding scheme, type of impact, but it can also focus on sub-aspects such as the impact of the RI programme on integration of the research community or its structuring effects.

A second type of workshop/focus group could be organised to discuss strategic issues that arise during the assessment, and need a view from a much wider community than the 'RI community' that takes part in the EU programme. These could be potential 'end-users' or beneficiaries of RI networks; these could be representatives of specific disciplines (e.g. the social sciences) or types of RIs (e.g. collections) to discuss issues on how to improve the impacts of EU funded actions. These could also be key policymakers and RTD funders discussing issues around the pertinence of instance the DS and CNI activities.

Examples of topics that could be raised are:

- How could the EU activities attract more participants from the social sciences and humanities?
- How does Europe make choices for the investments of additional /versus existing RIs in physics?
- How could the new Member States increase the involvement and impacts from RI activities?
- What would make a particular network of RIs more attractive for industrial users?
- How could a particular cluster of RI projects support the work on issues concerning global climate change?

The choice of what focus groups or expert panels to organise depends on emerging issues that come out of the analysis in Phases One and Two. They should really add to the outcome of the overall assessment exercise. The Commission could choose to organise these types of workshops outside the direct assessment exercise and contracts.

7.4 Synthesis of results

This section provides building blocks for the overall analysis, including:

- Portfolio analysis: match of projects and programme objectives and the role of the project selection process
- Identifying common characteristics across all projects and support schemes
- Analysis of findings per type of support scheme
- Analysis per type of impact or beneficiary group
- Comparing findings with the original logical framework model

7.4.1 The Analytical Framework

When sufficient evidence is available, the main challenge is to relate this evidence back to the original Logical Framework Analysis done on the basis of the key objectives of the RI programme. The information from all projects collected in Phase One, from the case studies in Phase Two and the additional fieldwork in Phase three can be used to answer the following questions (which could be adapted if the assessment exercise has conducted a more in depth logical framework analysis in Phase One):

Have the collective RI projects and thus the RI programme:

- Sponsored new opportunities for research teams to obtain **access** to individual major research infrastructures?
- Contributed to the support of the **integrated provision** of infrastructure related services to the research community at EU level?
- Had a **structuring effect on the fabric** of European research by promoting the coherent use and development of RIs?
- Supported existing research infrastructures to create a **denser network** between related initiatives?
- Helped to increase the **international dimension** of RIs?
- Contributed to the development of a fabric of research infrastructures of highest quality and performance in Europe?

In addition, these questions could be analysed using different perspectives:

- By structuring the assessment of the analysis per type of support schemes (or activities). Each of the types of support schemes focuses on one of these aspects of expected effects

- By structuring the assessment results by type of RI or disciplines involved. This would require that sufficient case and survey material is available for the different disciplines
- By looking at a particular type of impact across all projects, e.g. the impact on young scientists, on environmental groups or on industrial users

[Exhibit 12](#) shows the ‘route’ from the data collection to the synthesis of results, and the relations between the different elements.

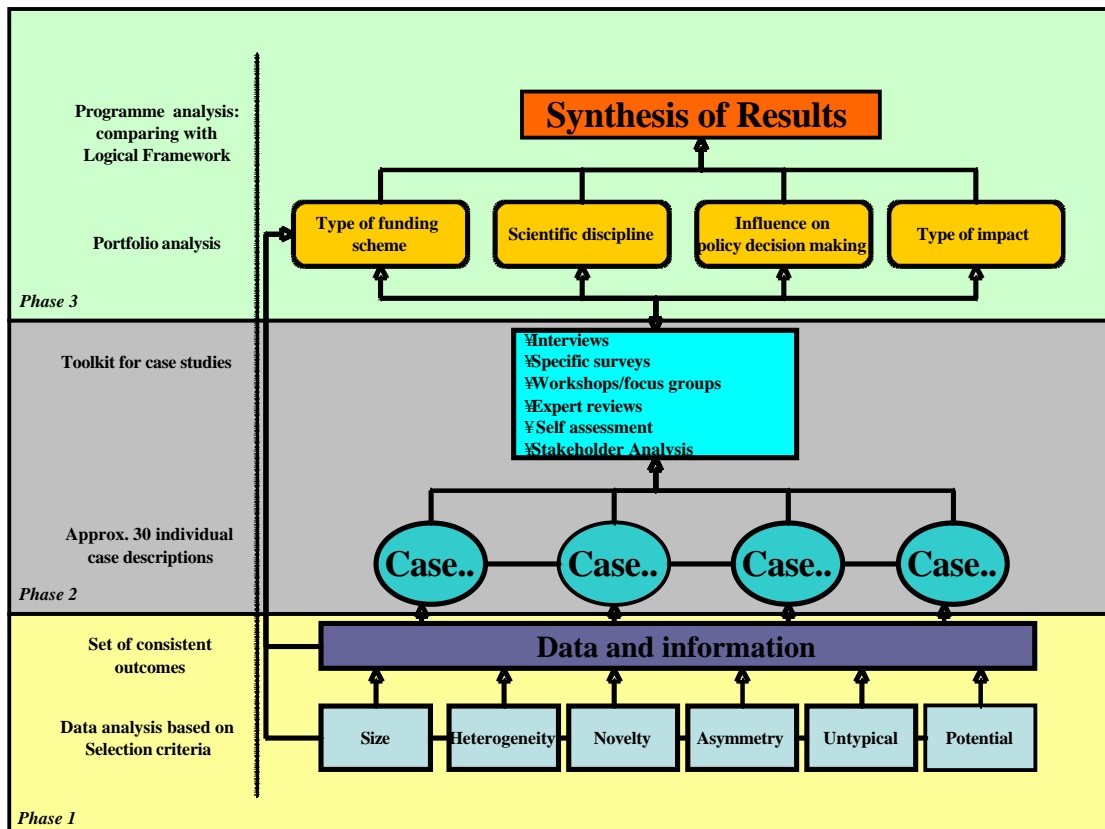


Exhibit 12 The route from data collection to a synthesis of results

7.4.2 Portfolio analysis

In order to better understand the achievements of the FP6 programme, the distribution of the individual projects provides more insight on how the overall programme is expected to have a variation of types of impacts. This means that the projects need to **clustered or grouped** on a number of different dimensions. Below are a number of dimensions we propose on the basis of hypotheses of important questions that need to be addressed by the assessment:

- In order to understand in how far the collection of projects contribute to the total programmes objectives, we need to know the number and weight of the projects **across the different types of funding schemes**, and particularly for 13 projects across the type of activities that these projects are conducting (trans-national access, networking and joint research activities)

- In order to understand how far the collection of projects the benefit specific disciplines or a wider set of disciplines (e.g. grids), the projects can be clustered **according to the scientific disciplines** their user groups belong to. From this an overview can be made of disciplines highly involved versus disciplines not addressed at all or to a limited degree
- In order to understand how far the projects have an impact on the strategic thinking on RI development on a European wide scale, we need to cluster those projects that have the ambition and potential to **influence policy decision making** on RI investment in Europe
- Projects should be clustered by the **type of impact** they are aiming to achieve (e.g. the scientific user community only, specific societal issues, socio-economic impacts, on research policy decision making)

This type of clustering could be helpful to identify groups of projects that could be brought together for focus groups and workshops.

This portfolio analysis can be done with two sets of information:

- The full set of contracted projects when checklists A and B have been completed by the project officers and coordinators
- The full set of proposals that were submitted and the appraisal reports from the project evaluators

To understand whether the portfolio of projects fits with the full range of aims of the programme, and in particular to understand when some of the intermediate objectives are not or hardly addressed by the collection of projects, the evaluators have to assess how far this is related to:

- The communication on the FP6 programme and its schemes (were the objectives of the programme made clear? Were the new type of schemes well communicated?)
- The selection process during the project evaluation (how have the peers been briefed? Did they select on the basis of the appropriate criteria?)
- A lack of good proposals in a particular area
- A misconception in the design of a scheme, leading to little interest from the foreseen target groups

7.5 Reporting

The reporting should have already started during the course of the evaluation. The report should present the results of the evaluation study, together with the information that is necessary to validate these results. Depending on the audience, different types of reports can be considered but the main audience will be the European Commission, and in particular the EC officials responsible for the RI programme.

The evaluators will summarise results of the synthesis analysis in a concise report that focuses on:

- The conclusions on the sub-programme and programme level in terms of both pertinence and impacts
- An analysis of the strengths and weaknesses of the projects and the programme
- Recommendations how the activities can be improved encompassing the whole cycle of the programme (from launching calls to dissemination of results) as well as the involvement of stakeholders outside the programme

8 Phase four: feedback to Commission and stakeholders

This section describes how the feedback and interaction with the RI community and the Commission can be organised in order to draw joint lessons for FP7 or to revise the RI programme.

Overview of inputs in this phase	
People to contribute in this phase	Evaluation experts European Commission Stakeholders and potential users
Estimate of external resources needed for these activities	5% of total resources
Lead time needed for all activities	2 months with activities mid-term and at end-stage of the exercise
Sources to be used	Results from assessment

8.1 Discussion of report

To learn from the outcomes of the impact assessment, the report should at least be discussed with the programme officers and other EU officials responsible for structuring the European Research Area and the development of a fabric of high-quality research infrastructures in Europe. A one-day meeting should be organised after delivery of the final report with specific focus on learning aspects: the main objective should be to learn how to structure the RI programme in the future, so that it is likely to get better impacts. Ideally, by the end of the impact assessment, the data collected and analyses made in the first three Phases have demonstrated some lessons for the next stage of the RI programme.

It is common practice to circulate the final draft (or parts of it) of an evaluation report to the main stakeholders in order to give them the opportunity to offer feedback. In the first place this is useful for eliminating errors and misinterpretations not yet tackled, and in the second place for sharing ‘ownership’ of the outcomes of the report and possibly entrench accountability for improving the programme in the future years.

While the evaluators could suggest to the EC how to improve the RI programme in FP7, the Commission Programme officers should use the outcomes of the different phases to reconsider the monitoring system of the RI Action. In a meeting with the evaluators the EC, programme officers and other officials could discuss whether:

- The programme objectives are still relevant, clear and consistent
- The criteria to apply for funding under the RI Action are consistent to the objectives
- The outline of the proposal and year plans for the RI projects are sufficiently focused on the desired impacts and outcomes, relating to the objectives of the programme
- The right projects have been selected, and how this could be sustained or improved the coming years

- The current indicators (such as user data) are still sufficient for the monitoring of the programme objectives and related outcomes
- Other information should be collected during the project that could facilitate the evaluation process at the end and during the programme

8.2 Meetings with different stakeholders

While the impact assessment is mainly conducted for, and read by, the responsible Commissioners, some other stakeholder groups might be interested in the outcomes of it and can learn from it. For example, specific meetings could be organised for these stakeholders (e.g. the project coordinators of existing or future RI projects, or members of ESFRI). The type of audience will influence how the evaluation results will be used and learned from.

The European Commission officials clearly want information on the ‘value-for-money’ issues and programme pertinence, and they want to draw lessons for future programmes. Project Coordinators (or future project coordinators) on the other hand for example, will be more interested in the benefits of the programme reported by others or organisations similar to them. A summary of the report could be the basis for a discussion with other stakeholders, such as (future) project coordinators about the improvement of their projects in terms of impacts, and possible plans for new ‘roads to impact’.

Appendix A CHECKLIST A

INFORMATION TO BE FILLED IN BY PROJECT OFFICERS AT START OF EVALUATION EXERCISE

A. General Information

Please provide project details on:

1. Title of the project plus Acronym
2. Coordinator details
3. Contractors/participants details
4. Website details
5. Type of scheme e.g.:
 - TA
 - Integrating Activities (I3 and CA)
 - CND
 - DS
 - CNI
6. Coordinated by:
 - DG Research
 - DG Infso

Date that this form has been filled in: dd/mm/yy

B. The time frame

Assessment of pertinence and impact of the research infrastructures programme covers a wide range of issues. The type of impacts, content, and focus differ in the course the project and related services and thus in time. It is essential to have knowledge about the maturity of the project and the expected milestones per period in the 'life' of a project.

7. Outline the time frame of the funded project as described in the project proposal and annual reports:
 - a. Starting year
 - b. Duration
 - c. Please describe the milestones set out in the project proposal:

C. Domains and inter-disciplinarity

Different scientific and technological fields can contribute or benefit differently at different stages of the project. These could for example be:

- Research inputs from one or several research or technology areas, in which the project is positioned
- Benefits to other disciplines in terms of 'services' to these disciplines or cooperation with these disciplines.

Most projects can be categorized in a scientific or technological domain. The overview of RI projects in [Exhibit 6](#) shows the categories used by the European Commission. Please tick the box of the domain in which the project is positioned by the EC.

8. Choose the scientific or technological domain(s):

- Analytical facilities
- E-infrastructures
- Engineering, Energy and Nanotechnology
- Environment and Earth sciences
- Géant
- Grid
- Life Sciences and Biotechnologies
- Mathematics and Supercomputers
- Physics
- RI Policy
- Social Sciences and Humanities

9. Please tick the boxes of the scientific domains that you assume/know will benefit from the RI project

- Analytical facilities
- E-infrastructures
- Engineering, Energy and Nanotechnology
- Environment and Earth sciences
- Géant
- Grid
- Life Sciences and Biotechnologies
- Mathematics and Supercomputers
- Physics
- RI Policy
- Social Sciences and Humanities

Research Infrastructures may be 'single sited' (single resource at a single location), or 'distributed' (a network of distributed resources, including infrastructures based on Grid-type architectures), or 'virtual' (the service being provided electronically). To have a better idea of the nature of the RI the project is (or will be) part of, helps the evaluators understanding the project itself.

10. RI type/or potential RI of which project is part of:

- Single sited
- Distributed
- Virtual
- Other (please specify)

D. Project objectives and expected impacts

The goal statements or objectives of the projects should be powerful indicators of impacts to be realised in the course of the project and beyond. The following non-exhaustive list provides categories of goals possibly mentioned in the project proposals by the consortium.

11. Outline the project objective as defined in final proposal (please tick boxes - **maximum of five** - or add text):

- a. Improving and building coherent access
 - Improve access to research infrastructures
 - Make access to RIs more efficient
 - Other, please specify
- b. Fostering a culture of cooperation:
 - Enabling virtual science communities
 - Enabling cross-fertilisation between disciplines
 - Enabling new networks between RI managers
 - Strengthen scientific ties between research groups and disciplines
 - Developing common databases and distributed facilities
 - Other, please specify
- c. Improving research quality
 - Reducing R&D costs / Making R&D more efficient
 - Setting standards and protocols
 - Developing of meta-data
 - Creation of more critical mass
 - Improving services
 - Other, please specify
- d. Improving Research Infrastructure quality and services
 - Improving quality of services, provided by the research infrastructure
 - Improving quality of physical research infrastructure
 - Improving the reach, connectivity
 - Other, please specify
- e. Fostering education and learning
 - Generating new concepts
 - Broadening experience and knowledge of students
 - Master students
 - PhD students
 - Post Doc students
 - Spreading good practice
 - Other, please specify

f. Other, please specify:

E. Budgets

The RI projects differ greatly in terms of funding and number of partners in the consortium. Information on the budgets as requested by the project consortium, the actual budget approved by the EC and the division between project partners helps the evaluators understand the magnitude of the project and the possibilities to really achieve the objectives and milestones set out in the project proposals/contracts.

12. Proposed and Required budget divided by type of activity

	Training	Management Activities	Specific Activities		
			TA	Networking activities	Joint Research Activities
Total contract period					
€ Requested to EC					
€ Approved by EC					

13. Third party resources, name and amount

Third Party:		€
Third Party:		€
Third Party:		€
Third Party:		€

14. Distribution of the Commission's payment between the contractors in the consortium

Contractor		Amount/ % of total	
Contractor		Amount/ % of total	
Contractor		Amount/ % of total	
Contractor		Amount/ % of total	
...		...	

F. Stakeholders

Besides basic information on the projects like scope, costs and involved contractors, it is helpful to conceive the RI projects as (multi-actor) systems. Different from mainstream disciplinary research activities, research infrastructures typically involve some sort of 'third parties', being the (i) 'providers' of specialised equipment or networks, (ii) acting as 'users' of (services of) research infrastructures, (iii) not the least the fact, that research infrastructures are typically designed and operated by consortia. Projects within the different types of schemes will also have to deal with different groups of stakeholders. While the Transnational Access scheme has a direct relevance for the individual researchers and research groups involved, the Design Studies will typically have to deal with a policy and political arena in order to receive

support for the plans. Please describe what stakeholders (type and name) are of importance for the success of the project, and explain why:

G. Direct users and user groups of TA activities

15. Please summarize the available information/analyses on user involvement in this project. What is the background of the users, where do they come from (country, organization) et cetera?

H. Achievements

16. Type and number of deliverables related to milestones in project proposal and described in annual reports:

Activity	Deliverable nr.	Name	Delivered by Contractor:	Achieved in month:

17. Please give your opinion on the main achievements of this project (e.g. scientific achievements, economic achievements, or social achievements), and the main beneficiaries:

I. Use and Dissemination of Knowledge

18. Types and number of dissemination activities of the project outside the own consortium, as described in the annual reports:

- Workshops, please shortly describe:
- Publications, please shortly describe:
- Presentations, please shortly describe:

Other, please specify

The complete set of forms filled in on each of the projects in the I3s, the Design Studies and Construction of New Infrastructures schemes. These will then be sent to the evaluation team for further analysis. They should also be sent to the Project coordinator to check whether the information is accurate.

Appendix B CHECKLIST B

For all coordinators

Project Code :

Project co-ordinator :

A) Can you characterise in not more than 300 words the composition of your consortium (types of organisations, heterogeneous or rather homogeneous, different roles these organisations play in the consortium, intensity of the networking.

B) Description of the activities of the consortium

For I3 projects only

Could you give an overview of the inputs across the different activities in your project

Trans-national Access %
Networking/ Services (e-infrastructures) %
Joint Research Activities %
Other activities %
	<u>100%</u>

For Design Studies and Construction of New Infrastructures only

What are the main activities (more than 20% of resources spent on this activity) conducted in this EU project

- Explore and test the technical feasibility of the foreseen RI
- Explore and secure the financial feasibility of the foreseen RI
- Assess the future need in the scientific community for this RI
- Assess the possible industrial use of this foreseen RI
- Involve stakeholders in research and science decision-making in preparations

- Conduct a benchmark of similar RIs in the world
- Conduct an ex-ante impact assessment of the foreseen RI
- Other (Please explain).....

Did the project lead to securing other sources of funding for the future RI

- Yes more than 50% of necessary resources is secured from non-FP6 sources
- Yes between 10 and 50 % of necessary resources is secured from non FP6 sources
- Not yet but expectation to secure additional resources soon
- Not yet

C) Description of the type of users of the created network of RIs

This section is about the research communities that are direct users of the networks of RI created through the EU funded project

For I3 projects only

Has the EU project and your collaboration with the partners led to

An increase in the numbers of users of your RIs

- not at all to some degree considerably

A wider set of users in terms of geographical origin

- not at all to some degree considerably

A wider set of users in terms of scientific disciplines

- not at all to some degree considerably

A wider set of users in terms of the types of organisations they come from

- not at all to some degree considerably

A higher quality level of users

- not at all to some degree considerably

A better match of users with the RIs expertise available

- not at all to some degree considerably

D) Likely effects of RI activities

In your opinion, to what degree does the consortium and the EU funded project contribute to the following items (if you think this is not an aim of your project you can fill in not relevant):

The spreading of good practice concerning RI operations and management
 substantially to a considerable degree to a small degree not at all not relevant

The spreading of good practice concerning RI methods, standards and tools
 substantially to a considerable degree to a small degree not at all not relevant

Improvement and or widening of interoperability
 substantially to a considerable degree to a small degree not at all not relevant

The widening of the use of RIs to new research communities & disciplines
 substantially to a considerable degree to a small degree not at all not relevant

The pooling of European resources for RIs
 substantially to a considerable degree to a small degree not at all not relevant

The development of common databases and/or distributed facilities
 substantially to a considerable degree to a small degree not at all not relevant

The fostering of a culture of cooperation between Research Infrastructures
 substantially to a considerable degree to a small degree not at all not relevant

The increase of strategic vision and stakeholder support necessary to set up new RI infrastructures in Europe
 substantially to a considerable degree to a small degree not at all not relevant

E) Description of the intended impacts

Can you describe in not more than 300 words what impacts are expected or already realised of the RI funded project, not only for the research community but also beyond that (e.g. societal impacts, economic impacts, political impacts,...).

What **type of organisations other than research organisations** will benefit from the results of the RI project within 5 years after the project's finalisation? You do not have to fill in any of the boxes in these categories if they are not relevant for your RI project.

The following business sectors

- | | |
|--|--|
| <input type="checkbox"/> Agriculture, forestry and fisheries | <input type="checkbox"/> Mining |
| <input type="checkbox"/> Food | <input type="checkbox"/> Textiles |
| <input type="checkbox"/> Pulp and Paper | <input type="checkbox"/> Publishing & Media |
| <input type="checkbox"/> Chemistry & Oil | <input type="checkbox"/> Metals & machinery industry |
| <input type="checkbox"/> ICT | <input type="checkbox"/> Electronic equipment |
| <input type="checkbox"/> Transport & Automotive | <input type="checkbox"/> Construction |
| <input type="checkbox"/> Business services & Finance | <input type="checkbox"/> Energy |
| <input type="checkbox"/> Other, | |

The following societal groups and organisations

- Environmental
- Health related (e.g. patient groups, R&D funders in health)
- Other, please specify

Policy makers in the following areas

- | | |
|---|--|
| <input type="checkbox"/> Transport policy | <input type="checkbox"/> Health policy |
| <input type="checkbox"/> Agriculture & Fisheries | <input type="checkbox"/> Social policy |
| <input type="checkbox"/> Legal and financial policy | <input type="checkbox"/> Environmental policy |
| <input type="checkbox"/> Media & culture policy | <input type="checkbox"/> Telecommunications policy |

F) Plans for dissemination of results and continuation of the network

Can you describe in no more than 200 words the activities planned by your consortium to disseminate the results of your project beyond the project partners and the direct users of the facility?

Can you describe in no more than 200 words what plans the consortium has to continue the network and the current activities after the FP6 project has terminated?

Are there any transfers of the following type to industry?

Knowledge transfer

- Transfer of new technologies
- Transfer of new products
- Training modules
- Licenses on patents /IP developed in RI project?
- Others, namely _____

Appendix C SURVEY TO ALL RESEARCH INFRASTRUCTURE CONTRACTORS

Project code

Respondent:

Organisation:

1) What is the role/status of your institution within the project (more than one options possible)?

- We are the project coordinator
- We participate in the *Management board*
- We participate in the *Networking or Services Activities (NA)*
- We participate in the *Joint Research Activities (JRA)*
- We participate in Trans-national Access activities (TA)
- We participate in regular events organised by the project that are of specific interest for our activities.

2) What benefit does your institution take out of the participation in the project?

	1=no benefits 5=substantial benefits					Not relevant
	1	2	3	4	5	
Additional funding for the research activities we are pursuing since a long time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Better/wider contacts with other Research Infrastructures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Better/wider contacts with user communities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New research activities have been enabled.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interdisciplinary approaches have been enabled.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The operation of our RI has been improved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
More computer power/capacity made available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
We can contribution to the standardisation of methods and procedures in the field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Better opportunities for sharing experiences/research on RIs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Better division of labour between RIs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Better access to foreign RIs for our researchers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, namely _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3A) Please indicate below the proportion of partners in your consortium with which you have the following types and frequency of interaction?

Face-to face meetings at least every 3 months

All partners Most partners A few partners One partner No partner

Face-to face meetings at least every 6 months

All partners Most partners A few partners One partner No partner

E-mail or telephone contact at least every month

All partners Most partners A few partners One partner No partner

E-mail or telephone contact at least every 3 months

All partners Most partners A few partners One partner No partner

3B) How would you describe your involvement with the consortium (one possibility only)

- We are currently not actively involved in the project's activities
- We are mainly interested to be informed about the technical achievements of the project and consider ourselves as observers
- We are only involved in the Trans-national Access activities of the project
- We are involved in some parts of the activities in the consortium
- We are involved in all the activities in our consortium and have a good overview of its progress and achievements

4) In your opinion, to what degree does the consortium and the EU funded project contribute to the following items (if you think this is not an aim of your project you can fill in not relevant):

The spreading of good practice concerning RI operations and management

substantially to a considerable degree to a small degree not at all not relevant

The spreading of good practice concerning RI methods, standards and tools

substantially to a considerable degree to a small degree not at all not relevant

Improvement and or widening of interoperability

substantially to a considerable degree to a small degree not at all not relevant

The widening of the use of RIs to new research communities & disciplines

substantially to a considerable degree to a small degree not at all not relevant

The pooling of European resources for RIs

substantially to a considerable degree to a small degree not at all not relevant

The development of common databases and/or distributed facilities

substantially to a considerable degree to a small degree not at all not relevant

The fostering of a culture of cooperation between Research Infrastructures

substantially to a considerable degree to a small degree not at all not relevant

The increase of strategic vision and stakeholder support necessary to set up new RI infrastructures in Europe

substantially to a considerable degree to a small degree not at all not relevant

5) What type of organisations other than research organisations will benefit from the results of the RI project within 5 years after the project's finalisation?

I am not aware of the wider beneficiaries beyond the scientific users (*go to Question 6*)

The following business sectors

- | | |
|--|--|
| <input type="checkbox"/> Agriculture, forestry and fisheries | <input type="checkbox"/> Mining |
| <input type="checkbox"/> Food | <input type="checkbox"/> Textiles |
| <input type="checkbox"/> Pulp and Paper | <input type="checkbox"/> Publishing & Media |
| <input type="checkbox"/> Chemistry & Oil | <input type="checkbox"/> Metals & machinery industry |
| <input type="checkbox"/> ICT | <input type="checkbox"/> Electronic equipment |
| <input type="checkbox"/> Transport & Automotive | <input type="checkbox"/> Construction |
| <input type="checkbox"/> Business services & Finance | <input type="checkbox"/> Energy |
| <input type="checkbox"/> Other, | |

The following societal groups and organisations

- Environmental
 Health related (e.g. patient groups, R&D funders in health)
 Other, please specify

Policy makers in the following areas

- | | |
|---|--|
| <input type="checkbox"/> Transport policy | <input type="checkbox"/> Health policy |
| <input type="checkbox"/> Agriculture & Fisheries | <input type="checkbox"/> Social policy |
| <input type="checkbox"/> Legal and financial policy | <input type="checkbox"/> Environmental policy |
| <input type="checkbox"/> Media & culture policy | <input type="checkbox"/> Telecommunications policy |

6) Are there –as result of the EU funded RI project - any transfers of the following type to industry?

- Transfer of new technologies
 Transfer of new products
 Training modules
 Licenses on patents /IP developed in RI project?
 Others, namely _____

7A) In how far is your consortium and the EU project dependent on third parties to supply you with specialised equipment and/or services in order to operate or network your infrastructure(s)?

- | | | |
|--|---|-------------------------------|
| <input type="checkbox"/> substantially | <input type="checkbox"/> to considerable degree | <i>go to next question 7B</i> |
| <input type="checkbox"/> to a small degree | <input type="checkbox"/> not at all | |

7B) Could you describe what type of key supplies these are (more than one option is possible).

- Specialised technical equipment for scientific purposes
- Specialised construction customised to RI purposes
- Engineering services
- IT hardware
- IT software
- Customised IT services for the operation/networking of the RI
- Other services (e.g. consultancy on conservation techniques etc.)
- Others, please specify

Appendix D A survey of specialised equipment suppliers for Research Infrastructures

Introduction

As this assignment is aimed at evaluating the added value /impacts of the European RI intervention and not of the Research Infrastructures as such, a study of the impact on specialised equipment suppliers only seems appropriate for Design Studies and Construction of New Infrastructures (CNIs) . Suppliers involved in the I3 activities will not be able to distinguish between their involvement in the existing infrastructure and the relatively small part of the EU actions. The large I3 projects of INFESO might be an exception as the European connectivity does potentially involve suppliers.

Limiting this type of analysis to Design Studies and CNIs does have the big disadvantage that it involves the assessment of prospective impacts. Experience from existing examples learns that this gives highly unreliable data as RI managers and suppliers will base their responses on expectations and not facts. It could however be that DS have very detailed planning of required supplies and have identified possible suppliers.

Not all infrastructures rely on specialised equipment suppliers. Some use existing networks (e.g. Internet) and tools and methods to developing their integrated activities. We will define specialised equipment suppliers (SES) as follows:

- Third parties who provide intensive hardware or services (specialised engineering firms, IT systems, middle and software, measuring tools, manufacturers of research equipment) which is customised for the specific Research Infrastructure and can not be easily purchased as an off-the-shelf solution)

This does not include:

- Suppliers of ‘simple’ construction works
- Suppliers of general operational services (catering, security, day-to-day office IT service, ...)

‘Third parties’ implies that they are not contractors to the FP6 Research Infrastructures consortium, or participants in affiliated FP6 research projects.

Execution of the survey

The case studies will reveal for which projects specialised equipment suppliers are a crucial actor.

The survey can be designed electronically and one should first approach the suppliers with a request to cooperate. The survey should be short and simple. The sample should have at least 50 suppliers otherwise the exercise becomes statistically unrepresentative. If the numbers are smaller the option of selecting a few suppliers as a case study might be more effective.

Each supplier should receive a customised e-mail explaining the purpose of the survey, but also describing the specific Research Infrastructure which has indicated their supplier role is of importance.

Outline of the suppliers survey

Name of company:

Name of respondent:

Function of respondent:

Supplier of which RI: (Name of customer)

1. Can you characterise the nature of your product/ service that you supply to the Research Infrastructure (RI) mentioned above. Please indicate some keywords:

.....
.....
.....
.....

2. For how long do you have a supplier relation with this RI?

- before 1996
- longer than 5 years
- since 2000
- since 2001
- since 2002
- since 2003
- since 2004
- since 2005
- since 2006

3. Was your involvement with the RI....

(please mark only one answer)

- ...a one-off assignment that took place within a period of one year?
- ...a one-off assignment that took place within a period of several years?
- ...a continuous relationship that allows us to work together regularly over a period of several years?

4 The economic value of your commercial involvement with the infrastructure....

- ...represents a small proportion of our company's turnover (less than 10 %)
- ...represents a considerable proportion of our company's turnover (between 10 and 30 %)
- ...has a crucial weight for the turnover of our company (more than 30%)

5. Please indicate witch of the following statements where correct regarding the assignment of your company to the above mentioned RI

(more than one answer is possible)

- We could use technologies and know how that we acquired from other suppliers
- We could use technologies and know how that we mostly had in house
- We develop new technologies and/or know-how in house

- Required us to develop new technologies and/or know-how in close co-operation with the staff of the research infrastructure
- We engaged new staff within our company to get new know-how
- We started collaboration with other company's to fulfil the assignment

6	So far the results of our collaboration with the Research Infrastructure.....	completely disagree	rather disagree	rather agree	completely agree
	• ...has brought our (technological) expertise to a higher level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	• ...has opened up the opportunity to work with scientific research organisations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	• ...has made our company more visible to other clients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	• ...has brought us new assignments with similar research infrastructures elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	• ...has allowed us to develop <u>new</u> products and services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	• ...has allowed us to <u>improve existing</u> products and services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	• ...has allowed us to increase the number of <u>sold</u> products and services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	• ...has improved our competitive position	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. At this moment, what are the effects of the commercial relationship with the Research Infrastructure on your economic performance?

- Caused us to make a loss
- Had no meaningful effect
- Had some positive effect
- Had considerable positive effect

8. At this moment, what are the effects of the commercial relationship with the Research Infrastructure on the level of employment?

- Decrease of stuff
- no effect
- Increase of stuff

If there is an increase or decrease, what is the level of change

- Up to 5%
- Up to 10%
- Up to 20%
- With more than 30%

9. Please estimate the net turnover of your relationship with the RI in the following calendar years:

2003:Euros
 2004:Euros
 2005:Euros

10. In the next five years do you expect additional commercial relationship with the RI?

- no, we expect no additional commercial relationship with the RI
- yes, we expect additional commercial relationship with the RI

If yes, please indicate the expected relationship

- minor new assignments / contracts
- moderate assignments / contracts
- major new assignments / contracts

11. What is your overall satisfaction with the commercial relation with the RI?

- completely satisfied
- rather satisfied
- rather not satisfied
- not satisfied at all

