Trends in
European Research Infrastructures

Analysis of data from the 2006/07 survey

European Commission
European Science Foundation

Report – July 2007

Information contained in this report is also available online under http://ec.europa.eu/research/infrastructures.
Research Infrastructure operators can also update their data and enter additional infrastructures through this web address.

Table of Contents

Table of Figures 3

Glossary 4

Preface 5

Executive Summary 1

1 Introduction 3

1.1 Background and objectives 3
1.2 Definition of Research Infrastructures 3
1.3 Scope and Method 4
1.4 Relation to ESFRI 7
1.5 Lessons Learnt 7
1.6 Other surveys of Research Infrastructures 7

2 Organisations and Scientific Domains 8

2.1 Organisation Types of RIs 8
2.2 Breakdown of RIs by host countries 8
2.3 Breakdown of RIs by Domains 9

3 Types of RIs 12

4 Age of RIs 14

4.1 Year of Construction 14
4.2 Year of Last Upgrade 16

5 Costs and Funding 18

5.1 Construction Costs 18
5.2 Yearly Operational Costs 20
5.3 Sources of Funding 22

6 Users 25

6.1 Permanent Scientists 25
6.2 Remote Users 26
6.3 Foreign Users 28
6.4 Industry Users 30

7 Large RIs 32

8 In Summary 34

9 EU-12 Member States 36

9.1 Scientific Domains 36
9.2 Age of RIs 37
9.3 Foreign Users 38

10 Future Developments 39

Annex 1 References to Other Surveys 41

Annex 2 List of Contacted Institutions/Organisations 43

Annex 3 Survey Questionnaire (Paper Version) 49

Annex 4 Further Charts 57

RI Types 57
Age of RIs 58
Construction Costs 59
Yearly Operation Costs 60
Remote Users 61
Foreign Users 62
Industry Users 63

Annex 5 List of Surveyed Research Infrastructures 65

Humanities 65
Social Sciences 68
Environmental, Marine and Earth Sciences (EMES) 69
Energy 74
Biomedical and Life Sciences (BMLS) 75
Nuclear and Particle Physics, Astronomy, Astrophysics (NPPAA) 79
Material Sciences 81
Engineering 84
Computer and data treatment 86

Table of Figures

Figure 2-1: Organisation Types of RIs 8
Figure 2-2: Breakdown of RIs by host Countries 8
Figure 2-3: Breakdown by Domains 9
Figure 3-1: RI Types (All RIs) 12
Figure 3-2: RI Types (Material Sciences and Social Sciences) 12
Figure 3-3: RI Types (All Domains) 13
Figure 4-1: Pattern of RIs Age (All RIs) 14
Figure 4-2: Pattern of RIs Age (NPPAA, BMLS) 14
Figure 4-3: 0-5 Years old RIs (All Domains) 15
Figure 4-4: Upgrades (All Domains) 16
Figure 4-5: 0-5 years Old Construction or Upgrade (All Domains) 17
Figure 5-1: Construction Costs (All Domains) 18
Figure 5-2: Pattern of Construction Costs (All RIs) 19
Figure 5-3: Pattern of Construction Costs (Social Sciences and Material Sciences) 19
Figure 5-4: Construction Costs (All Domains) 20
Figure 5-5: Pattern of Yearly Operational Costs 21
Figure 5-6: Yearly Operational Costs (All Domains) 21
Figure 5-7: Sources of Funding National vs International 22
Figure 5-8: Sources of Funding Public vs Private 23
Figure 5-9: Sources of Funding for Construction (All Domains) 23
Figure 5-10: Sources of Funding for Operation (All Domains) 24
Figure 6-1: Total Minimum Number of Permanent Scientists 25
Figure 6-2: Average Minimum Number of Permanent Scientists 25
Figure 6-3: Patterns of Remote Users 26
Figure 6-4: Remote users (All Domains) 27
Figure 6-5: Patterns of Foreign Users 28
Figure 6-6: Foreign Users (All Domains) 29
Figure 6-7: Patterns of Industry Users 30
Figure 6-8: Industry Users (All Domains) 31
Figure 7-1: Large Facilities in Different Groups of Countries 33
Figure 9-1: EU-12 Domains 36
Figure 9-2: Age of EU-12 RIs 37
Figure 9-3: New and Old EU-12 RIs 37
Figure 9-4: New and Old DE-FR-IT-UK RIs 38
Figure 9-5: EU-12 Foreign Users 38

Glossary

RI: Research Infrastructure

BMLS: Biomedical and Life Sciences

CDT: Computer and Data Treatment

EMES: Environmental, Marine and Earth Sciences

NPPAA: Nuclear and Particle Physics, Astronomy, Astrophysics

EU-12: Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia.

EU-15: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemburg, Netherlands, Portugal, Spain, Sweden, United Kingdom.

Preface

Sustainable growth in Europe depends on many variables. Not the least of these is the pre-requisite for Europe and its countries (both collectively and as a whole) to maintain and develop the capability to create and exploit new technologies, products and services in the context of global competition. Sufficiently exploited, these 'capacities' hold the key to economic growth, competitiveness, health, quality of life, a better environment and the creation of jobs in Europe.

Pan-European Research Infrastructures make a significant contribution to such capacities and an increasing demand, from the scientific community and from industries, for the availability of such facilities and access to them is being observed. Such RIs may range from large single site devices (High power Computers, Synchrotrons, Large telescopes) to collections, data banks and libraries, environmental monitoring systems, or electronic high throughput networks.

The European Commission, the European Heads of Research Councils (EuroHORCs) and the European Science Foundation (ESF) decided in early 2006 to develop a survey of Research Infrastructures of pan-European relevance. The Research Infrastructures unit within DG Research (EC) and ESF therefore joined efforts to make this survey a reality. By providing an up-to-date overview, the survey contributes to the analysis of the European system, the relations among the Research Infrastructures, the science community and the public/private organisations which fund them, as well as their evolution.

Participation in the Survey was on a voluntary basis. The information provided by the 598 validated facilities therefore does not provide a complete picture of the European Research Area, but because the data will be available soon on-line and can be updated, there is hope that a true European database for research services will be able to refine this picture. In addition, there is no doubt that the situation will quickly evolve in an enlarged Europe and with the present stimulation to develop new research infrastructures.

This survey would not have been possible without the support of many colleagues within the Commission as well as within ESF and in particular those individuals who worked hard for more than 18 months. We would like here to thank them for their dedication to this work.

Hervé Péro, Head of the Research Infrastructure unit, DG Research, European Commission

Neil Williams, ESF, Senior Science Officer in the CEO Unit

Executive Summary

§ The Research Infrastructures unit, within DG Research, European Commission (EC), and the European Science Foundation (ESF) jointly conducted a survey of European Research Infrastructures (RI) across all fields of science, from March 2006 to March 2007. This report presents the significant patterns and trends that emerge from the data collected. The analysis also allows to compare the situation of RI by scientific domain and to identify differences in terms of types of infrastructures (single sited or virtual RI), finance sources, update patterns and user communities.

§ Some key results of this survey include identification of the following:

- **Type**: Almost 2/3 of all RI are single-sited, 1/4 of analysed RI are working as distributed facilities and the rest (about 13%) is virtual, i.e. based on digital databases. They range across nine (9) domains: Biomedical and Life Sciences (BMLS), Computer and Data Treatment (CDT), Energy (ENE), Environmental, Marine and Earth Sciences (EMES), Engineering (ENG), Humanities (H), Materials sciences (MS), Nuclear and Particle Physics, Astronomy and Astrophysics (NPPAA), Social Sciences (SS).
- **Age**: In each individual domain, around 60% of the RIs were either built in the last 5 years or, if built earlier, had an upgrade in the last 5 years. Two families stand out: In BMLS, CDT and SS the trend is characterised by the recent construction of new RIs, whereas in MS, NPPAA, ENG, EMES and H the trend is characterised by the upgrade of existing facilities. On the other hand, the ENE domain doesn't seem to have really invested in new RI nor large upgrade during the last five years.
- **Construction costs**: The average construction costs (including recent upgrades) *per* facility amounts to 60 M€. Construction costs vary greatly from domain to domain, but there seems to be a minimum construction cost around 20 M€.
- **Operational Costs**: The most widespread yearly operational cost (including administrative personnel and maintenance) of an RI in each and every domain is located in the 1-10 M€ range, equivalent to about 10% of the construction cost.
- **Sources of funding**: The main sources for construction are national. For operation and use, the weights of international and public-private funding sources are larger.
- **Permanent scientists**: More than 25 500 permanent scientists (lower estimate) are working in the 598 surveyed RIs, which represents typically 40 permanent scientists *per* facility without great variation between domains.
- **Users**: More than 240.000 scientists per year are using these facilities. Altogether most researchers are using the RIs on-site, except for Social Sciences, Humanities and CDT where RI are primarily used remotely. Altogether, surveyed RIs demonstrate a clear international dimension. The analysis shows also that the surveyed facilities attract considerably more basic and academic researchers than industrial ones, except for ENE and ENG where 50% of the RI declare more than 25% of industry users.

§ The analysis also highlights that almost three quarters (3/4) of all large facilities belong to institutions of the 4 large countries (DE-FR-IT-UK). On the other hand, facilities in the EU-12 countries (the newest Member States) represent only 9% of the surveyed population, and tend to be older than in the Western Europe. They do employ many permanent scientists, but there has been little investment into new facilities during the last five years.

§ The analysis given in this report is based on a set of 598 RI, validated as of pan-European interest by ESF. It is expected that the on-line database to be put soon in place will allow a refinement of these analysis in the future.

1 Introduction

1.1 Background and objectives

To develop a strategic approach for Research Infrastructures (RIs) at the European level, comprehensive and up-to-date information about the current pattern of RIs in Europe is essential. In order to analyse the current trends in Europe, the European Commission (EC), the European Heads of Research Councils (EuroHORCs) and the European Science Foundation (ESF) have joined efforts and undertaken a survey of the pan European interest RIs. The participation in the survey was on a voluntary basis, and the information provided by the validated facilities included in the survey does not provide a complete picture of the European Research Area, however it was on the basis of the development of an updatable online database that can help in a near future to refine this scenario.

The overall objective of this survey of European RIs was to identify the current scenario of major RIs in Europe and respective trends and developments. By identifying some key characteristics of the current pattern of RI in Europe, it intends to stimulate the debate about the best possible use of existing RI and about options for their further development. By providing an up-to-date overview, the survey is contributing to the analysis of the European map of current RIs in all fields of science, the relations between the RIs, the science community and the public/private organisations, as well as their possible evolution. The survey provides statistical information about the weight of the RIs, measured in financial terms and population involved in the various disciplines, their uniqueness and openness of access in the European research area, as well as an assessment of the maintenance and replacement effort. In brief, the survey aims to identify and raise awareness of European RIs' needs and importance. It offers a tool for the development of a European policy on RIs.

1.2 Definition of Research Infrastructures

In this survey, the term RIs refers to facilities, resources or services that are needed by the research community to conduct research in any scientific or technological fields. This definition covers, including the associated human resources:

- Major equipment or group(s) of instruments used for research purposes;
- Permanently attached instruments, managed by the facility operator for the benefit of all users;
- Knowledge based-resources such as collections, archives, structured information or systems related to data management, used in scientific research;
- Enabling Information and Communication Technology-based infrastructures such as Grid, computing, software and communications;
- Any other entity of a unique nature that is used for scientific research.

RIs may cover the whole range of scientific and technological fields. They may be "single-sited", "distributed", or "virtual". Examples include singular large-scale research installations, collections, special habitats, libraries, databases, biological archives, clean rooms, integrated arrays of small research installations, high-capacity/high-speed communications networks (e.g. Géant), networks of computing facilities (e.g. Grids), research vessels, satellite and aircraft observation facilities, coastal observatories, telescopes, as well as infrastructural centres of competence which provide a service for the wider research community based on an assembly of techniques and know-how.

1.3 Scope and Method

This survey addresses RIs in operation, or currently in the process of updating, forecasted to be in use in the year 2006, and which are recognised as fundamental for researchers' work in their domains.

For RIs to be included in the survey, the following criteria were applied:

1. Research Infrastructures must provide resources, facilities and services that are essential to the scientific or technological research community.
2. Research Infrastructures should typically have investment, operating or maintenance costs that are relatively high in relation to research costs in their particular field.
3. Research Infrastructures should be open to external researchers, i.e. provide access to conduct research, irrespective of the location of the RI (e.g. through Transnational Access contracts or any other bilateral and/or multilateral agreements).
4. Research Infrastructures should have a clear European dimension and added value, i.e. they should:
    - be considered rare for the specific discipline(s) and be of pan-European interest, relevance and top-level in their respective field and so be considered as "European key infrastructures";
    - allow the performance and development of science at the cutting edge (i.e. by providing the best tools, continuously upgrading them, improvements to services and interface with users);
    - be working in international networks/collaborations;
    - be recognised at international level (even if a national RI) as organisations facilitating excellence in research (including comparisons to Japan and the US);
    - be attractive to, and capable of, receiving external users, by providing adequate scientific, technical and logistic support.

The survey process went through the following phases.

<u>The initial submission phase</u>: March-April 2006 (EC)

The survey was based on an online questionnaire built by EC with the Commission Online Survey Tool IPM (Interactive Policy Making, see the questionnaire in Annex 3). The electronic link to this questionnaire together with an invitation to respond to it was sent by EC on 1 March 2006 to 368 addressees, with 18 April 2006 as the initial deadline. Institutions contacted at this stage included FP6 contractors, as well as important national research institutions/organizations, and individual RIs suggested by ESF and EuroHORCS. Annex 2 displays the list of institutions contacted through this initial mailing[1]. National Contact Points and members of the Programme Committee were informed.

Participation in the survey was on a voluntary basis.

<u>The validation phase</u>: May-December 2006 (ESF)

Starting May 2006, the submitted responses went through a validation process conducted by ESF Scientific Standing Committees to ensure their scientific quality and relevance. This process aimed at both removing the non-relevant entries from the initial data set according to the above-mentioned criteria and identifying missing relevant infrastructures that should be added. The validation phase lasted until early December 2006.

<u>The second submission phase</u>: November 2006 - February 2007 (EC)

The additional RIs nominated by ESF in November and December 2006 were individually invited by EC to respond to the survey in order to complete the initial data set. The response rate varies between 55% and 90% depending on the scientific domain. This report presents an analysis of all the validated entries received up to 7 March 2007.

<u>The categorization of RIs</u>: January 2007 (EC)

The list of validated RIs was broken down by specific RI categories whose list was jointly established by EC and ESF. RI categories are such that there are typically 5 to 15 RIs in each of them, these numbers being no exclusive limits of any kind. Categories were then grouped into the 9 following scientific domains:

- Humanities
- Social Sciences
- Environmental, Earth and Marine Sciences (EMES)
- Energy (including nuclear research energy)
- Biomedical and Life Sciences (BMLS)
- Material Sciences
- Nuclear and Particle Physics, Astronomy, Astrophysics (NPPAA)
- Engineering
- Computer and data treatment (CDT)

[1] Note that the number of institutions is slightly smaller than the number of addressees contacted since some addressees belong to the same institution.

This grouping of RIs by main scientific domains forms the basis of the analysis shown below. In order to facilitate comparability, these domains were chosen basically to correspond to those of the ESFRI Roadmap, with the addition of Engineering as a separate category and the separation of Social Sciences and Humanities into two categories.

Analysis of the database: February – early March 2007 (EC)

By 7 March 2007 EC had received altogether 783 responses from RIs in all the above-mentioned scientific domains. Among them, 598 were validated and included in the database.

Publication of the database

The list of 598 RIs on which this analysis is based can be found in annex 5. It is organized by scientific domains and, within each domain, by RI categories. The data for each validated RI will be available in the online database at

www.ec.europa.eu/research/infrastructures

Limitations intrinsic to the method

This report displays an analysis of the set of RIs that have responded to the survey and been validated by EC and ESF. This is obviously only a subset of the whole ensemble of RIs of pan-European interest. In this report, any statement made on RIs is made only on the RIs that are included in the survey.

Participation in the survey was not equally high in all different scientific domains, as explained in detail in section 2.3. The data set underlying this survey will be continuously enhanced following the current survey by allowing RI to add their data to an online database. Future analyses of the database taking into account the new entries will be done regularly. As more and more institutions become aware of their role as research infrastructures providing services to users, we expect that coverage will clearly improve including in the domains that were less well covered by the current survey.

It must also be noted that this report is based on what RIs declared in their respective responses to the survey questionnaire displayed in Annex 3. There was no possibility to check the exactness of the data submitted beyond a general plausibility check.

In spite of the intrinsic limitations of such a survey, this is probably the most comprehensive analysis of the trends within the European RIs landscape covering all fields of science that is available to the scientific research and policy communities.

1.4 Relation to ESFRI

This analysis can be used to complement the work which has been done for the ESFRI Roadmap: the survey represents part of "the present", i.e. a tool for the assessment of the existing infrastructures, while the roadmap represents "the future", i.e. an instrument for identifying new RIs of pan-European interest. Future revisions of the ESFRI Roadmap might take into account information provided by the survey and the future online database that will be set up (see section 10). In that sense, the survey is an element of the reflection on the future of European RIs.

1.5 Lessons Learnt

This survey started with a definition of "RI" applicable across all fields of science and aimed at illustrating the concept of RI, through examples and through summary statistical information. This definition, however, had to be translated into the context of the different scientific fields. In that sense, the survey is not a simple gathering of data from a pre-existing and well-defined list of RIs in Europe. It is in itself a process that helps better define the concept of RI in each scientific field. In other words, the concept of RI in the different fields is taking shape while its different examples are being surveyed.

This survey has managed to identify a large set of RI from all fields, and has made it possible to extract key data characterizing RI in different scientific domains. This partial inventory is substantial enough to allow statistical data to be gathered and meaningful statements to be made despite the heterogeneity of RIs. Significant patterns and trends emerge from the data collected that are worth further consideration. The reader might find it useful to think of the contours of the European RI landscape sketched in this survey as a 17th century map of America: the basic shape and elements are there and will then be refined as supplementary information from missing RIs is progressively provided.

This set of RI can also be used to address further statistical questions, and can at the same time be the basis for a more complete inventory of European RI. To be successful, this completion should be pursued in a very systematic way, notably by considering the different RI categories separately and by identifying possible new relevant categories.

There are more and more communities which start finding it useful to think about their facilities in terms of RI. As the concept of RI gains more wide recognition, a new survey could be launched. However, considering the effort required to fill in the questionnaire, it is more appropriate to allow for a continuous growth of the database rather than wishing to restart the process from scratch in regular intervals.

That is why, beyond the first objective of providing a broad overview of RIs in Europe, the production of a first public database of existing European RIs across all fields of science is a major milestone achieved through this survey. This database will be made available to policy-makers and to scientists seeking access opportunities. It should be allowed to expand and be updated via an online procedure for submission/validation/addition of missing RIs and for the update of already available data (see section 10).

1.6 Other surveys of Research Infrastructures

There are a number of other surveys and databases of RIs that have been compiled in the recent past. Examples can be found in Annex 1. Most of them cover a particular scientific domain often in more detail. There is a high degree of compatibility between results obtained in those more focussed surveys and those obtained in the present European survey.

2 Organisations and Scientific Domains

2.1 Organisation Types of RIs

Six categories of organisation were proposed to the respondents. The latter sometimes used several categories to describe themselves, so that categories overlap and their respective shares sum up to more than 100%.

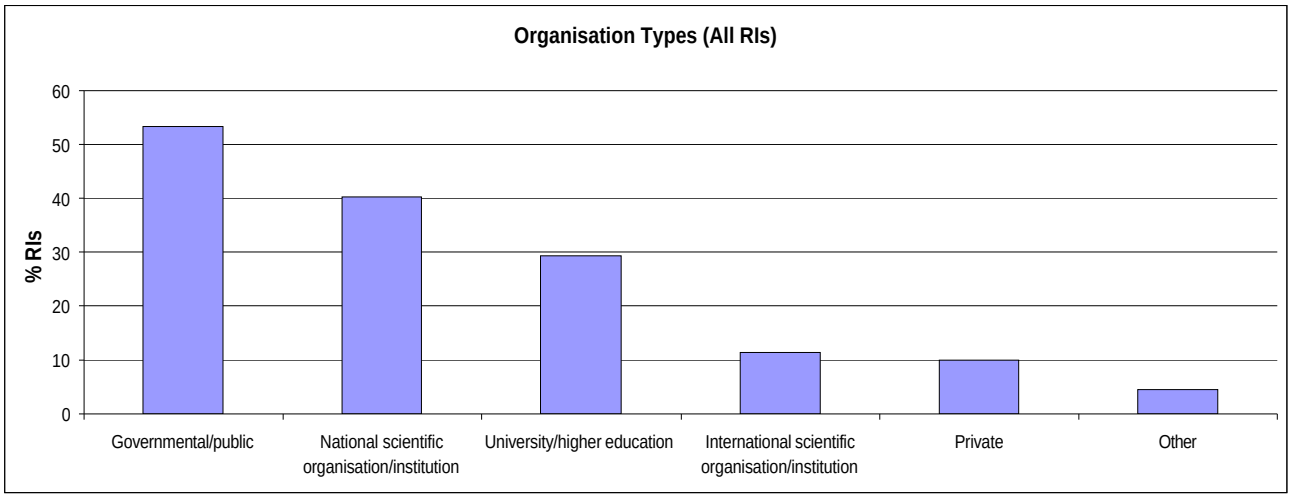


Figure 2-1: Organisation Types of RIs[2]

The majority of RIs (53%) is Governmental/public. 40% describe themselves as national scientific organisations, 29% as universities, and 11% as international scientific organisations. 10% of responding RIs are a private (possibly alongside with governmental/public) organisation type and less than 4% mention other organisation types such as foundations, libraries, museums, non-profit organisations, public/private companies.

2.2 Breakdown of RIs by host countries

.

Figure 2-2 shows that around 80% of the considered RIs are located in the EU-15 countries, 50% out of these being located in the 4 largest EU countries: FR, DE, UK, and IT.

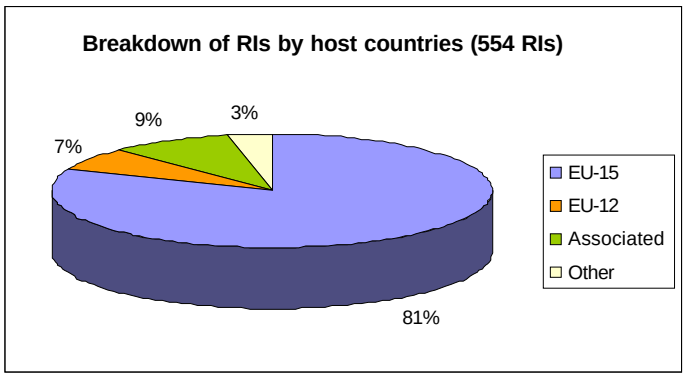


Figure 2-2: Breakdown of RIs by host Countries[3]

[2] The bars sum up to more than 100% due to a number of mixed organisation types.

[3] Other: RI location in third countries (Chile, Antarctica, Namibia, Georgia, Lebanon, USA, Australia, Japan) or in several European countries (CH/FR, NO/ES, AT/Central and Eastern Europe)

2.3 Breakdown of RIs by Domains

The number of RIs varies from domain to domain for two main reasons: (i) the real number of RIs in Europe is not the same in the 9 listed domains; (ii) the response rates of RIs differ in the different domains. For this second reason, Figure 2-3 describes how the responding and validated RIs break down into the 9 identified scientific domains.

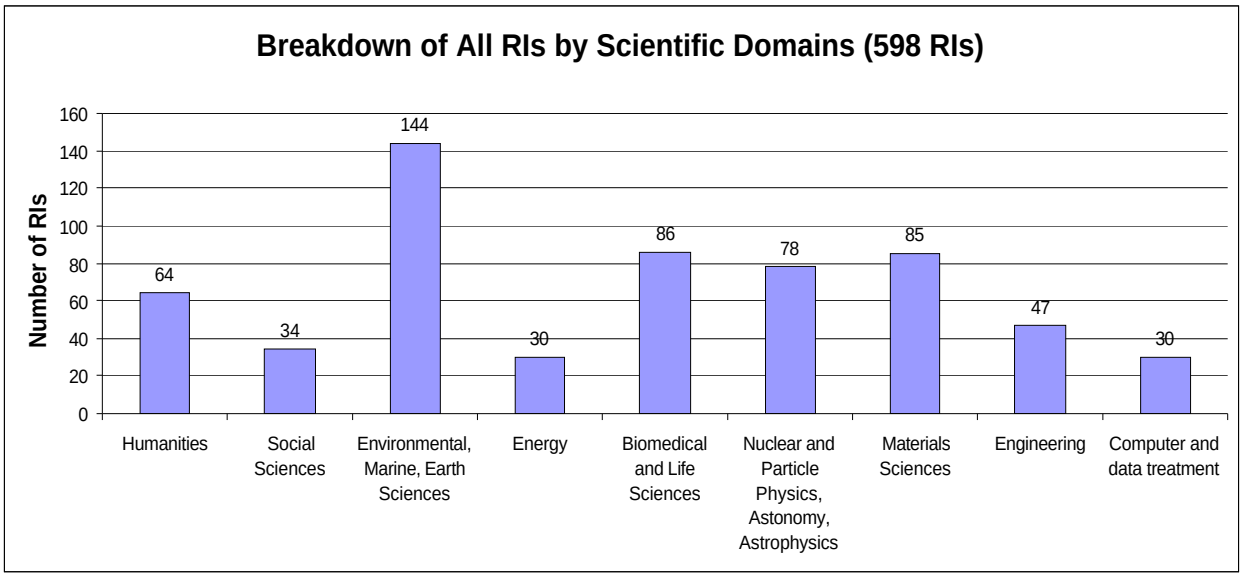


Figure 2-3: Breakdown by Domains

It is possible to qualitatively comment on the extent to which these domains are individually covered.

First, there is no doubt that the concept of RI is best defined and widespread in physics (Nuclear and Particle Physics, Astronomy, Astrophysics or NPPAA; Material Sciences). Scientific communities in these domains have long been organised and structured around RIs. The exercise itself of surveying these RIs to better understand their trends and needs, and to establish relevant strategies for their development, upgrade and construction is regularly performed (CERN Council "The European Strategy", IUPAP Brochure 2006, OECD Global Science Forum, see Annex 1). The list of RIs of this survey in these domains, when compared to other surveys in physics (Annex 1), shows that the latter are reasonably well covered.

The very large number of responses in Environmental, Marine and Earth Sciences (EMES) hints at the relatively large interest in the survey in these domains. A large number of these respondents were engaged in FP6 Trans-national Access contracts with EC. This certainly reflects a real aspiration to structure and organize the growing network of RIs in these fields. In this domain also one finds that each RI category has several important representatives in the survey.

Environment, Marine and Earth Sciences, Social Sciences and the North

The number of Scandinavian RIs in EMES is striking: The overall share of these countries in the survey is about 14%, but this share reaches more than 22% within EMES. In the same respect, the share of EMES RIs reaches almost 39% in the Scandinavian group of countries, whereas EMES RIs only represent less than 25% of all RIs. There is a clear predominance of EMES RIs in this group of four countries.

The overall share of Scandinavian RIs in the survey is about 26%, but it reaches more than 50% within Social Sciences alone. The share of Social Sciences RIs reaches almost 34% in this group of five countries, whereas Social Sciences RIs only represent 17% of all RIs.

The concept of RI is possibly not yet so widely developed in Biomedical and Life Sciences (BMLS). The definition of what is an RI in this domain turns out to be more difficult to establish. The identification of RIs and their delimitation are often less clear. As a matter of fact, we find that: (i) the number of submissions in this domain is smaller than expected; (ii) a number of RI categories do not have any (or obviously too few) representative(s) in the survey; (iii) it appeared more difficult to establish a list of important RIs to contact individually for the second submission phase. As a consequence, this domain is certainly less well covered than the first four mentioned above.

As to the Humanities and Social Sciences, the concept of RI is relatively new. Until recently, these research fields were rarely considered in the world of "RIs". The ESFRI Roadmap[4] is one of the first documents on RIs to include them together with Physics and other "hard sciences". As shown in section 3, a significant number of Humanities and Social Sciences RIs are virtual and linked to recent technological developments, which might also explain the recent character of the reflection on RIs in these domains. ESF's Standing Committee for the Humanities (SCH) clearly puts it: "[SCH] supports the idea that European-level RIs are necessary tools for Humanities scholars to create, share and access new knowledge in the European Research Area and beyond"[5] . The idea of trans-nationalising research structures also is not obvious in the Humanities and needs to be upheld, as expressed by SCH: "The innovative potential of trans-nationalising RIs is of prime importance for the Humanities where much research is still defined as part of national cultural traditions and hence in national languages"[6]. Since the idea of RI itself is new in these domains, it was necessary to decide and agree on the types of structures that should be considered as RI to be included in the survey. A long list of RI categories was established by SCH. The latter also nominated few examples of RIs in Europe for each of these categories. This considerably helps to structure the landscape of RIs in the Humanities at the European level. It must be mentioned that few of the contacted libraries and museums explicitly answered that they did not consider themselves as RI. Few others found that some questions of the survey questionnaire were not relevant to them and that the questionnaire was certainly better tailored to classical, hard sciences RIs than to RIs in the Humanities. The number of institutions that can be defined as RIs for the Humanities is very large. The list of RIs identified in the Humanities domain should not be considered as a complete list of the most important RIs in this field. It should be considered as "the first step, aimed at encouraging the right kind of submissions to what needs to be a continuously updated database"[7]. The survey therefore covers a limited part of the RIs in this field. However, the set of categories itself can be considered as a core list.

[4] http://cordis.europa.eu/esfri/
[5] *Report on the EC-ESF-EuroHORCS survey on RIs*, SCH, November 2006, p3, personnel communication
[6] Ibid.
[7] Ibid, p 12.

Two domains are less represented: Engineering and Energy. In Energy the number of submissions was very limited and almost half of the Energy entries are those of the different CEA reactors and sites in Cadarache and Saclay. All results concerning Energy in this report must therefore be interpreted with great caution. This uneven participation might also well reflect the respective roles played by RIs in the different scientific communities. The manner in which RIs are identified and perceived conditions the way this community organizes and structures its networks of RIs.

The survey delivers nevertheless some important findings. Although the list of RIs in each domain is not complete, the sample obtained does show certain trends that characterize the RIs in this domain and differentiate it from the others. That is what is shown in sections 3 to 7. These sections focus on the following characteristics of RIs in the different thematic domains:

§ Users
  - permanent scientists
  - foreign
  - industrial
  - remote

§ Years in operation and upgrades

§ Type (single-sited, distributed, virtual)

§ Costs (construction, operation)

§ Sources of funding (construction, operation)

The trends shown in the following sections are robust; they are not affected by the fact that the set of RIs that supported the analysis in each domain is only a subset of the entire set of RIs in this domain.

3 Types of RIs

RIs may be of three different types: single-sited, distributed and virtual. Some respondents mentioned a combination of two or even three types. Figure 3-1 is obtained when considering the most decentralised type (i.e virtual, distributed, single-sited in this order) mentioned by a given respondent. For instance, a "single-sited and virtual" RI is considered to be a virtual RI in the graph below. Indeed, the latter aims at showing the share of RIs that offer any virtual access or service, even if such an RI may also offer additional or complementary services on site. In the same manner, for RIs declared as "single-sited and distributed", the distributed character is retained, even if there might be a prevailing centre that also justifies in the eyes of the respondent the "single-sited" character of the RI.

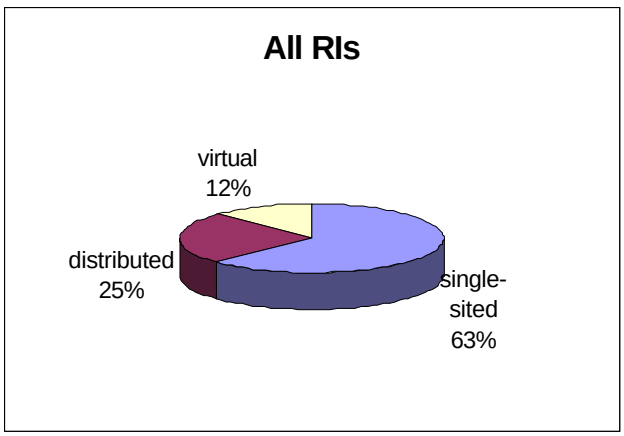


Figure 3-1: RI Types (All RIs)

Almost two thirds of the RIs are pure single-sited RIs and a quarter are distributed (Figure 3-1). There is of course a variation between the different domains (Figure 3-2, Figure 3-3). As expected, the greatest share of virtual RIs is to be found in Social Sciences, whereas RIs in Material Sciences offer services almost exclusively on a single site (Figure 3-3). Unsurprisingly, the greatest share of distributed RIs is to be found in Environmental, Marine and Earth Sciences (Figure 3-3 and Annex 4). The individual charts of the other domains are shown in Annex 4.

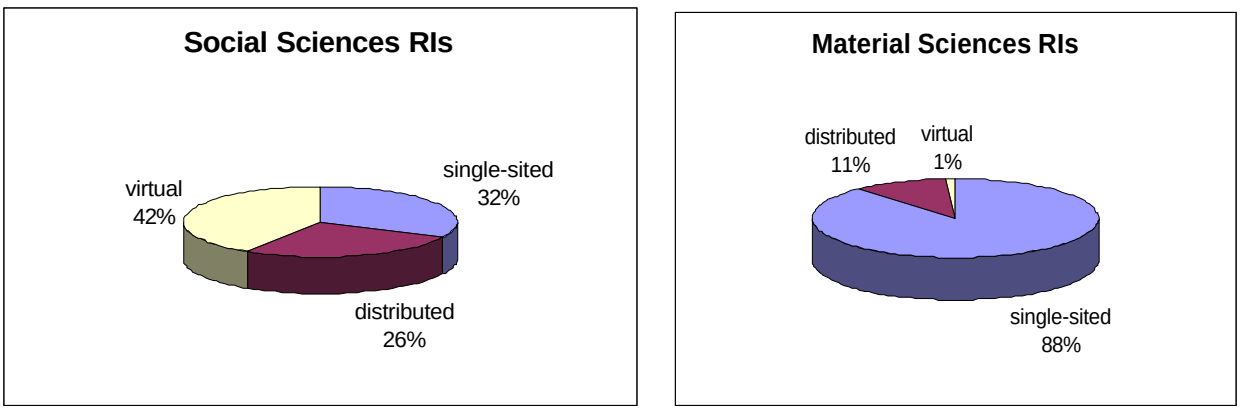


Figure 3-2: RI Types (Material Sciences and Social Sciences)

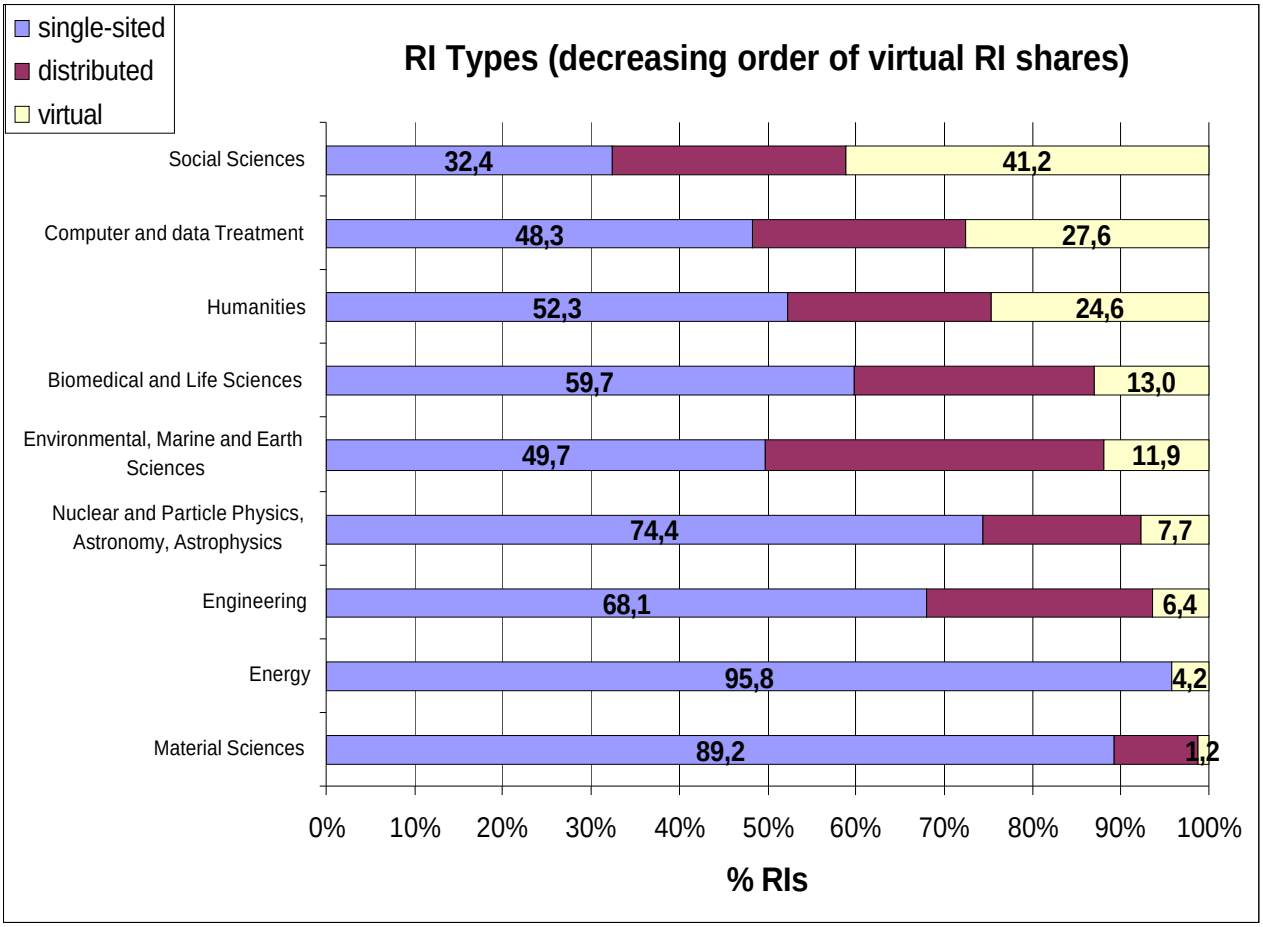


Figure 3-3: RI Types (All Domains)

4 Age of RIs

4.1 Year of Construction

Slightly more than one third of RIs in the survey are more than 25 years old and 20% have been in operation for less than 5 years. The median (which divides the population of 598 RIs into two groups of the same size) is located in the 16-20 years band.

According to this figure, the general trend is that **the number of new RIs has increased over the past 25 years**, each new 5-year period having more RIs than the immediately preceding one (except that "11-15 years" is slightly above "6-10 years"). In particular the construction of RIs seems to have substantially increased in the last 5 years, since the respective shares of RIs of the four 5-year periods immediately preceding are in the range [8%-15%].

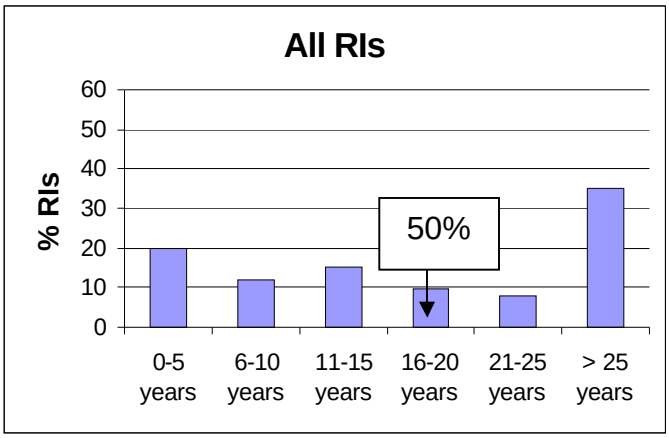


Figure 4-1: Pattern of RIs Age (All RIs)

Here again, scientific domains largely differ from each other. NPPAA RIs are the oldest RIs: more than 50% are more than 25 years old (Figure 4-2). Astronomy for example is often referred to as the word's oldest sciences and various infrastructures were constructed several years ago. Yet it is still evolving at an enormous speed as improved infrastructures are bringing new discoveries in those fields.

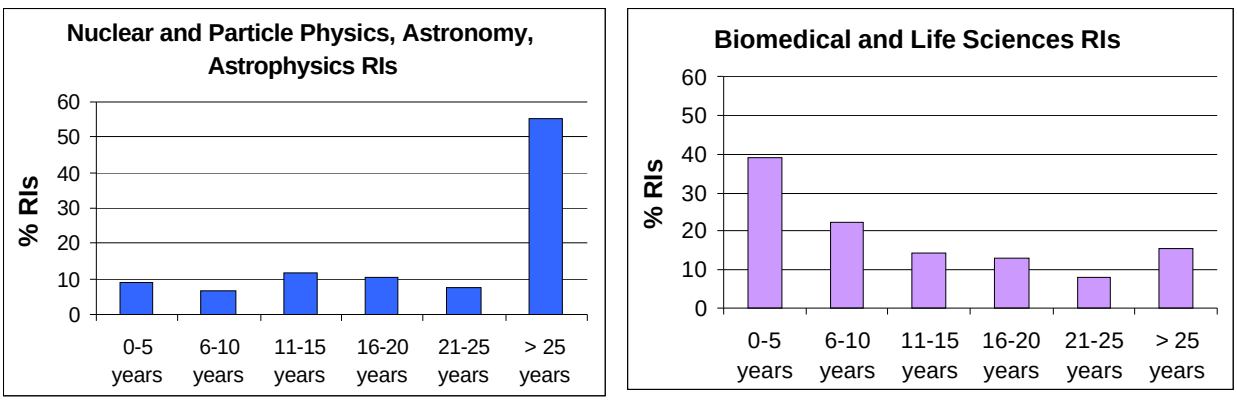


Figure 4-2: Pattern of RIs Age (NPPAA, BMLS)

RIs in BMLS were definitely built later, and especially in the last five years. In this domain, 0-5 year old RIs are 2,5 times more numerous than > 25 years old RIs (39% vs 15,5%). This finding is all the more striking because the range 0 to 5 years covers a much smaller period than the "> 25 years" range. In addition the number of RIs built in BMLS has constantly been increasing over the last 25 years, especially in the last 10 years (Figure 4-2). Quite new techniques and technologies, as well as new important discoveries, for example in the field of genomics, have taken these sciences to a different and more important level of research.

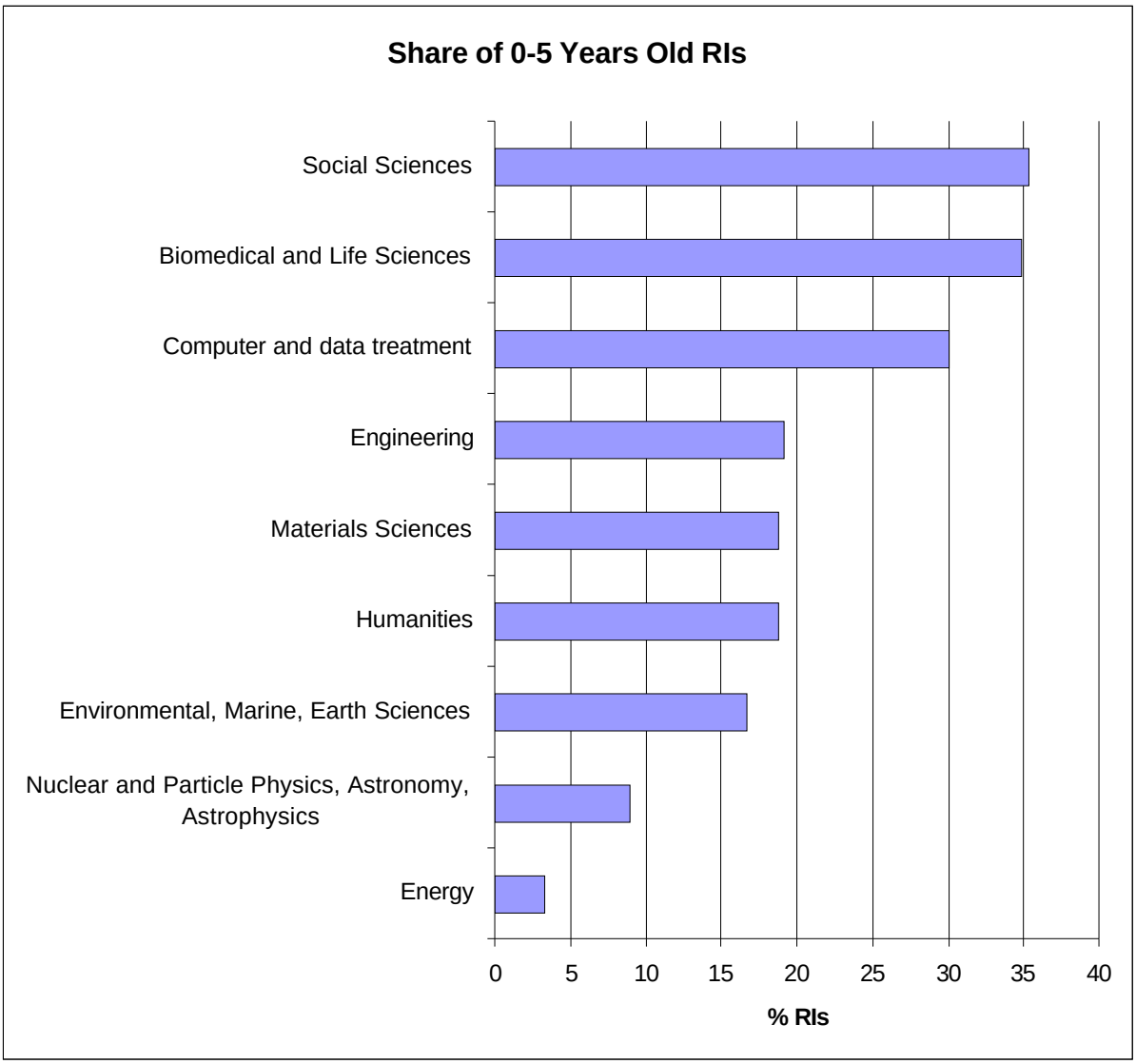


Figure 4-3: 0-5 Years old RIs (All Domains)

BMLS, together with Social Sciences, is in fact the domain that has the greatest share of 0-5 years old RIs (35%, Figure 4-3). They are further followed by Computer and data treatment (27,6%). Removing Mathematics Centres from this domain increases its share of 0-5 years old RI to 40%, i.e above BMLS. Thus Figure 4-3 clearly shows that these three domains have been undergoing a wave of construction over the last years, whereas this wave took place earlier in NPPAA and the other domains.

4.2 Year of Last Upgrade

The year of construction of an RI is only part of the picture. Upgrades are of major importance to keep any RI at the top of scientific and technological developments. In Physics in particular, a great majority of RIs were built several decades ago but many have been continuously upgraded since then. The scale of these RIs imposes long lifetimes. For these facilities, if the date of construction is interesting from a historical point of view, the date of the last upgrade is more relevant from the scientific and technical point of view. Last upgrades are the focus of the next two charts. It must however be noted that the scope and extent of the upgrades reported by the facilities are not taken into account in the following figures: any last upgrade mentioned by a facility was counted as such.

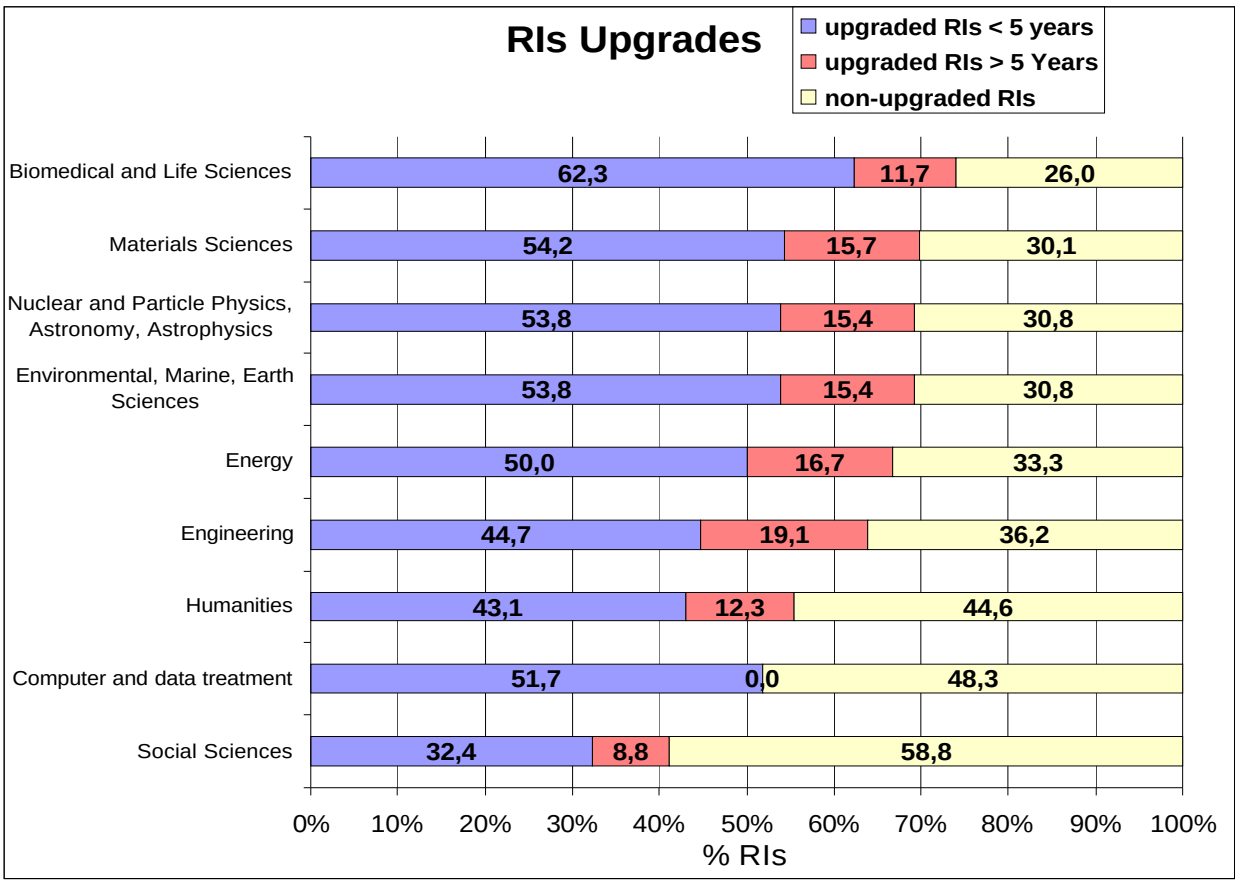


Figure 4-4: Upgrades (All Domains)

BMLS RIs have the highest reported rate of upgrade in the last 5 years: 62%.

For Material Sciences, NPPAA, EMES, Energy, and CDT, the rates of reported upgrades in the last 5 years are very similar (50-54% of RIs in these domains, Figure 4-4); so are the rates of older upgrades (15-17%, except CDT). In these domains, 30-33% of RIs did not report any upgrade (48% for CDT).

Upgrades in Engineering are a bit older (19% of RIs with an upgrade >5 years) (Figure 4-4). RIs in Humanities, Energy, CDT and above all Social Sciences report much less often an upgrade (only 41% of Social Sciences RIs).

More precisely 51% of the >25 years old RIs in NPPAA do report an upgrade in the last 5 years and 67% in the last 10 years (not shown). This means that a majority of "old" RIs in this domain are duly upgraded and have therefore to be considered as "new" RIs as well. Altogether 60% of NPPAA RIS were either built in the last 5 years or, if built earlier, had an upgrade in the last 5 years (Figure 4-5). Similarly, one finds that 54% of the more than 5 years old RIs in EMES report an update in the last 5 years. Altogether 62% of the EMES RIs were either built in the last 5 years or, if built earlier, had an upgrade in the last 5 years.

In fact, Figure 4-5 clearly shows that when the number of recent upgrades (<5 years) of more than 5 years old RIs are added to the number of RIs built in the last 5 years, domains look similar: in each individual domain (except Energy), around 60% of the RIs were either built in the last 5 years or, if built earlier, had an upgrade in the last 5 years. More precisely this proportion of new or newly upgraded RIs varies from 53% in the Humanities to 70% in BMLS. This shows a reassuring homogeneity across disciplines concerning the level of update of their respective facilities.

Otherwise stated Figure 4-5 shows two different kinds of RI development. In Social Sciences, BMLS and CDT the current update of the facilities is assured to a great extent by the recent construction of new RIs, whereas in Material Sciences, NPPAA, Engineering, EMES and the Humanities the current update is rather maintained by upgrading existing facilities.

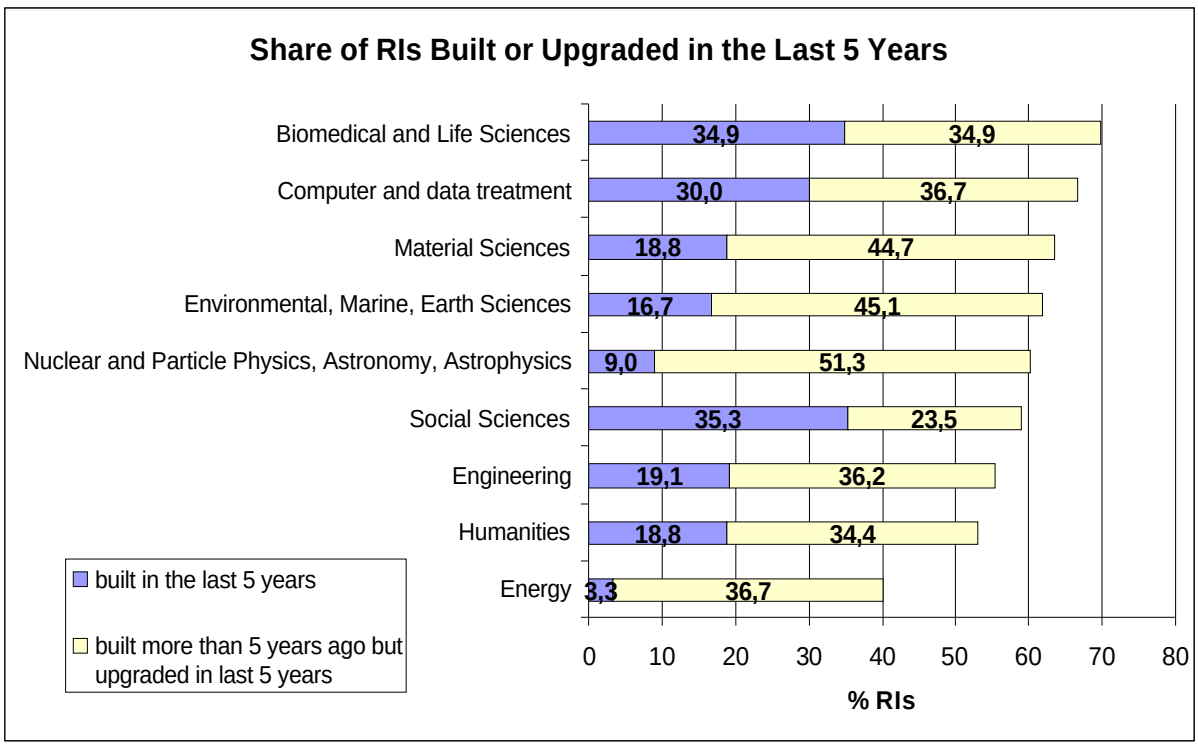


Figure 4-5: 0-5 years Old Construction or Upgrade (All Domains)

Interestingly enough, BMLS cumulates both a high share of less than 5 years old RIs and a high rate of less than 5 years old upgrades (Figure 4-3 and Figure 4-4). In fact 60% of the 0-5 years old RIs do report already an upgrade in their short existence. These early upgrades of new RIs might also be considered in some cases as a continuation of the creation and setting up of these RIs.

5 Costs and Funding

5.1 Construction Costs

Construction costs vary greatly between scientific domains. Figure 5-1 was obtained by summing the minimum construction costs indicated by the respondents in one domain divided by the number of RIs in this domain. This gives a rough idea of the average minimum construction cost of an RI in each domain. It must be noted that respondents were invited to include recent upgrades in their estimate of the construction costs.

When considering all domains at once, this average minimum costs amounts to approximately 60 M€ per facility. As expected, NPPAA and Material Sciences have higher construction costs than this global average: according to this gross estimation the construction cost of a facility in these two domains is on average about one third higher (around 80 M€, Figure 5-1).

Unsurprisingly, Social Sciences RIs cost much less than the all domains average (three times less, 22 M€). Likewise, BMLS RIs require relatively small initial investments (26 M€). All CDT RIs report construction costs smaller than 50 M€, except one.

The figures in the other domains are less surprising than one would think at first sight. As specified above, almost one half of the few Energy RIs are Nuclear Energy research facilities (in particular CEA reactors), some of them being very costly, hence a very high average minimum investment *per* facility in this domain.

RIs in the Humanities are of mixed nature: (i) some are huge and venerable institutions with high construction costs like museums, libraries and archives; (ii) others are on the contrary virtual, new and light, with much smaller initial investment, very much like the Social Sciences RIs. The relatively high average construction cost *per* RI in the Humanities is naturally due to this first class of RIs.

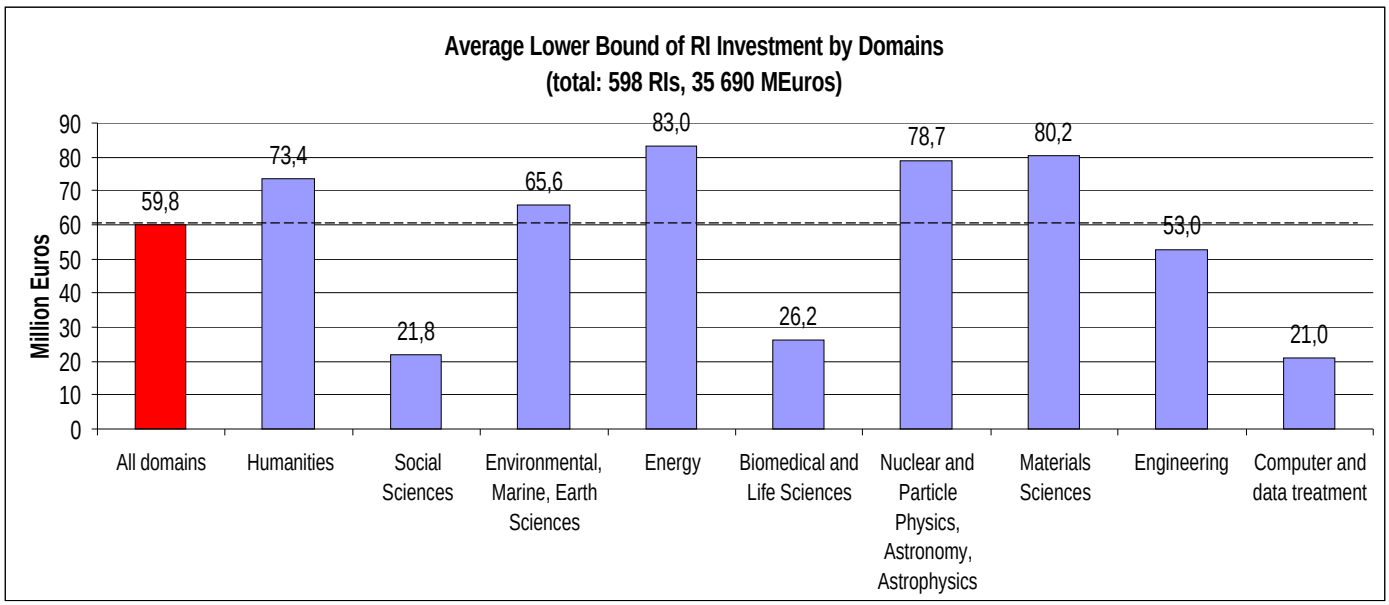


Figure 5-1: Construction Costs (All Domains)

Figure 5-2 and Figure 5-3 display the construction costs pattern for all RIs and for two domains significantly deviating from this overall pattern (see Annex 4 for the charts of the other domains).

The majority of RIs in the survey are of small to medium size for their construction: 51% of them have construction costs below 20 M€ and only 5,2% of RIs have a construction cost greater than 500 M€. It is interesting to compare this finding with the estimated average cost of an RI in the ESFRI Roadmap: 440 M€ (15 billion Euros for 34 RIs).

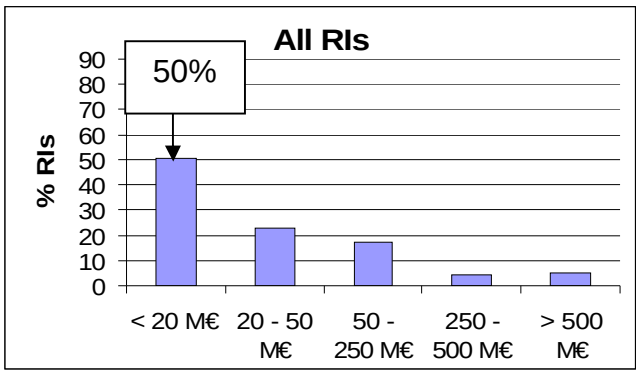
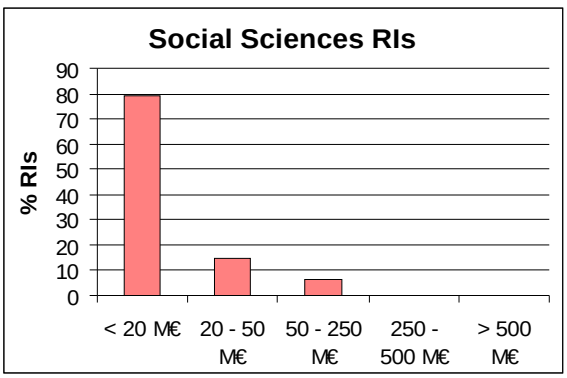


Figure 5-2: Pattern of Construction Costs (All RIs)

In Social Sciences, the proportion of <20 M€ reaches 80%, consistently with the electronic nature of most of these RIs which service through the Internet, such as databases, surveys, portals.

At the opposite, the construction cost pattern of Material Sciences RIs is largely shifted to the right and more distributed across all ranges of costs. About 15% of Material Sciences RIs declare construction costs greater than 250 M€, almost one third are in the 20-50 M€.



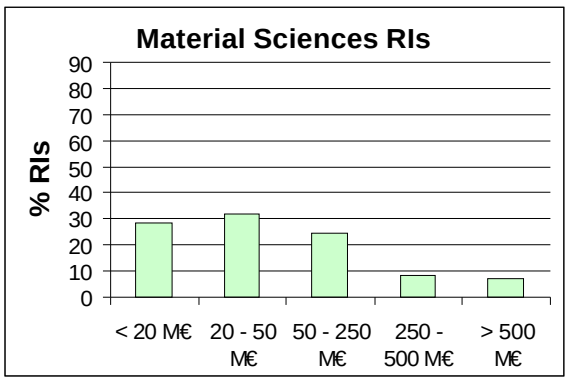


Figure 5-3: Pattern of Construction Costs (Social Sciences and Material Sciences)

Figure 5-4 compares the share of RIs with construction costs higher than 50 M€ in the different domains (sum of last 3 bars of Figure 5-3 for each domain). The variation is great between domains: This share ranges from 3% (CDT) to 46% (NPPAA; for Energy just below, see the comments made above on Figure 4-5). This Figure complements and confirms the ranking of domains in terms of construction costs found in Figure 5-1.

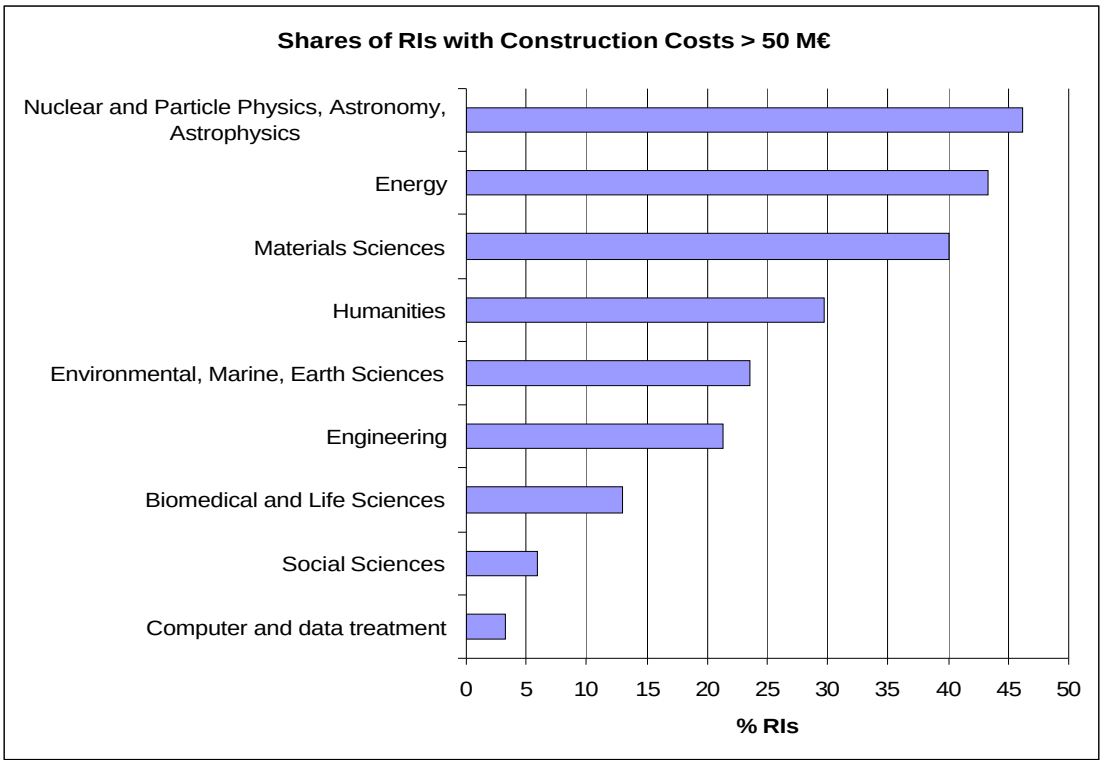


Figure 5-4: Construction Costs (All Domains)

5.2 Yearly Operational Costs

Since upgrade costs had to be considered by the respondents as construction costs, they are in principle not part of the operational costs presented here.

Strikingly enough, the most widespread yearly operational cost of an RI in each and every domain is located in the 1-10 M€ range, except in Engineering (see below for comments on this exception) and BMLS where the range 0.25-1 M€ is slightly more frequent (37,6% versus 34,1% respectively, Figure 5-5). Altogether, variations between domains are not as marked for operational costs as they are for construction costs. As a consequence the ratio operation costs over construction costs tend to be higher for RIs with smaller construction costs.

In Engineering the most frequent yearly operational cost is not 1-10 M€ but <0.25 M€ (see Annex 4). This finding may probably be linked to the strong presence of EU-12 countries and Turkey in this domain (23% of Engineering RIs located in EU-12+Turkey whereas the share of these countries' RIs amounts to only 11% overall).

As a matter of fact the share of RIs with operational costs greater than 10 M€ does not vary dramatically across domains (compare the abscissa scales of Figure 5-4 and Figure 5-6), although there are some differences: this share ranges from 3% (Social Sciences) to 28% (Material Sciences), four domains, Energy, Engineering, Humanities and NPPAA, having a very similar share of high operational costs (18 to 21% of RIs in these domains).

The under-estimate of the average construction cost *per* facility being 60 M€ (section 5.1) and the most frequent operational cost being in the range 1-10 M€, a reasonable order of magnitude for the ratio operation/construction is 1 to 10 overall, consistently with the rule of thumb generally used. Naturally this ratio greatly varies from RI to RI.

Figure 5-5: Pattern of Yearly Operational Costs

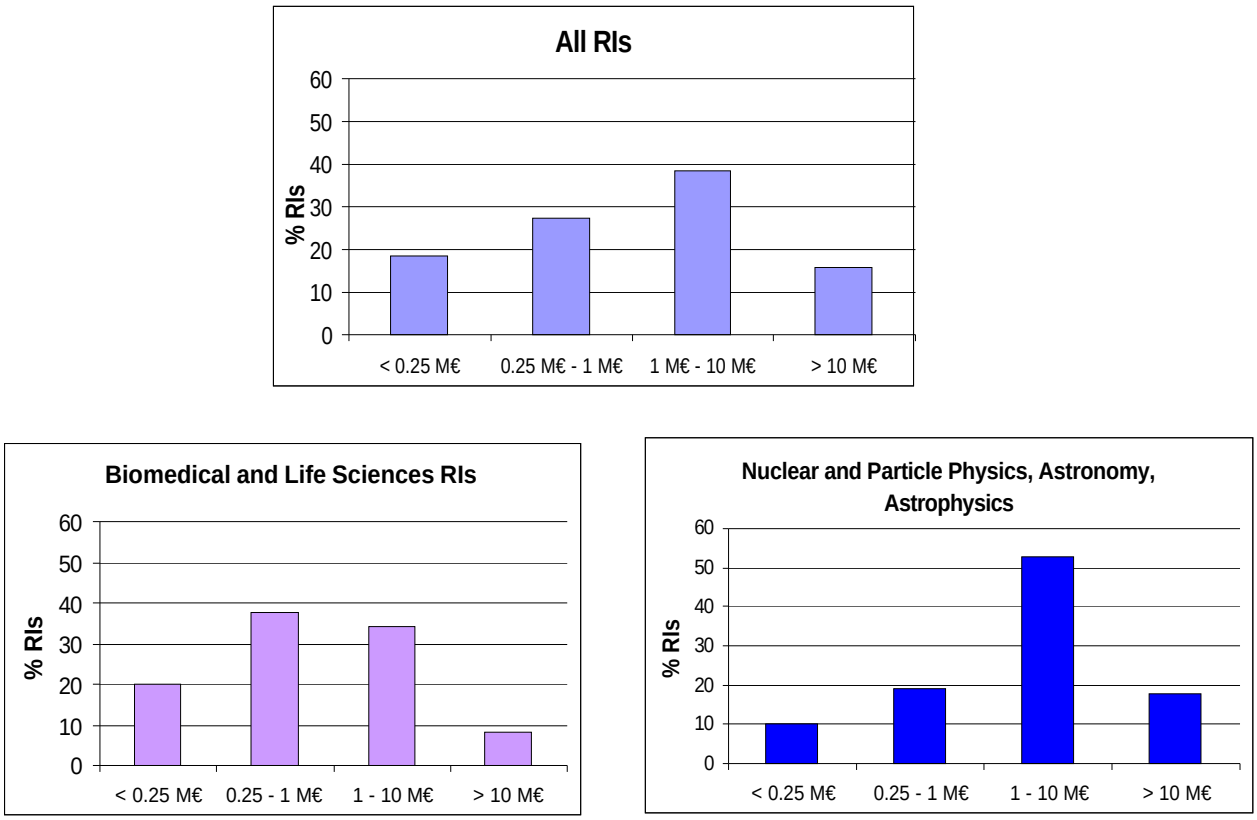
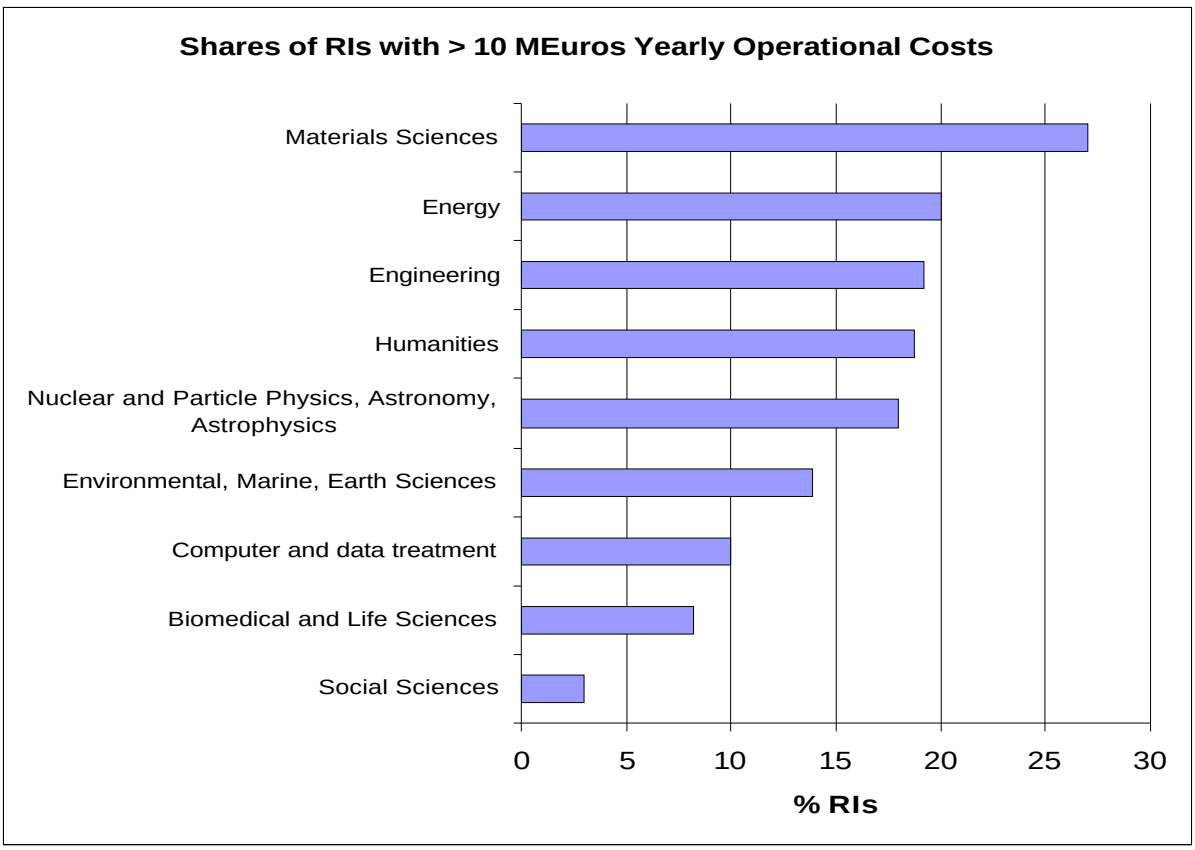


Figure 5-6: Yearly Operational Costs (All Domains)



5.3 Sources of Funding

As expected, the survey shows that the construction of existing facilities has been supported mainly by national funding (Figure 5-7). Figure 5-7 also shows that the use of international funding is much more usual for the operation of RIs than for their construction.

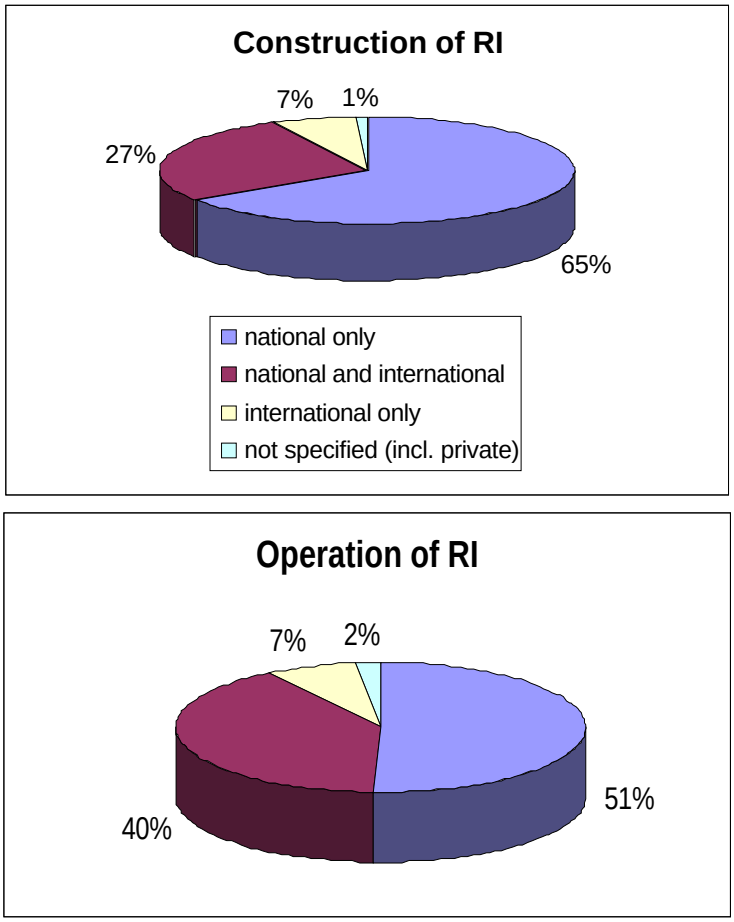


Figure 5-7: Sources of Funding National vs International

Similar observations can be done for public *versus* private funding of RIs (Figure 5-8): (i) a large majority of RIs were built with public funding only; (ii) the use of public-private and private funding is greater for operation than for construction.

Since the most usual source of funding is national and public, it is interesting to compare domains through the weights of their international and public-private funding. Figure 5-9 shows that more than half of the NPPAA RIs mention international funding for their *construction*, whereas hardly more than 10% of them mention public-private funding. Slightly less than 40% of BMLS RIs declare international funding as one of their funding sources for construction. A similar proportion mentions public-private funding. For construction, the share of RIs with international sources of funding is the smallest in Humanities and in Social Sciences (respectively 25% and 18%).

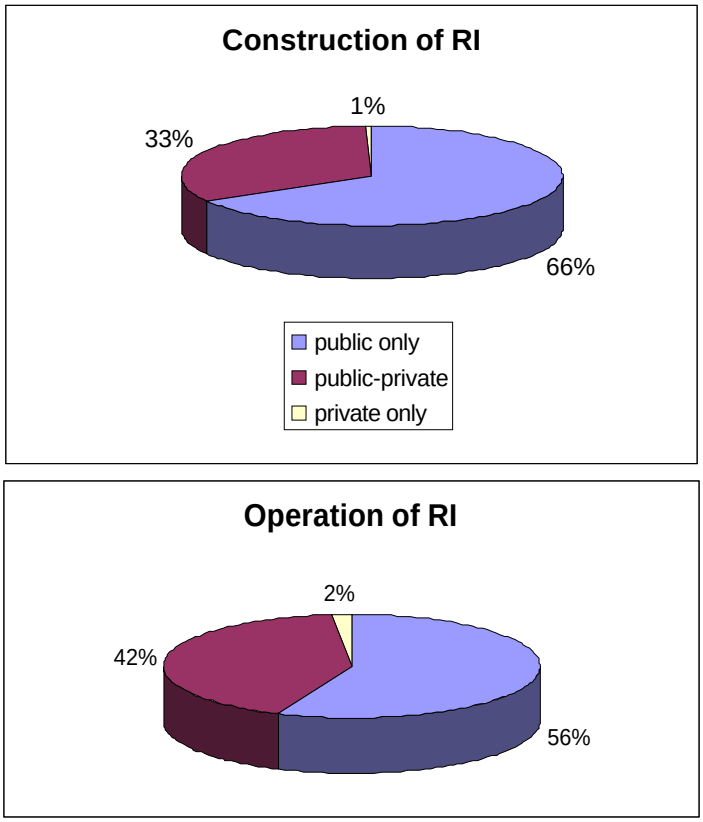


Figure 5-8: Sources of Funding Public vs Private

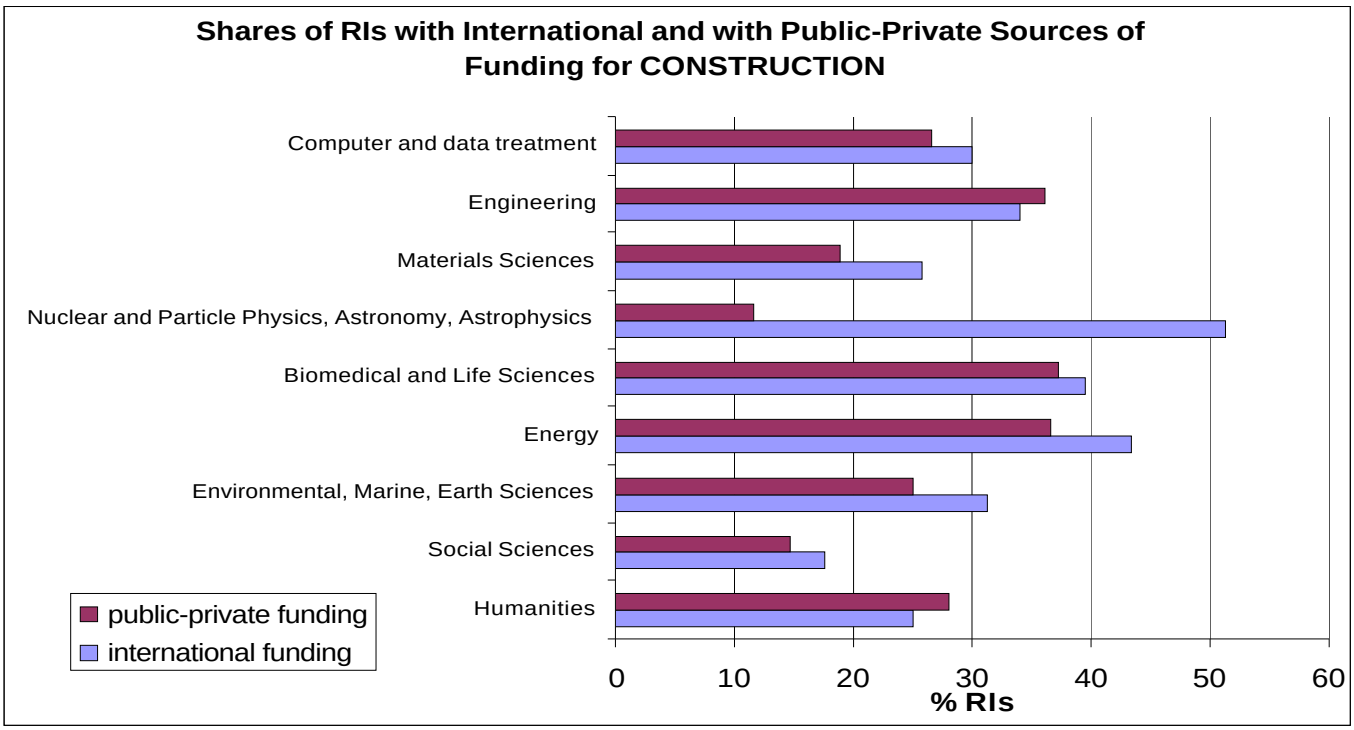


Figure 5-9: Sources of Funding for Construction (All Domains)[8]

[8] In this graph, sources of funding are not mutually exclusive. The red bars represent the shares of RIs mentioning an international source of funding, possibly alongside with national source of funding. The same is true for public-private sources of funding that may be mentioned together with pure public or pure private sources.

Concerning funding of RI *operation* (Figure 5-10), Energy is the most international. In NPPAA, Material Sciences, BMLS, and EMES, around half of the RIs report international sources of funding for their operation. Social Sciences and Humanities have the smallest shares of RIs with international funding. It is also worth noticing that 80% of Energy RIs and almost 50% of Engineering and BMLS RIs report public-private funding.

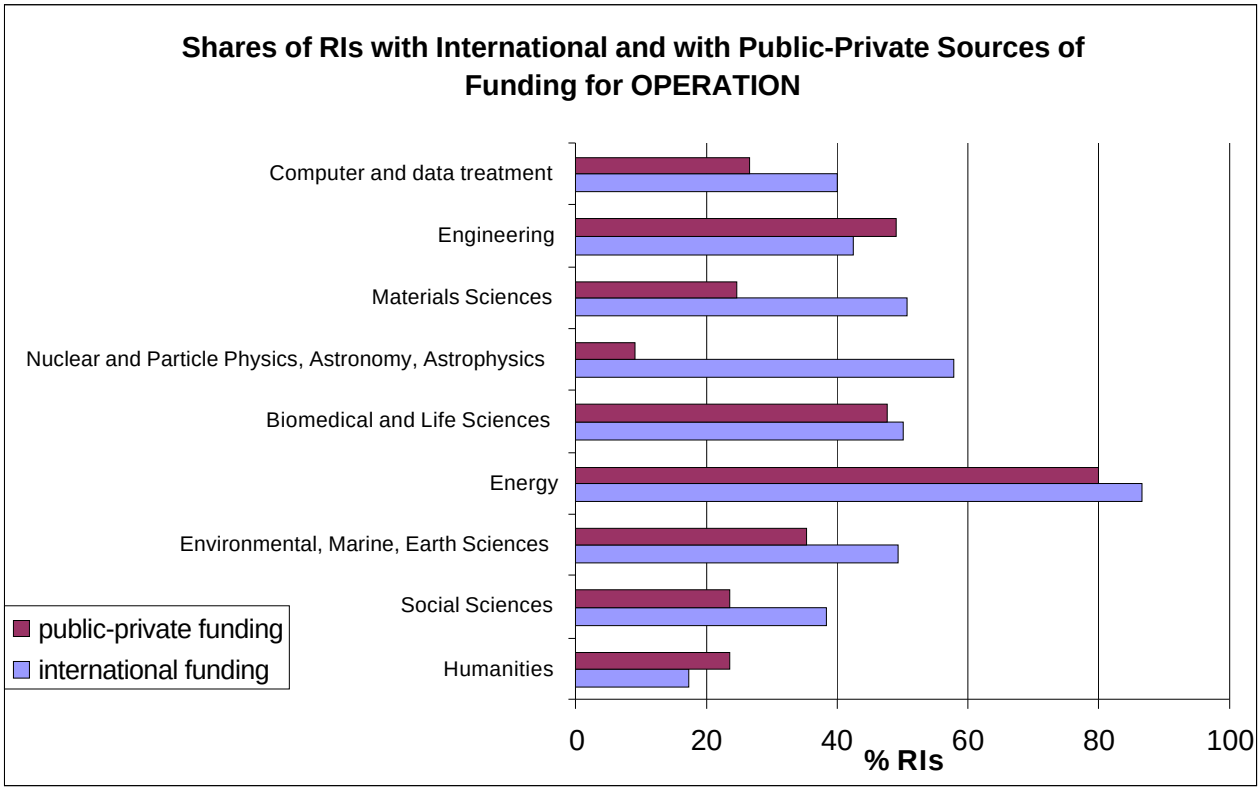


Figure 5-10: Sources of Funding for Operation (All Domains)[9]

The smaller share of RIs with international funding both for operation and construction in Social Sciences and Humanities is not surprising given the national traditions of research in these domains where a significant part of it is produced in national languages.

[9] The comment made in note 8 also holds for this figure.

6 Users

6.1 Permanent Scientists

Figure 6-1 was obtained by summing the minimum numbers of permanent scientists indicated by the respondents in one domain. This gives a rough lower estimate of the population of permanent researchers in the surveyed RIs in each domain. Altogether more than 25 500 scientists are working permanently in these facilities. This estimate does not take into account possible personnel's overlaps between several RIs within a common owning institution. More than 146 700 external users have access to the surveyed RIs[10]. The overall pattern of Figure 6-1 is very similar to that of Figure 2-3 displaying the number of RIs *per* domain. This means that the average minimum number of permanent scientists *per* RI does not vary much across domains. Figure 6-2 indeed shows this number is typically about 40 permanent scientists *per* facility, with a peak to 54 for Material Sciences and a minimum of 27 in Social Sciences

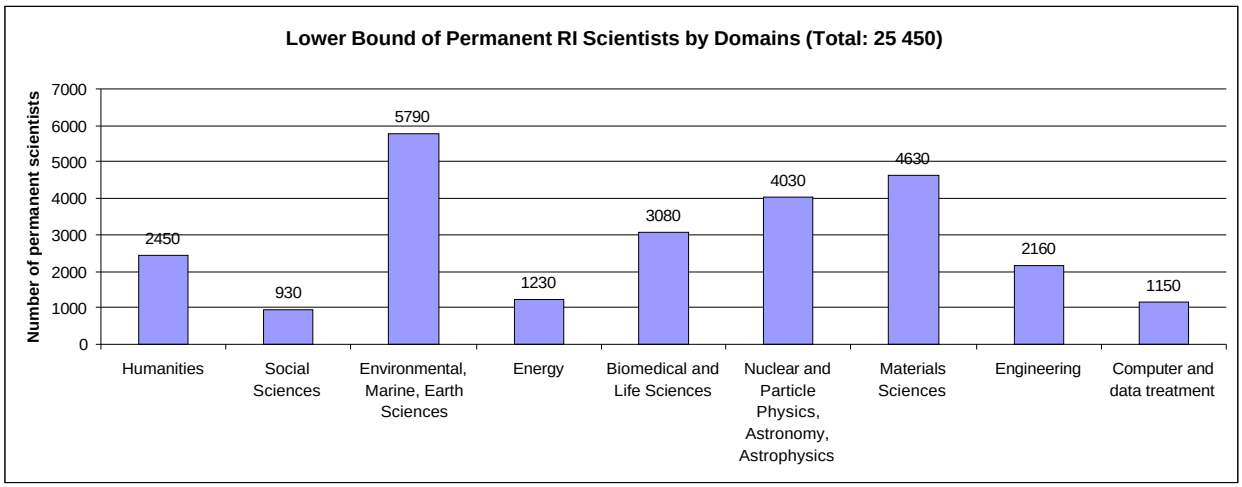


Figure 6-1: Total Minimum Number of Permanent Scientists

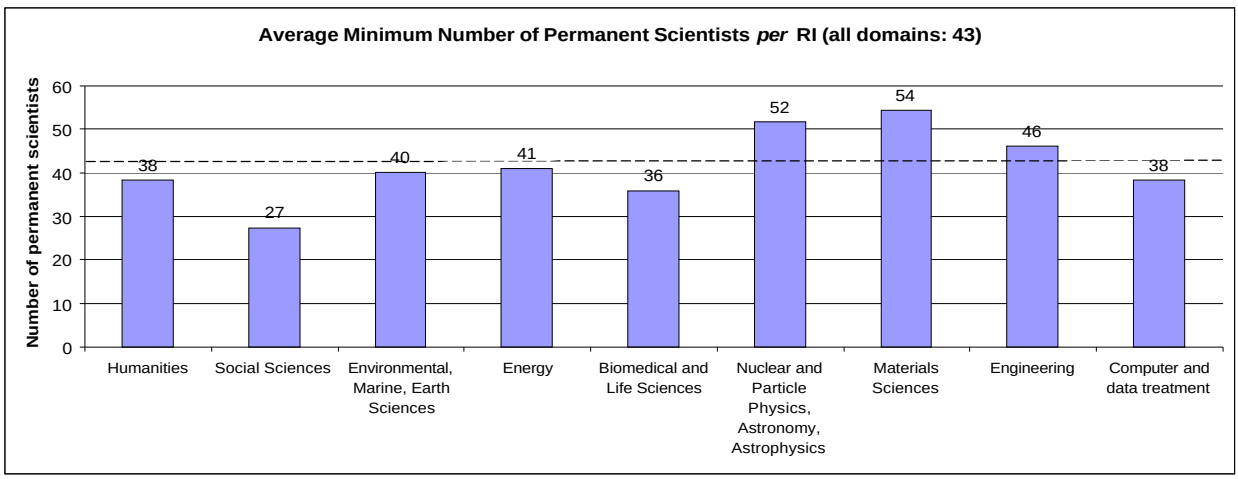


Figure 6-2: Average Minimum Number of Permanent Scientists

[10] This figure was obtained by summing the minimum numbers of users indicated by the respondents.

6.2 Remote Users

Remote users benefit from the services offered by an RI without being physically present on the actual site of this RI. This includes users of electronic services and resources offered by the RI, as well as users sending their samples to be analyzed in the facility without moving themselves to this facility.

Most users of the surveyed facilities are using the facility on-site: about 60% of all RIs report 0 or less than 10% of remote users (Figure 6-3 top). RIs in Material Sciences in particular have very few remote users (Figure 6-3 middle). At the opposite, Social Sciences and Humanities RIs are primarily used remotely (Figure 6-3 bottom and Figure 6-4). These not surprising findings must be viewed alongside the respective shares of virtual RIs in these domains (Figure 3-3).

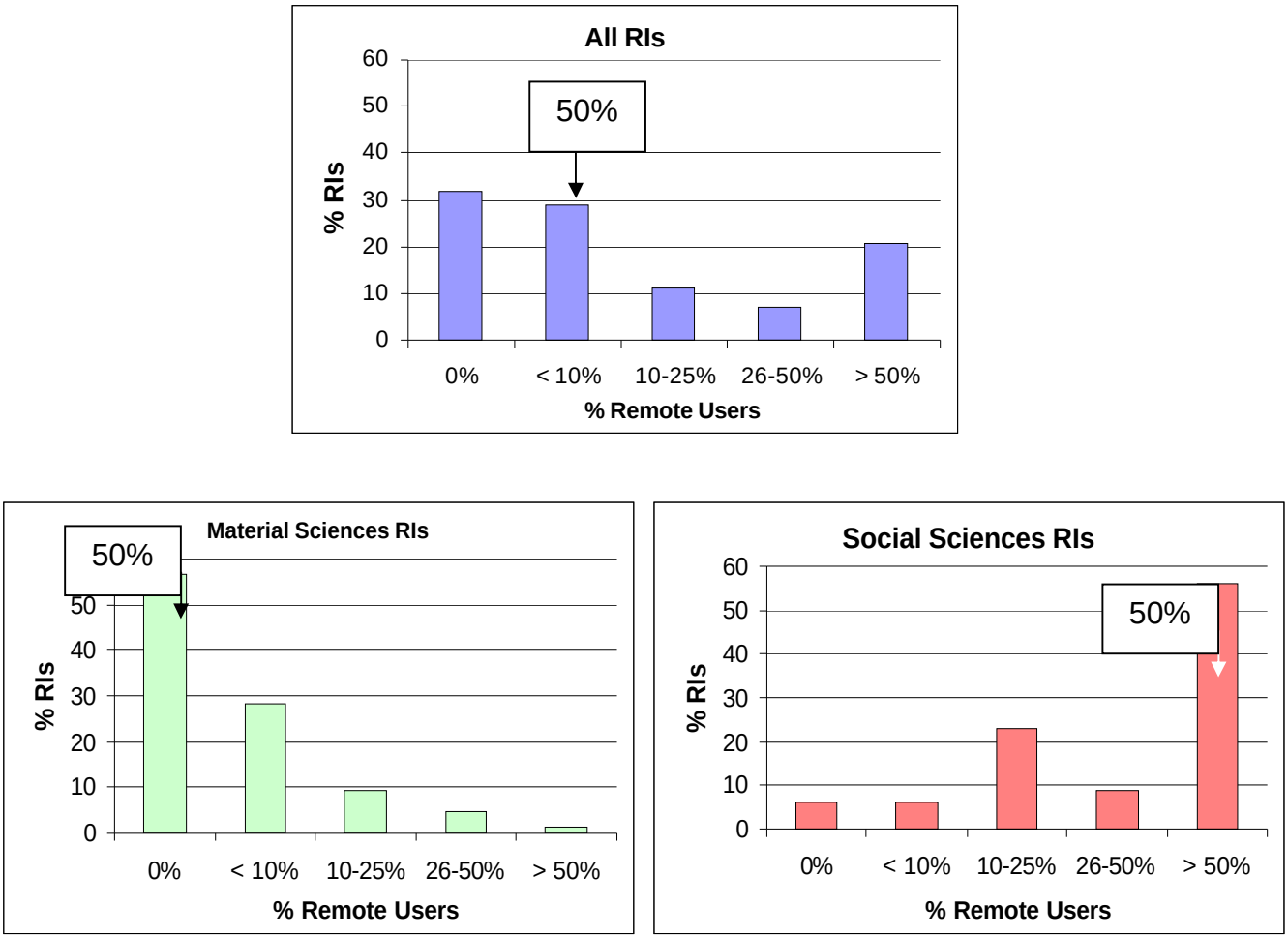


Figure 6-3: Patterns of Remote Users

To compare all domains in one chart, the share of RIs reporting more than 50% remote users is given for each domain in Figure 6-4. Such RIs are very few in Physics (Material Sciences, Engineering, Energy and NPPAA); they are more numerous in EMES and BMLS (16% and 18,6% of the RIs in these domains); they are the majority in Humanities and Social Sciences.

The lower than expected share (46,7%) of RIs with >50% remote users in CDT is explained by the presence of Mathematics centres in this domain: this share reaches 60%, i.e. first position, when removing the Mathematics centres from CDT.

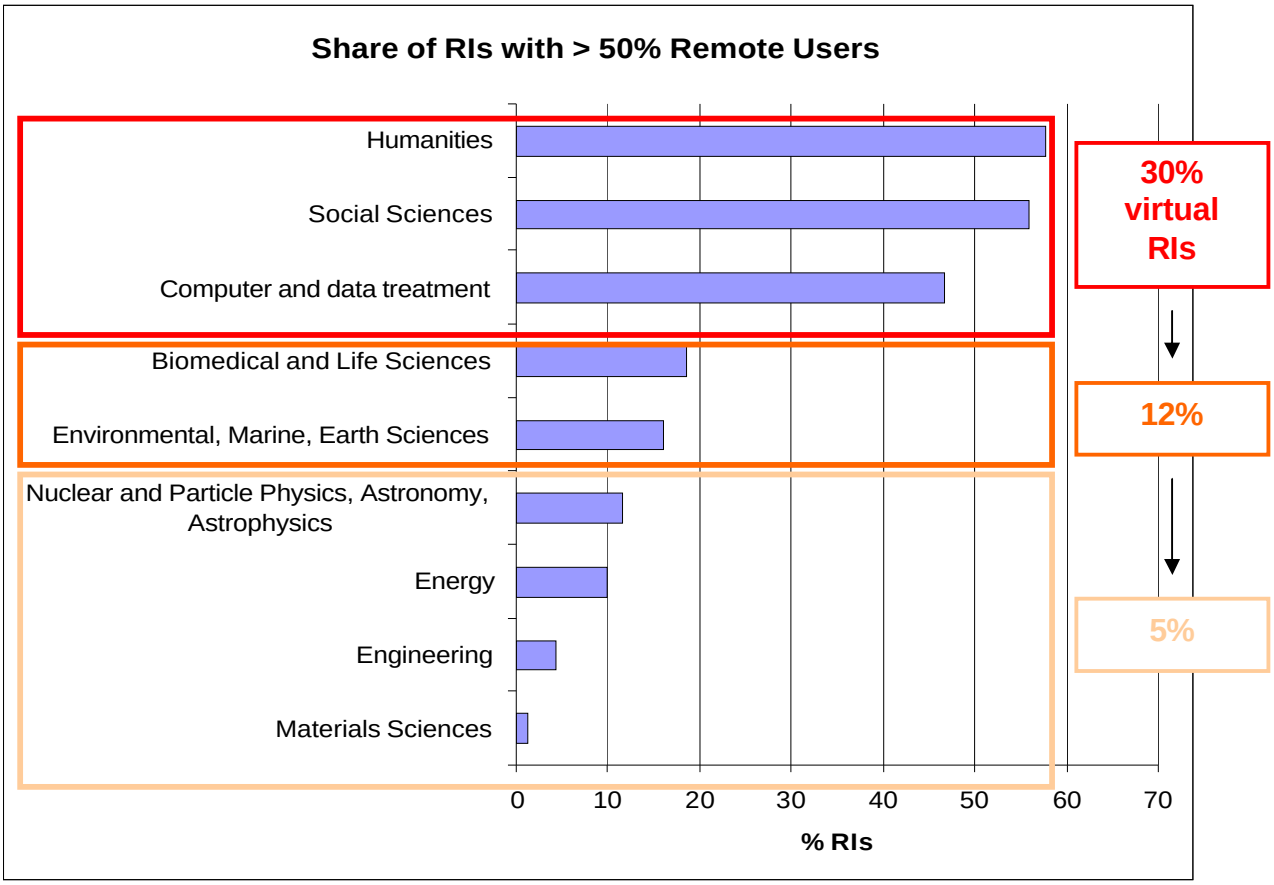


Figure 6-4: Remote users (All Domains)

6.3 Foreign Users

Foreign users are individual users from other countries than the country where the RI is located, however, most users of the surveyed facilities are national users, i.e. users whose nationality is that of the country hosting the facility: about 32% of all RIs report having more than 50% foreign users (Figure 6-5 top).

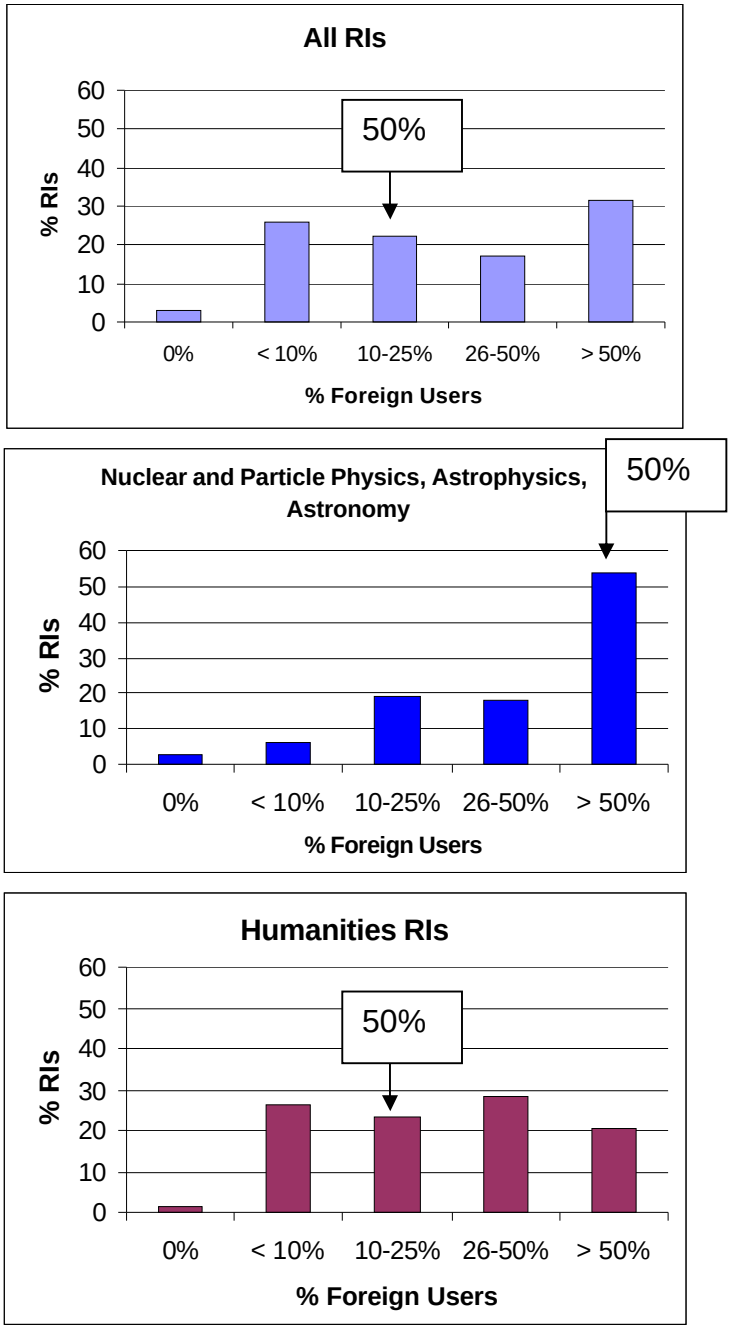


Figure 6-5: Patterns of Foreign Users

Two domains stand out: NPPAA RIs are the most international and Humanities RIs the least (Figure 6-5 middle and bottom). 54% of NPPAA RIs have more than 50% foreign users, which means that foreign users clearly dominate in this field; construction and operation of such RIs are very high. In Humanities only 20%are used for foreigners. The high share of foreign users in NPPAA is to be seen alongside the important weight of international sources of funding for operation.

The lower share of foreign users in the Humanities RIs is not surprising since there are strong national research traditions in the Humanities where much research is produced in national languages. This finding has also to be viewed along with the smaller share of RIs with international funding in the Humanities (section 5.3).

However, Figure 6-5 also shows that Humanities foreign users do form a significant part of Humanities RIs' users too: 52% of Humanities RIs declare between 10 and 50% foreign users. This finding is in accordance with the fourth criterion for inclusion in the survey (see section 1.3) which requires a clear European dimension and international recognition. The share of foreign users is obviously a major sign of the international dimension of an RI.

The shares of RIs reporting >50% foreign users are similar in all other domains (Figure 6-6). These shares range from 23% to 34%. All domains are grouped around the average share of 32% mentioned above. These domains therefore do not really differ from each other on that point. Very few RIs (3%) report 0% foreign users whereas more than 71% declare having more than 10% foreign users. RIs in the survey thus demonstrate a clear international dimension.

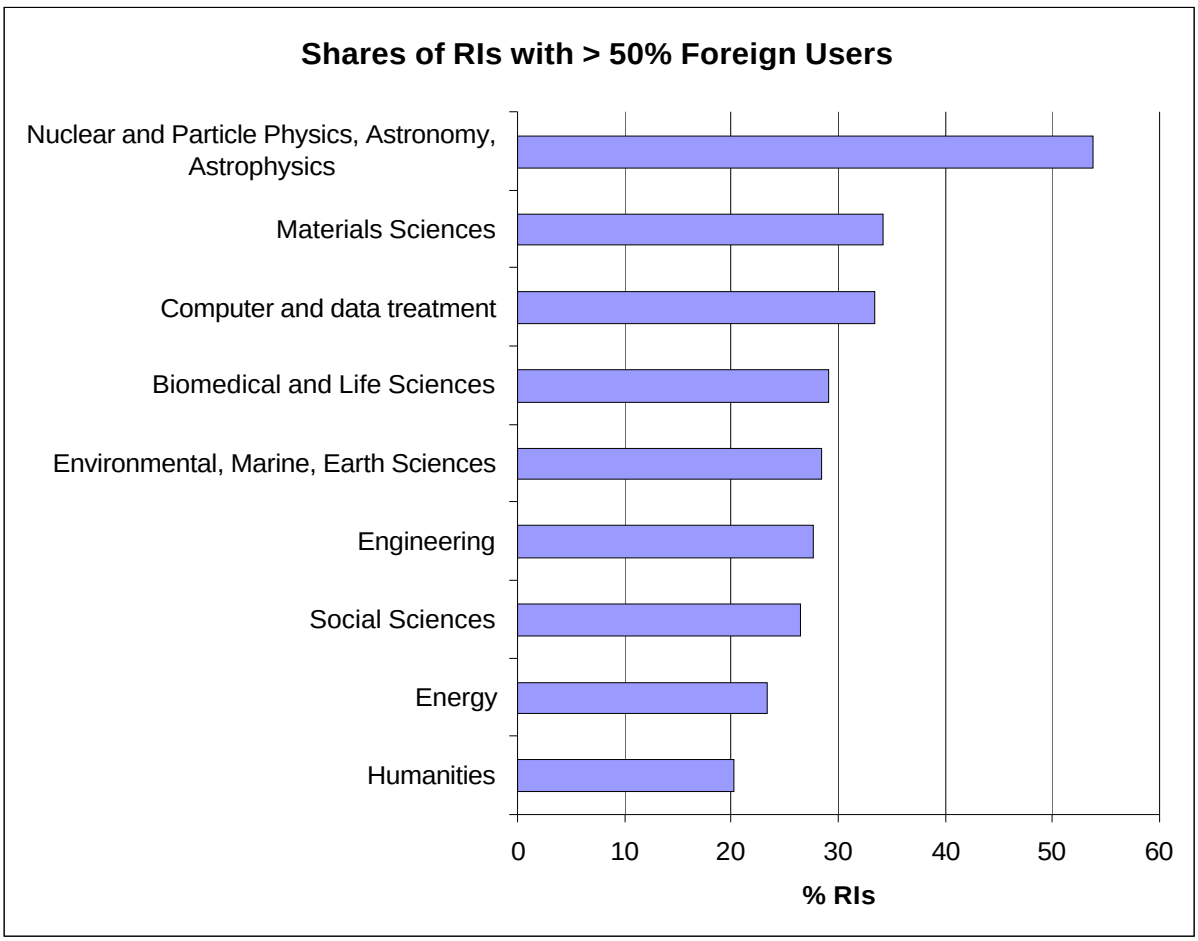


Figure 6-6: Foreign Users (All Domains)

6.4 Industry Users

The surveyed facilities are attracting more basic and academic researchers than industrial ones: 71% of all RIs have 0 or less than 10% industry users (
Figure 6-7 top).

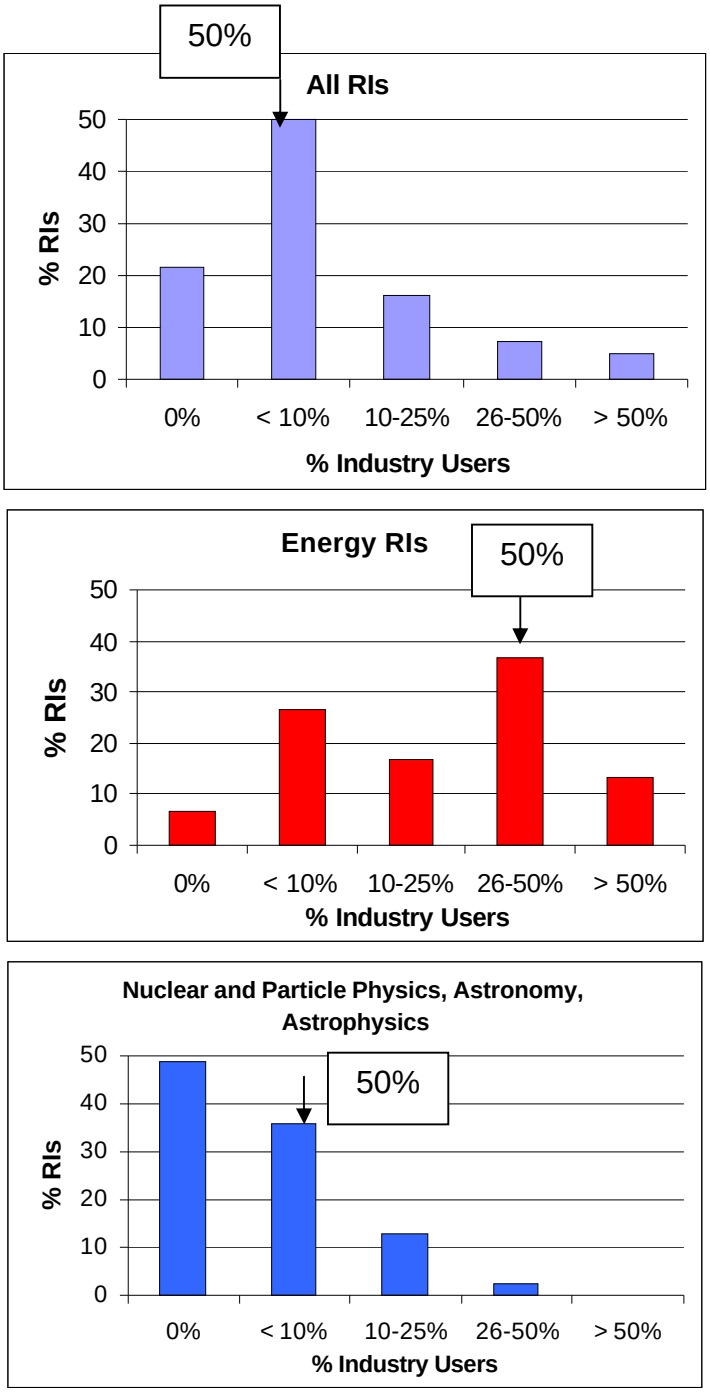


Figure 6-7: Patterns of Industry Users

However, two domains stand out: Energy and Engineering where about half of the RIs have more than 25% industry users (

Figure 6-7 middle and bottom). In all other domains, the share of industry users is very low: A second group of domains (EMES, BMLS, Social Sciences and Material Sciences) have 8 to 10% of their RIs with >25% industry users (Figure 6-8). The third group (CDT, Humanities and NPPAA) is around 3% (Figure 6-8).

These results may be considered together with the respective weights of public-private funding in these domains: 60% of RIs in Energy and Engineering report having public-private funding, whereas they are only 39% and 20% respectively in the two other groups of domains (Figure 5-10). It is also worth noticing that surveyed supercomputers are obviously not used by industry (Figure 6-8).

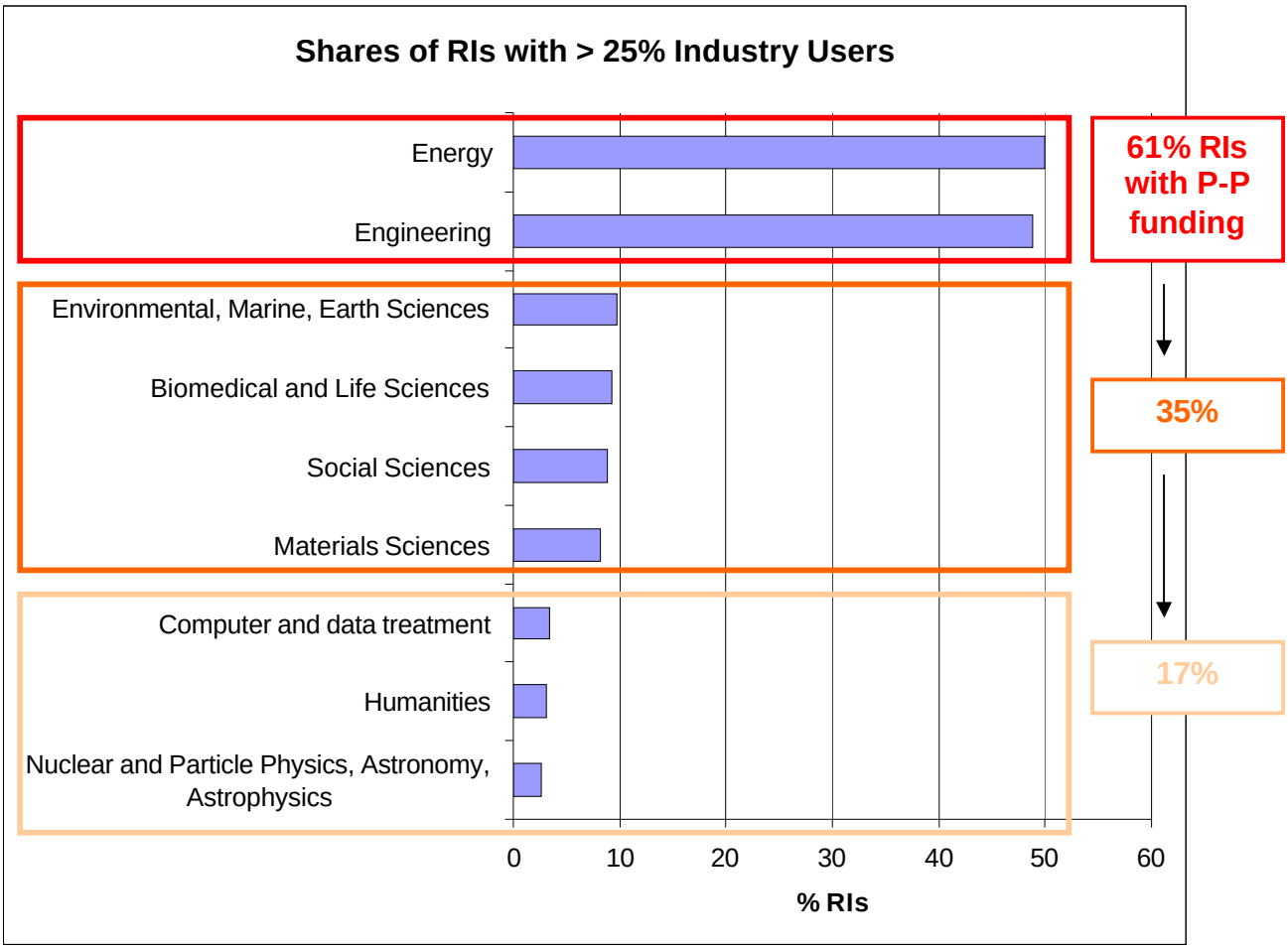


Figure 6-8: Industry Users (All Domains)

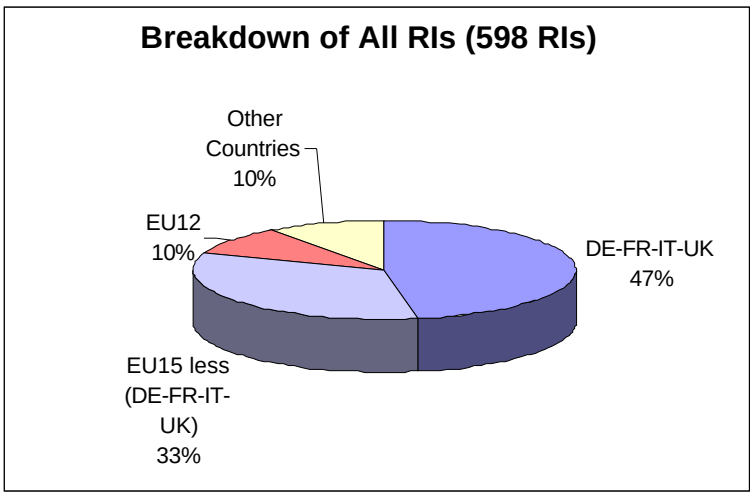
7 Large RIs

This section focuses on RIs with a large number of staff (>100 permanent scientists) and/or with high construction costs (>250 M€). In this section, one refers to the country of an RI as that of the institution owning this RI. The RI itself is usually hosted in this country but it may sometimes be hosted in another country[11].

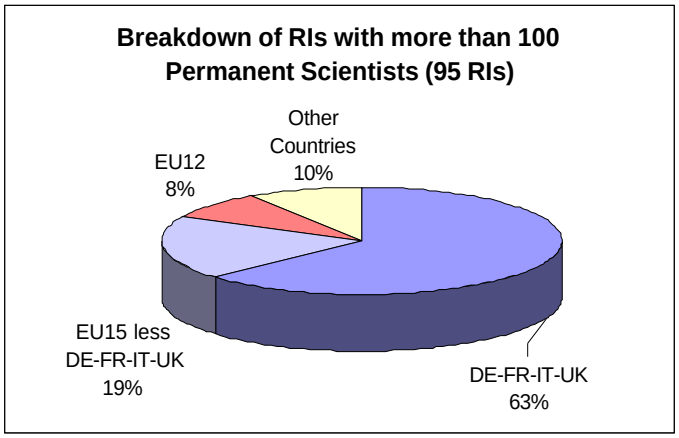
While the respective shares of EU-12 countries and non-EU countries RIs ("Other countries" in Figure 7-1) are identical overall and within the category of RIs with >100 permanent scientists, the weight of EU-15 countries other than DE-FR-IT-UK is smaller in this category than overall. Therefore, among EU-15 countries, DE-FR-IT-UK tend to have bigger RIs in terms of permanent scientists than the other smaller Member States.

As for large facilities in terms of construction costs, the difference between DE-FR-IT-UK and the other countries is striking: whereas the RIs of these 4 countries represent a bit less than half of all RIs in the survey (Figure 7-1 top), 72% of RIs with more than 250 M€ construction costs belong to institutions of these four countries (Figure 7-1 bottom). EU-12 countries have no RI at all in this category. Non-EU countries and other EU-15 countries have a smaller share in this category than overall. Therefore the most expensive RIs tend to be concentrated in the 4 countries DE-FR-IT-UK.

This prevalence, however, should be viewed along with the respective shares of EU-15 population and GDP of the 4 bigger and the 11 smaller EU-15 countries. In 2005, these 11 smaller countries had 31% of EU-15 GDP and 29% of EU-15 population[12]. In the survey, these 11 countries have slightly smaller shares of large RIs within EU-15: 24% of EU-15 RIs with initial investment over 250 M€ and 23% of EU-15 RIs with more than 100 permanent scientists. It appears therefore that large countries do have an edge when it comes to setting up expensive RI, but this edge is smaller than usually assumed.



[11] For instance, a telescope may be owned by an EU Member State and located in Chile; in this section such a telescope is considered as an RI of the EU Member States.
[12] Eurostat



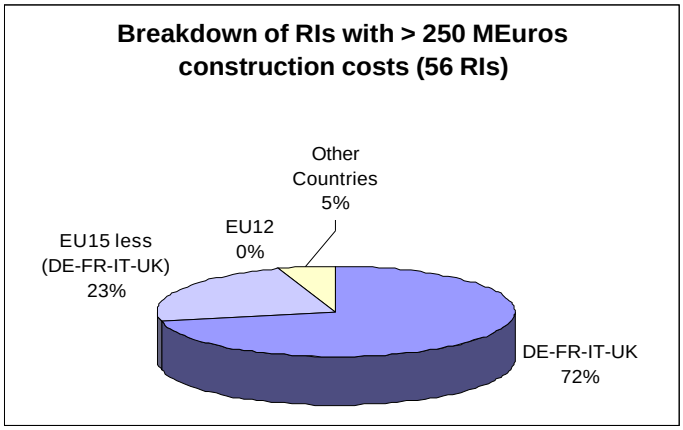


Figure 7-1: Large Facilities in Different Groups of Countries

8 In Summary

Salient features of each domain are briefly summarized below. This, of course, is a very sketchy description of the RIs in the different domains: It only aims at catching their respective basic trends. The characteristics of each domain outlined here are not always necessarily the prevailing ones, but may only be the distinctive characteristics (for example, EMES has more single-sited RIs than distributed RIs, but distributed RIs are much more numerous in EMES than in other domains, so that distributed RIs do characterize EMES). For detailed data, please refer to the preceding sections.

§ **Nuclear and Particle Physics, Astronomy, Astrophysics (NPPAA):**

RIs: Old, upgraded, single-sited, high construction costs, national and international public funding.
Users: Substantial permanent staff, few remote and industry users, sizeable share of foreign users.

§ **Material Sciences:**

RIs: Old, upgraded, single-sited, high construction costs, national and international public funding.
Users: Substantial permanent staff, few remote and industry users, sizeable share of foreign users.

§ **Energy:**

RIs: Old, less recent upgrades than in other domains, single-sited, high construction costs, international and public-private funding
Users: Average permanent staff, few remote users, sizeable share of industry users.

§ **Engineering:**

RIs: Single-sited, low construction costs, public-private funding.
Users: Average permanent staff, few remote users, sizeable share of industry users.

§ **Environment, Marine and Earth (EMES):**

RIs: Young, single-sited and distributed.
Users: Average permanent staff, few remote and industry users.

§ **Biomedical and Life Sciences (BMLS):**

RIs: Young, single-sited but also distributed and virtual, low construction costs, national and international, public and public-private funding.
Users: Average permanent staff, few remote and industry users.

§ **Computer and Data Treatment (CDT):**

RIs: Young, virtual, low construction costs.
Users: Little permanent staff, many remote and few industry users.

§ **Humanities:**

Considering both the analysis presented in the preceding sections and the list of RIs in the Humanities, two main categories appear in this domain:

RIs: Old, single-sited, high construction costs.
Users: Substantial permanent staff, few remote users.

RIs: Young, virtual, low construction costs.
Users: Little permanent staff, many remote.

For both categories:
RIs: National public funding.
Users: few industry users, less foreign users than other domains.

§ **Social Sciences:**

RIs: Young, virtual, low construction costs, national public funding.
Users: Little permanent staff, many remote and few industry users, less foreign users than other domains.

9 EU-12 Member States

9.1 Scientific Domains

This group is formed by the 12 countries that have joined the EU the most recently, namely Poland, Czech Republic, Hungary, Slovakia, Slovenia, Lithuania, Latvia, Estonia, Cyprus, Malta, Bulgaria and Romania.

Altogether 57 RIs have their owning institutions in these countries that are about 9% of all RIs in the survey. 481 RIs (80% of all RIs) have their owning institutions in EU-15. The remaining 11% of RIs are those of Associated Countries and Third Countries.

The weight of EU-12 countries is however much greater than 9% in Social Sciences (almost 18%, Figure 9-1). EU-12 is also more represented in Physics (Engineering, Material Sciences and NPPAA).

Humanities, EMES and BMLS turn out to be less strong in terms of RIs in these countries. For Energy, let us recall that almost half of the validated respondents are CEA RIs in France, which of course makes this domain (in our survey) very weak in every other country than France.

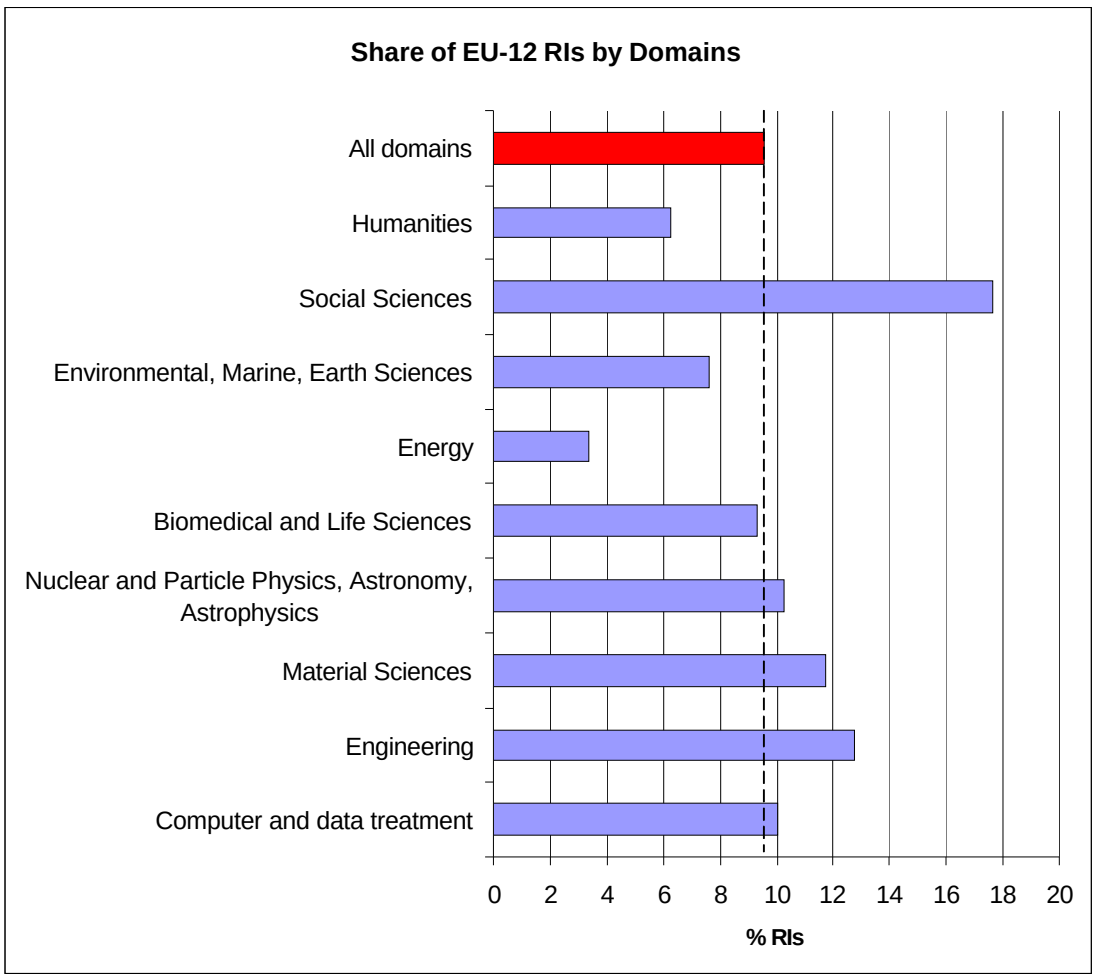


Figure 9-1: EU-12 Domains

9.2 Age of RIs

47% of EU-12 RIs are more than 25 years old; they are only 34% in EU-15. Conversely, hardly 15% of EU-12 RIs are less than 5 years old, compared to more than 21% of EU-15 RIs (Figure 9-2). Figure 9-3 also clearly shows that EU-12 countries are more represented in the category of >25 years old RIs than in the category of new RIs. It therefore appears in our survey that RIs in EU-12 tend to be older than in EU-15. In the last 5 years, RIs were predominantly built in EU-15 rather than in EU-12.

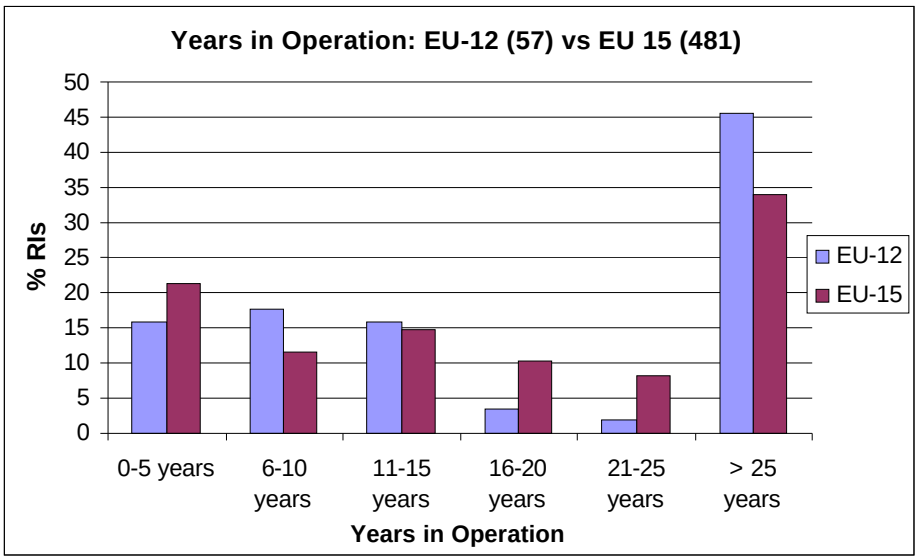


Figure 9-2: Age of EU-12 RIs

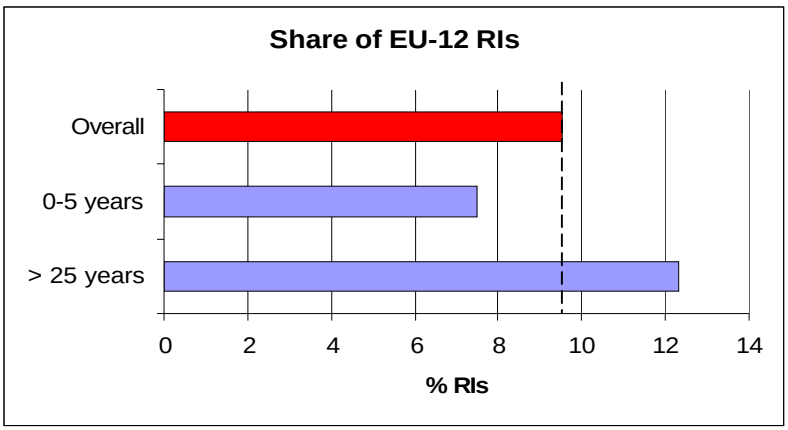


Figure 9-3: New and Old EU-12 RIs

In fact the majority (almost 53%) of the RIs built in the last five years are RIs owned by one of the four large countries. The picture for these four countries is just the opposite from that of EU-12 (Figure 9-4): (i) The share of (DE-FR-IT-UK) RIs is greater in the 0-5 years category than overall (almost 53% vs 47%, Figure 9-4), (ii) this share is smaller in the >25 years category (about 45% vs 47%). RIs of (DE-FR-IT-UK) are over-represented among all RIs built in the last five years and under-represented among >25 years old RIs.

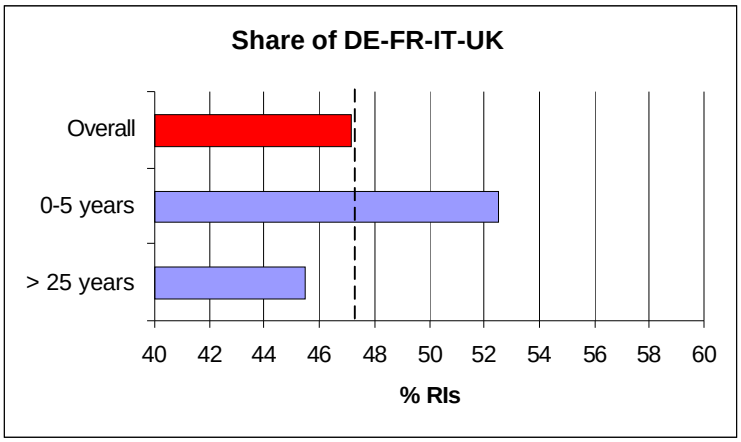


Figure 9-4: New and Old DE-FR-IT-UK RIs

9.3 Foreign Users

14% of EU-12 RIs report having more than 50% foreign users; they are more than 33% in EU-15. Conversely 51% of EU-12 RIs report having 0% or less than 10% foreign users, compared to 27% of EU-15 RIs (Figure 9-5). It therefore appears in our survey that RIs in EU-12 tend to attract less foreign users than EU-15 RIs.

In addition it is interesting to note that EU12 countries have 9,5% share of all RIs, but 0% of the RIs with high capital investment (> 250 M€) (see Figure 7-1).

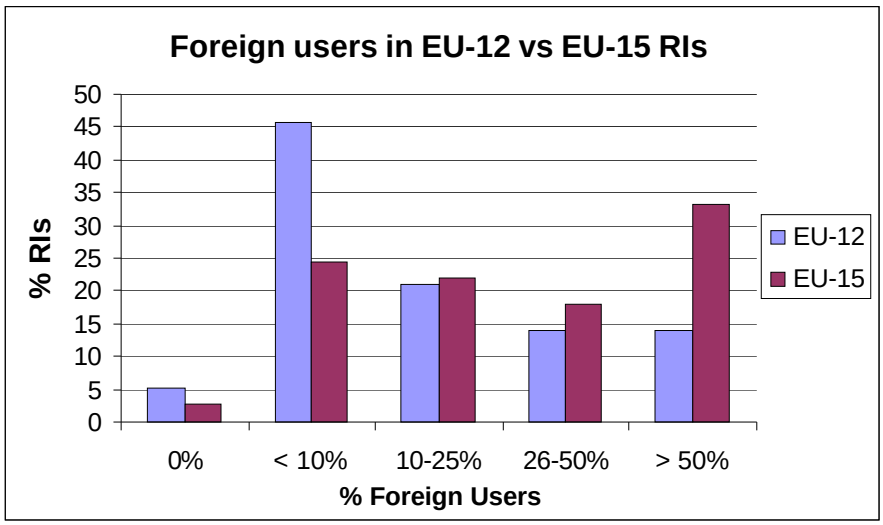


Figure 9-5: EU-12 Foreign Users

10 Future Developments

The second phase of data collection opened mid-November 2006 (see section 1.3) has not been stopped formally. RIs contacted during this second submission phase can still submit their responses to EC – and they are regularly reminded by EC to do so. Submissions received after March 2007 will be included in a future analysis of the constantly enriched database.

The survey provides a picture of those European RIs that were validated by ESF. However it is not an assessment of the overall situation of RIs in Europe. This would require having responses from the exhaustive list of European RIs. Moreover the observations made are likely to change in the coming years, so that the current picture sketched in this report may no longer be valid in a few years from now.

To respond to these two challenges – complete the database of RIs and continuously update it – the database built through the survey process could be made available online. The portal would include an application form and submissions will be reviewed and validated regularly.

This will make it possible for missing RIs to join the database by submitting their data online. The data already gathered through the survey that will be available online should indeed trigger new and relevant submissions. Moreover "being listed as a "Research Infrastructure of European interest recognised by the EC, ESF and EuroHORCS" could act as a powerful incentive"[13]. ESF would act as gatekeeper to ensure the validation of new submissions.

Technically this enables the EC, ESF and EuroHORCS to build on the existing database so that its completion will from now on be continuous and progressive and not concentrated in a short period of time. This decentralised way of proceeding will also considerably facilitate the process of completing the database over time. Finally, this online portal would allow RIs already registered in the database to easily update their data over the next few years.

The online availability of the database would therefore ensure its continuous enrichment, as well as its homogeneity and validity over time. The current survey then becomes an important basis for a continuous monitoring of evolution of RIs, rather than a punctual exercise limited in time and repeated periodically; it must be considered as the process that initiated a database that is now meant to grow further and to be constantly available to support the analysis of RI situation in Europe. This will help trigger relevant decisions from policy-makers.

The database will also be useful to scientists and students seeking access opportunities. RIs of European interest will be able to present their unique instruments and expertise, promote their services to the scientific community and offer trans-national access. It will thus be a powerful tool which will serve the integration of the European Research Area, along with the European Researcher's Mobility Portal. It will bring more visibility to less known RIs and display a clear list of all the services that are provided in Europe in all fields of research. It should encourage networking and cooperation between RIs, as well as exchange of personnel. It should help trans-nationalising research and promote access to RI services in Europe.

[13] "Report on submissions to the 2006 survey on Research Infrastructures", ESF Standing Committee for the Social Sciences (Oct. 2006), personnel communication.

This survey can not replace in-depth national and/or thematic surveys… May be, the key contribution that this survey will make to the development of RI policy in Europe and in its Member States is that it might encourage more detailed looks at national and/or regional level.

Annex 1 References to Other Surveys

NuPECC Handbook 2004, Fifth Edition, *Nuclear Physics European Collaboration Committee* (NuPECC, an ESF Expert Committee), available at (22.02.2007): http://www.nupecc.org/pub/hb04/hb_nov05.pdf

Research Facilities in Nuclear Science (Oct.2006), *International Union of Pure and Applied Physics* (IUPAP) Brochure, available at (22.02.2007): http://www.iupap.org/

The European strategy for particle physics (2006), *CERN Council Strategy Group for particle physics*, available at (22.02.2007): http://council-strategygroup.web.cern.ch/council-strategygroup/

Workshop 5-7 Oct. 2004 on Management Practices for Establishing Large International Scientific Research Projects, Chairman's Report (Nov. 2004), *OECD-GSF*

The ESFRI Roadmap Working Groups' reports (2003-2006), available at (22.02.2007): http://cordis.europa.eu/esfri/publications-reports.htm

e-Infrastructure, Computer and Network Infrastructures for Research and Education in Europe (2007), European Commission, Information Society and Media, available at (10.07.2007): http://cordis.europa.eu/fp7/ict/e-infrastructure/publications_en.html

ERA-NET Surveys and Databases:

ASTRONET-EAS: **Census of National Strategies and Resources** (2006), database of national facilities in Astronomy and Astrophysics, available at (22.02.2007): http://astronet.sc.eso.org/web/

CORE Organic: **Analysis of facilities in OFF research in participating countries of CORE Organic** (2006), A. Nykänen, S. Canali, available at (22.02.2007): http://www.coreorganic.org/corenews/sep06/page2.html

HERA-NET: **The HERA Survey on Infrastructural Research Facilities and Practices for the Humanities in Europe** (Sept. 2006), S. Kaur-Pedersen, G.M. Kladakis, available at (22.02.2007): http://www.heranet.info/Default.aspx?ID=259

MarinERA: **Marine Infrastructures Inventory** (2006), available at (22.02.2007): http://www.marinera.net/marine/index.html

Woodwisdom-Net: **WoodWisdom-Net Database of Research Facilities** (2006), available at (22.02.2007): http://www.nexdo.com/view.do?w=79&page=RESEARCH+FACILITIES

National Surveys and Databases:

DE
Leibniz Gemeinschaft's list of institutes, available at (22.02.2007):
http://www.wgl.de/extern/englisch/institutes/index.html

DK
Future research infrastructures – needs survey and strategy proposal (2005), *Danish Council for Strategic Research, Danish Research Agency*

FR
Rapport sur les conditions d'un nouveau synchrotron et le rôle des très grands équipements dans la recherche publique ou privée, en France et en Europe ,Tome II (2000), *Office parlementaire d'évaluation des choix scientifiques et technologiques*, Ch. Cuvilliez et R. Trégouët, available at (22.02.2007):
http://www.assemblee-nationale.fr/rap-oecst/tge/R2821.asp

SW
The Swedish Research Council's guide to infrastructures (2006), available at (10.07.2007)http://www.vr.se/mainmenu/pressandnews/newsarchive/news/aswedishroadmapforresearchinfrastructures.5.69f66a93108e85f68d480001450.html)

Annex 2 List of Contacted Institutions/Organisations

(Initial Submission Phase: 1st March- 18 April 2006)

§ · Aarhus Kommunehospital
§ · Academia das Ciências de Lisboa
§ · Academy of Finland
§ · Academy of Sciences of the Czech Republic (ASCR)
§ · AGH University of Science and Technology
§ · Alfred Wegener Institute for Polar and Marine Research
§ · Andøya Rocket Range AS
§ · Arts and Humanities Research Council (AHRC)
§ · ASTRON
§ · Barcelona Supercomputing Center
§ · Bayerisches Landesamt für Denkmalpflege
§ · Berliner Elektronenspeicherring-Gesellschaft für Synchrotronstrahlung mbH (BESSY)
§ · Bernhard Nocht Institute for Tropical Medicine
§ · Biotechnology and Biological Sciences Research Council (BBSRC)
§ · British Academy
§ · Bulgarian Academy of Sciences
§ · Bundesanstalt für Materialforschung und -prüfung (BAM)
§ · CCLRC Rutherford Appleton Laboratory
§ · Cemagref
§ · Center for Biomolecular Magnetic Resonance, J.W. Goethe-University Frankfurt
§ · Center for Scientific Computing Ltd.
§ · Central Institute for Labour Protection-National Research Institute (CIOP-PIB)
§ · Central Mining Institute
§ · Centre de recherche et de restauration des musées de France C2RMF
§ · Centre for Metrology and Accreditation (MIKES)
§ · Centre National de la Recherche Scientifique
§ · Centre National de la Recherche Scientifique (CNRS)
§ · Centre National d'Etudes Spatiales (CNES)
§ · Centro Astronomico Hispano Aleman (CAHA)
§ · Centro de Supercomputación de Galicia (CESGA)
§ · Centro Internazionale di Sperimentazione, Documentazione e Studio per la Preistoria e l'Etnografia dei Popoli Primitivi
§ · Centro Risonanze Magnetiche (CERM)
§ · CERN
§ · CESNET, z. s. p. o.
§ · CITEVE - Centro Tecnológico das Industrias Têxtil e do Vestuário de Portugal
§ · Commissariat à l'Energie Atomique (CEA)
§ · Consejo Superior de Investigaciones Científicas (CSIC)
§ · Consiglio Nazionale delle Ricerche (CNR)
§ · Consiglio Nazionale delle Ricerche-Istituto di Biologia Cellulare (CNR-IBC)
§ · Consorcio para la Construccion Equipamiento y Explotacion del Laboratorio de Luz de Sincrotron (CELLS) - ALBA
§ · Council of the Swiss Scientific Academies
§ · Croatian Academy of Sciences and Arts
§ · CSEM Centre Suisse d'Electronique et de Microtechnique SA

§ · Cyprus Research Promotion Foundation
§ · Danish Medical Research Council
§ · Danish Research Agency
§ · Danish Research Council for Independent Research
§ · Danish Technical Research Council
§ · DANTE Ltd
§ · deCODE genetics ehf.
§ · Delegation of the Finnish Academies of Science and Letters
§ · Department of Computer Science, AGH University of Science and Technology
§ · Department of Forest Genetics and Plant Physiology
§ · Dept. of Engineering Sciences, The Angstrom Laboratory, Uppsala University
§ · DESY
§ · Det Kongelige Danske Videnskabernes Selskab
§ · Deutsche Forschungsgemeinschaft
§ · Deutsches Übersee-Institut (DÜI) / German Overseas Institute
§ · DLR in der Helmholtz-Gemeinschaft Flugabteilung Oberpfaffenhofen
§ · DFN-Verein e. V.
§ · DNW German-Dutch wind tunnels
§ · Dublin Institute for Advanced Studies
§ · Economic and Social Research Council (ESRC)
§ · ENEA
§ · Engineering and Physical Sciences Research Council (EPSRC)
§ · Enterprise Ireland
§ · EREA (association of European Research Establishments in Aeronautics)
§ · Estonian Academy of Sciences
§ · Estonian Science Foundation
§ · European Laboratory for Non Linear Spectroscopy (LENS)
§ · European Molecular Biology Laboratory
§ · European Organisation for Research and Treatment of Cancer (EORTC)
§ · European Science Foundation
§ · European Southern Observatory (ESO)
§ · European Synchrotron Radiation Facility (ESRF)
§ · European University Institute, Library
§ · Fachinformationszentrum Chemie GmbH
§ · Faculty of Foundry Engineering, AGH - University of Science and Technology
§ · Federal Institute for Materials Research and Testing (BAM)
§ · Federal Institution of Geosciences and Natural Resources
§ · Federal Research & Education Center for Agriculture Raumberg-Gumpenstein (HBLFA)
§ · Federal Research Centre for Fisheries
§ · Federal Research Centre for Nutrition and Food (FRCNF)
§ · Finnish Environment Institute
§ · Finnish Forest Research Institute (Metla)
§ · Finnish Institute of Marine Research
§ · Finnish Institute of Occupational Health
§ · Finnish Social Science Data Archive
§ · FNR
§ · Fondation Maison des Sciences de l'Homme
§ · Fonds National de la Recherche Scientifique
§ · Fonds voor Wetenschappelijk Onderzoek - Vlaanderen FWO
§ · Fonds zur Förderung der wissenschaftlichen Forschung (FWF) - Austria
§ · Forschungsverbund Berlin e.V.
§ · Forskningsrådet för miljö, areella näringar och samhällsbyggande
§ · Fraunhofer Society

§ · French National Center for Scientific Research (CNRS)
§ · Fundaçao para a Ciência e a Tecnologica (FCT)
§ · Gabinete de Relaçoes Internacionais da Ciência e do Ensino Superior (GRICES)
§ · General Science Foundation
§ · Generaldirektion der Staatlichen Naturwissenschaftlichen Sammlungen Bayerns
§ · GeoDelft
§ · Geological Survey of Finland GTK
§ · Gesellschaft für Schwerionenforschung (GSI)
§ · Gesellschaft für Mikro- und Nanoelektronik (GMe)
§ · GKSS Research Center GmbH
§ · Hahn-Meitner-Institut Berlin GmbH (HMI)
§ · Health Research Board
§ · HEAnet Limited
§ · Heavy Ion Laboratory, Warsaw University (HIL)
§ · Helmholtz Association of National Research Centres
§ · Helsinki University of Technology/Center for New Materials
§ · High Altitude Research Stations Jungfraujoch and Gornergrat, Int. Foundation
§ · Hungarian Academy of Sciences
§ · Hungarian Scientific Research Fund (OTKA)
§ · IAM, Department of Biotechnology, BOKU
§ · Icelandic Center for Research (RANNIS)
§ · Icelandic Meteorological Office (IMO), Department of Physics, 150 Reykjavik
§ · ICP Forests of UNECE (Geneva Convention on Long Range Transboundary Air Pollution)
§ · IDEWE vzw
§ · IMEC
§ · IMGW
§ · INFN - LABORATORI NAZIONALI DEL GRAN SASSO
§ · Innsbruck Medical University
§ · INRIA
§ · INSERM
§ · Institut Clinique de la Souris (ICS) / Mouse Clinical Institute (MCI) / GIE-CERBM
§ · Institut de Recherche pour le Developpement (IRD)
§ · Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER)
§ · Institut Jacques Monod UMR 7592 CNRS Université Paris 6-Paris 7
§ · Institut Laue-Langevin
§ · Institut National de la Recherche Agronomique
§ · Institut National de la Santé et de la Recherche Médicale (INSERM)
§ · Institut National de Recherche Agronomique (INRA)
§ · Institute for Radioastronomy at Millimeter-Wavelengths (IRAM)
§ · Institute for Storage Ring Facilities, Aarhus University
§ · Institute of Biochemistry, University of Innsbruck
§ · Institute of Electron Technology
§ · Institute of Marine Research, Bergen,
§ · Institute of Physics of the Polish Academy of Sciences
§ · Institute of Psychiatry and Neurology in Warsaw
§ · Instituto de Astrofísica de Canarias
§ · Instituto Nacional de Investigación Agraria y Alimentaria (INIA)
§ · Instituut Collectie Nederland - ICN (Netherlands Institute for Cultural Heritage)
§ · INSTYTUT TECHNICZNY WOJSK LOTNICZYCH
§ · Irish Research Council for Sciences, Engineering and Technology (IRCSET)
§ · Irish Research Council for the Humanities and Social Sciences
§ · Isaac Newton Group of Telescopes

§ · ISIS Facility, Council for the Central Laboratory of the Research Councils
§ · Istituto Nazionale di Fisica Nucleare - Laboratori Nazionali di Legnaro
§ · Istituto Nazionale di Ottica Applicata - INOA
§ · Jodrell Bank Observatory, University of Manchester
§ · Joint Astronomy Centre
§ · Joint Institute for VLBI in Europe
§ · Joint Research Centre (EC) - Institute for Environment and Sustainability
§ · Konferenz der Schweizerischen Wissenschaftlichen Akademien
§ · Koninklijk Museum voor Midden-Afrika / Musée Royal de l'Afrique Centrale
§ · Koninklijke Nederlandse Akademie van Wetenschappen (KNAW)
§ · KoWi
§ · Laboratori Nazionali di Frascati dell'Istituto Nazionale di Fisica Nucleare (INFN)
§ · Lithuanian State Science and Studies Foundation (FONDAS)
§ · MARINTEK (Norwegian Marine Technology Research Institute)
§ · Maritime Research Institute Netherlands
§ · Max-Planck-Gesellschaft
§ · Max-Planck-Institut für Radioastronomie
§ · Medical Genetics of University of Tübingen
§ · Medical Research Council
§ · MICRONOVA
§ · Ministerio de Medio Ambiente (Environment Ministry)
§ · Italian Ministry of Education and Research
§ · MTT Agrifood Research Finland
§ · Museo Nacional de Ciencias naturales
§ · Muséum National d'Histoire Naturelle
§ · National Aerospace Laboratory (NLR)
§ · National Hellenic Research Foundation (NHRF)
§ · National Institute for Nuclear Physics (INFN)
§ · National Institute of Chemistry, Slovenia
§ · National Science Council of Bulgaria
§ · National Science Fund of Bulgaria
§ · National University Research Council from Romania (NURC)
§ · Natural Environment Research Council
§ · Natural Science Research Council of Denmark
§ · Naturhistoriska riksmuseet (Swedish Museum of Natural History) NRM
§ · Netherlands Foundation for the Advancement of Tropical Research (WOTRO)
§ · Netherlands Organisation for Scientific Research (NWO)
§ · Nicolaus Copernicus Astronomical Center, Polish Academy of Sciences
§ · NIIF/Hungarnet
§ · Norwegian Academy of Sciences and Letters
§ · Norwegian Polar Institute
§ · Norwegian University of Science and Technology (NTNU)
§ · Observatoire de Paris
§ · Oficina de Ciencia y Tecnología Comisión Interministerial de Ciencia Y Tecnología
§ · Österreichische Akademie der Wissenschaften
§ · Oulanka Research Station
§ · Particle Physics and Astronomy Research Council (PPARC)
§ · Paul Scherrer Institute
§ · Polish Academy of Science (PAN)
§ · Polish Geological Institute
§ · Poznan Supercomputing and Networking Center
§ · Research Centre Juelich
§ · Research Promotion Foundation

§ · Rhône Alpes Genopole
§ · Romanian Ministry of Education and Research
§ · Royal Academy of Letters, History and Antiquities
§ · Royal Botanic Garden Edinburgh
§ · Royal Danish Academy of Sciences and Letters
§ · Royal Irish Academy
§ · Royal Observatory of Belgium
§ · Royal Swedish Academy of Sciences
§ · Runde Miljøsenter AS (Runde Environmental Centre Ltd)
§ · Sacred Convent of the Annunciation
§ · SARA Computing and Networking Services
§ · Scientific Research Centre of Slovenian Academy of Science and Arts (SRC SASA)
§ · Sincrotrone Trieste (ELETTRA)
§ · SINTEF
§ · Slovak Academy of Sciences
§ · Slovenian Academy of Sciences and Arts
§ · St. Nicolau Institute of Virology
§ · Staatliches Museum für Naturkunde Stuttgart, Natural History Museum Stuttgart
§ · SURFnet
§ · Swedish Council for Working Life and Social Research (FAS)
§ · Swedish Research Council
§ · Swiss National Science Foundation
§ · SwissCore
§ · Tampere University of Technology
§ · Tel Aviv University
§ · The British Academy
§ · The British Library
§ · The City of Helsinki Urban Facts
§ · The Czech Science Foundation
§ · The Danish National Research Foundation
§ · The Economic and Social Research Council (ESRC)
§ · The European Organisation for the Safety of Air Navigation
§ · The Faculty of Biotechnology of Jagiellonian University
§ · The Health Research Board
§ · The Hebrew University of Jerusalem
§ · The National Archive of Finland
§ · The Natural History Museum, London
§ · The Norwegian University of Science and Technology
§ · The Research Council of Norway
§ · The Royal Academy of Letters, History and Antiquities
§ · The Royal Society
§ · The Royal Swedish Academy of Sciences
§ · The Scientific and Technical Research Council of Turkey (TÜBITAK)
§ · The Slovenian Science Foundation
§ · The Svedberg Laboratory
§ · TNO
§ · TUBITAK-ULUSAL METROLOJI ENSTITUSU (UME)
§ · UJF (Joseph Fourier University), Laboratoire TIMC-IMAG (UMR 5525 CNRS)
§ · UK Research Office (UKRO)
§ · UNI-C, Forskningsnettet
§ · Université Catholique de Louvain - Centre de Recherches du Cyclotron
§ · University of Bergen
§ · University of Copenhagen

§ · University of East Anglia
§ · University of Edinburgh
§ · University of Gdansk
§ · University of Jyväskylä
§ · University of Limerick
§ · University of Nottingham
§ · University of Oulu
§ · University of Perugia
§ · University of Stirling
§ · University of Warmia and Mazury in Olsztyn
§ · VersuchsStollen Hagerbach AG / Hagerbach Test Gallery. Ltd.
§ · VESTRA GmbH
§ · Vetenskapsrådet (Swedish Research Council)
§ · VINNOVA (Swedish Agency for Innovation Systems)
§ · Vito – Vlaamse Instelling voor Technologisch Onderzoek
§ · VZLÚ, a.s. (Aeronautical Research and Test Institute)
§ · Wroclaw University of Technology
§ · Zentralarchiv für Empirische Sozialforschung an der Universität zu Köln (GESIS-ZA)

Annex 3 Survey Questionnaire (Paper Version)

Survey of European Research Infrastructures
Questionnaire Section 1

Information on respondent and responding institution

1. Mr./Mrs. Name, first name (Example: Mrs. de Guzman, Ana / Mr. Schmitt, Johann):

_____

2. Name of institution (Example: CNRS, Lyon / Max-Planck-Institute, Stuttgart):

_____

3. Are you responding on behalf of this institution? (Please note that in order to avoid multiple entries, each institution should designate internally the person to fill in this questionnaire on behalf of the institution)

Yes	
No	

4. Your position in the institution:

Research Infrastructure Manager (administrative)	
Research Infrastructures Operator (scientific/technological)	
Representative Public Relations	
Other *(please specify)*	

5. Your Email address:

_____

6. Institution's host country:

AT – Austria		HU – Hungary		SI - Slovenia	
BE – Belgium		IE – Ireland		SK - Slovak Republic	
CY – Cyprus		IT – Italy		UK - United Kingdom	
CZ - Czech Republic		LT – Lithuania		IS - Iceland	
DE – Germany		LU – Luxembourg		IL - Israel	
DK – Denmark		LV – Latvia		LI - Liechtenstein	
EE – Estonia		MT – Malta		NO - Norway	
EL – Greece		NL – Netherlands		CH - Switzerland	

ES – Spain		PL – Poland		BG - Bulgaria	
FI – Finland		PT – Portugal		TR - Turkey	
FR – France		SE – Sweden		RO - Romania	
Other (*please specify*)					

Survey of European Research Infrastructures
Questionnaire Section 2

Description

1. Name of Research Infrastructure (please submit one questionnaire per Research Infrastructure)

---

2. Research Infrastructure web site:

---

3. Country where Research Infrastructure is located *(in case of a distributed Research Infrastructure, please indicate as host country the country of the central office)*:

AT – Austria		HU - Hungary		SI – Slovenia	
BE – Belgium		IE - Ireland		SK - Slovak Republic	
CY – Cyprus		IT - Italy		UK - United Kingdom	
CZ - Czech Republic		LT - Lithuania		IS – Iceland	
DE – Germany		LU - Luxembourg		IL – Israel	
DK – Denmark		LV - Latvia		LI – Liechtenstein	
EE – Estonia		MT - Malta		NO – Norway	
EL – Greece		NL - Netherlands		CH – Switzerland	
ES – Spain		PL - Poland		BG – Bulgaria	
FI – Finland		PT - Portugal		TR – Turkey	
FR – France		SE - Sweden		RO – Romania	
Other (*please specify*)					

4. City where Research Infrastructure is located *(please indicate the region in brackets; in case of a distributed Research Infrastructure, please indicate as host region the region of the central office*):

---

5. Organisation/institution type of Research Infrastructure or the Research Infrastructure's host institution *(more than one choice is possible*):

Governmental/public	
Private	
International scientific organisation/institution	
National scientific organisation/institution	
University/higher education	
Other *(please specify)*	

---

6. Scientific and technological domain(s) served by the Research Infrastructure *(more than one choice is possible)*:

Life Sciences	
Health and Medical Sciences	
Environment	
Earth Sciences	
Biotechnology	
Chemistry	
Physics	
Mathematics	
Material Sciences	
Engineering	
Energy	
Nanotechnologies	
Socio-economic Sciences	
Humanities	
Information Society Technologies	
Other *(please specify)*	

---

7. Research Infrastructure type *(more than one choice is possible)*:

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

---

8. Short description of Research Infrastructure *(should not be more than 700 characters; only important facts for general public about the usage of the Research Infrastructure)*:

---

9. Major facilities, installations, attached instruments and services provided to researchers (e.g. telescopes, reactors, vessels, wave channels, databases, communication networks, etc.; *please provide list, maximum 700 characters)*:

---

10. Years already in operation:

0-5 years	
6-10 years	
11-15 years	
16-20 years	
21-25 years > 25 years	

11. How many years ago was the latest major upgrade of part of the equipment or the whole Research Infrastructure? *(by major upgrade, we mean an upgrade that cost, at least, 10% of the total cost of the facility)*

For comment (if desired, maximum 700 characters).

Operation

12. Main type(s) of structured (through contract or co-operation agreement) international co-operation activities (more than one choice is possible):

Bilateral co-operation with other research infrastructures/organisations/institutions	
Multilateral co-operation with other research infrastructures/organisations/institutions	
Participation in EC-funded projects	
Participation in international programmes/projects extending beyond Europe	
Participation in other non EC funded European programmes/projects	
Other *(please specify)*	

---

13. List of international cooperation agreements and partnerships which exist at organisational level for this RI, between different organisations in different EU Member States; (*please give up to five examples over the last five years, maximum 700 characters)*.

14. Please indicate any further needs and opportunities for further integration or collaboration with similar or related RI's (*maximum 500 characters)*.

---

15. Permanent scientific/engineering staff operating the Research Infrastructure:

< 20	
21-50	
51-100	
101-200	
> 200	

16. Average number of **individual internal users** per year *(i.e. Individuals who are employed, working or studying in the facility)*:

1-10	
11-50	
51-100	
101 – 200	
201 – 500	
500 – 1000	
> 1000	

17. Average number of **individual external users** per year *(i.e. Individuals who are not employed, working or studying in the facility)*:

1-10	
11-50	
51-100	
101 – 200	
201 – 500	
500 – 1000	
> 1000	

18. Referring to external individuals, average number of **trainees / students** per year

1-10	
11-50	
51-100	
101 – 200	
201 – 500	
500 – 1000	
> 1000	

19. Referring to external users, estimated percentage of individual **users from other countries** than the country where the Research Infrastructure is hosted:

0 %	
< 10 %	
10 % – 25 %	
26 % - 50 %	
> 50 %	

20. Referring to external users, estimated percentage of individual **users** per year **from industry or organisations serving industry**:

0 %	
< 10 %	
10 % – 25 %	
26 % - 50 %	
> 50 %	

21. Referring to external users, estimated percentage of individual **virtual users** (e.g. using a database virtually from another site or using remote access to equipment):

0 %	
< 10 %	
10 % – 25 %	
26 % - 50 %	
> 50 %	

22. Short description of access policy and procedures for users of this Research Infrastructure *(please briefly describe your access policy, especially indicating any arrangements for transnational access, maximum 1000 characters)*:

---

23. Activities undertaken by the Research Infrastructure and service(s) provided to users (more than one choice is possible):

Upgrade of the core facility	
Upgrade of the attached instruments and/or associated softwares	
Support to users during experiments	
Support to preparation, installation and operation of specific instruments	
Support to processing of the measurements	
Other *(please specify)*	

Finance

24. Total cumulative investment for initial construction/setting up of this Research Infrastructure (including buildings, equipment and current upgrades, but excluding operational costs; *please indicate in today's equivalent*):

< 20 M€	
20 M€ - 50 M€	
50 M€ - 250 M€	
250 M€ - 500 M€	
> 500 M€	

For comment (if desired, maximum 500 characters).

---

25. Yearly operational costs (including administrative personnel and maintenance):

< 250.000 €	
250.000 € - 1M €	
1M € - 10M €	
> 10 M€	

For comment (if desired, maximum 500 characters).

---

26. Main sources of construction/setting up funding *(more than one choice is possible):*

National public funding	
National public-private funding	
Multinational/international public funding	
Multinational/international public-private funding	
Other (*please specify*)	

---

27. Main sources of operational costs *(more than one choice is possible)*:

National public funding	
National public-private funding	
Multinational/international public funding	
Multinational/international public-private funding	
Other (*please specify*)	

Survey of European Research Infrastructures
Questionnaire Section 3

Scientific Impact

28. Most important publications or conference proceedings (peer-reviewed), technical reports or patents highlighting the cutting-edge research carried out through this Research Infrastructure *(please list up to ten examples over the last five years, maximum 700 characters)*.

29. Main international structured (through contract or co-operation agreement) co-operation research projects highlighting the recognition of this Research Infrastructure at international level *(please give up to five examples from the last five years, maximum 700 characters)*.

---

30. Please explain why you consider this Research Infrastructure as of top-level relevance for the scientific community, having a "clear European dimension" and European added value(e.g. in terms of users, research, technologies, co-operations, publications, mission statement, etc.; *maximum 1000 characters).*

---

31. Provided that funding is available, do you see a clear potential for long-term continuation of the operation of this Research Infrastructure at international level?

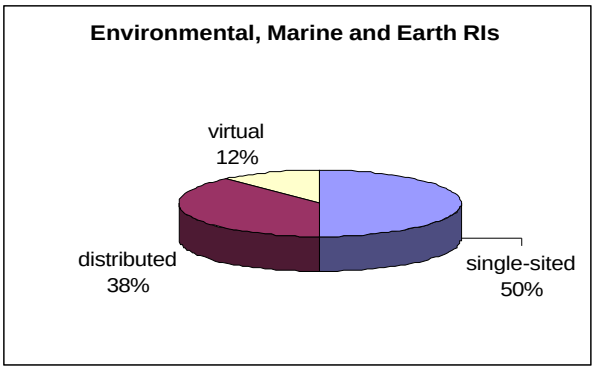
Yes	
No	
Unclear	

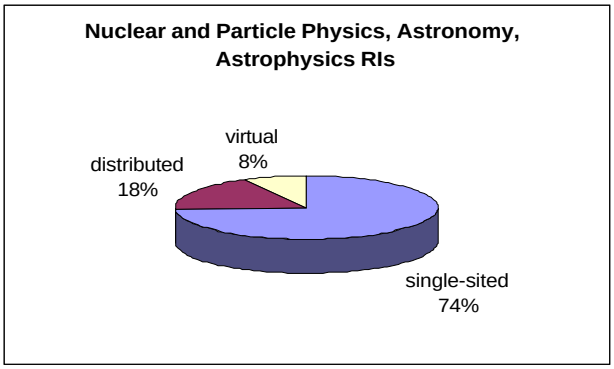
If no or unclear, please explain.

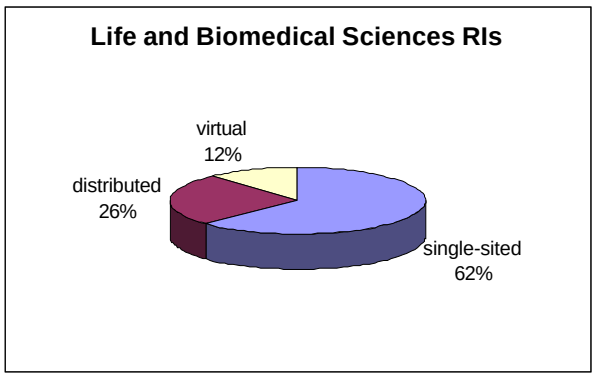
Thank you for completing the Questionnaire

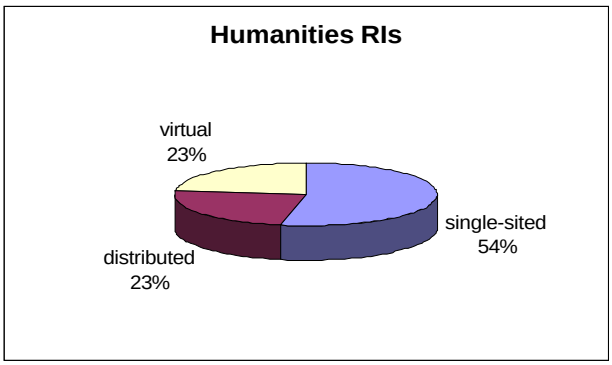
Annex 4 Further Charts

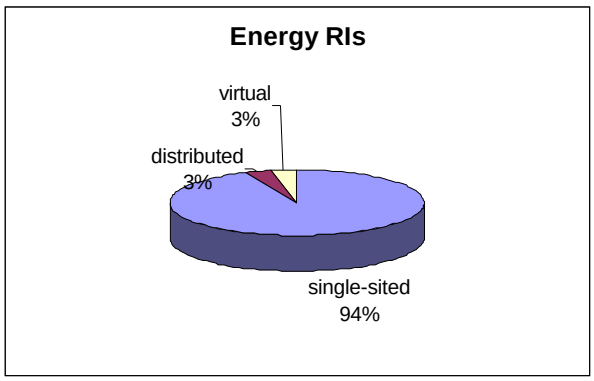
RI Types

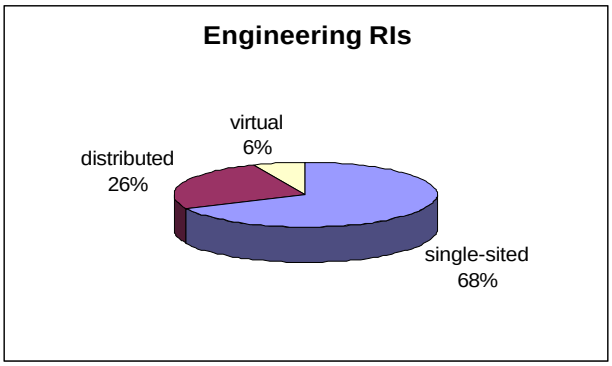


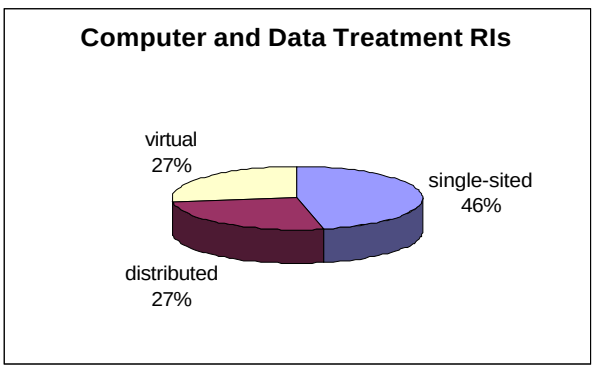




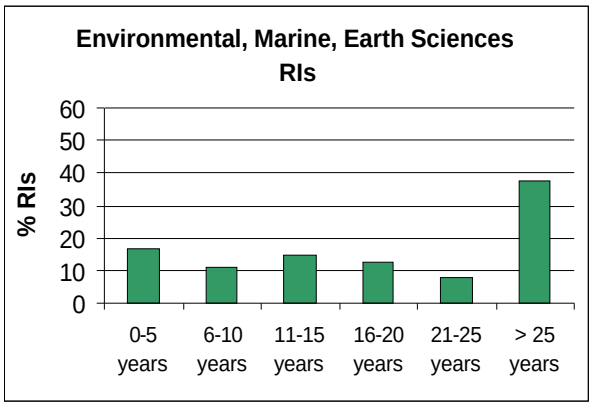


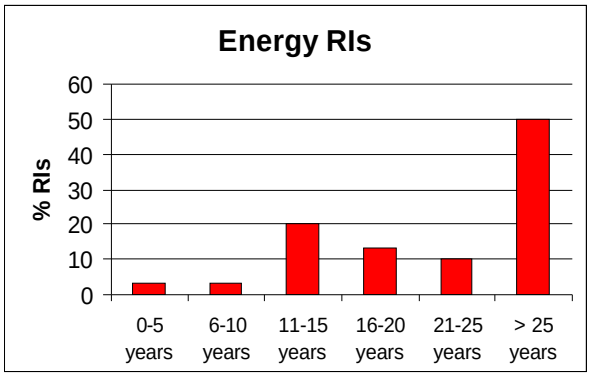


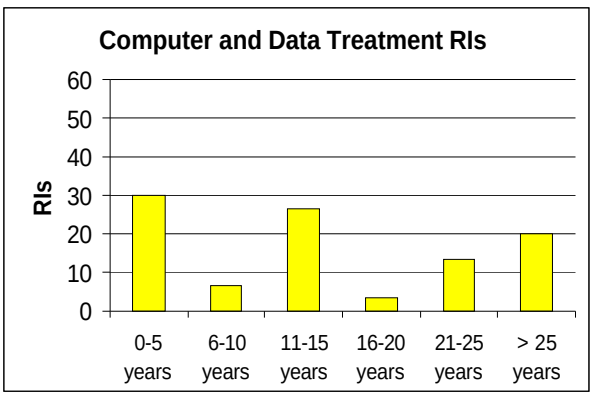


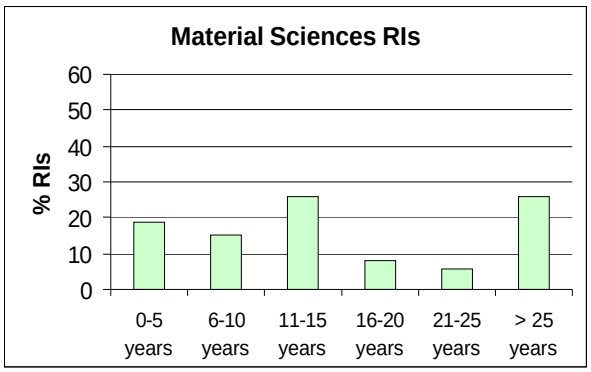


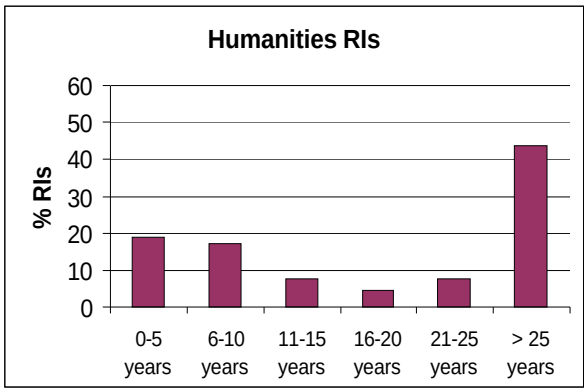
Age of RIs

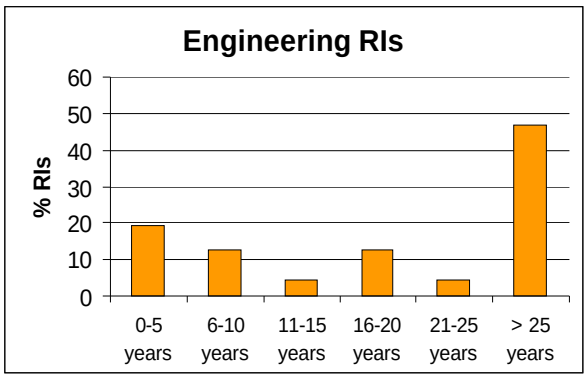

Environmental, Marine, Earth Sciences RIs
% RIs
60
50
40
30
20
10
0
0-5 years
6-10 years
11-15 years
16-20 years
21-25 years
> 25 years

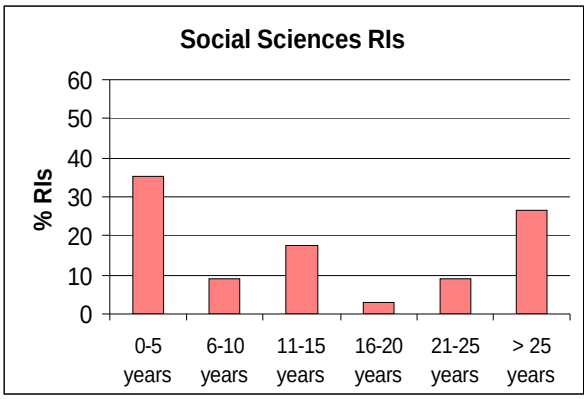

Energy RIs
% RIs
60
50
40
30
20
10
0
0-5 years
6-10 years
11-15 years
16-20 years
21-25 years
> 25 years


Computer and Data Treatment RIs
RIs
60
50
40
30
20
10
0
0-5 years
6-10 years
11-15 years
16-20 years
21-25 years
> 25 years

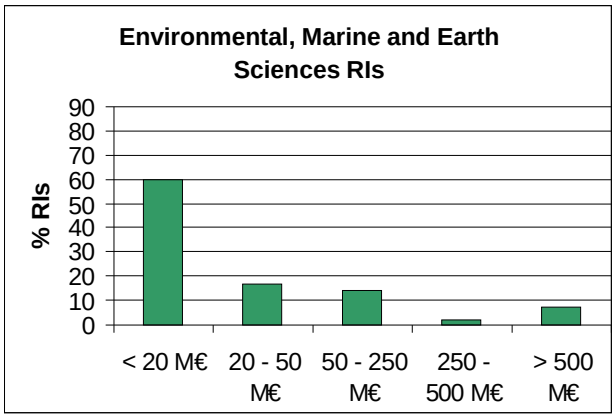

Material Sciences RIs
% RIs
60
50
40
30
20
10
0
0-5 years
6-10 years
11-15 years
16-20 years
21-25 years
> 25 years

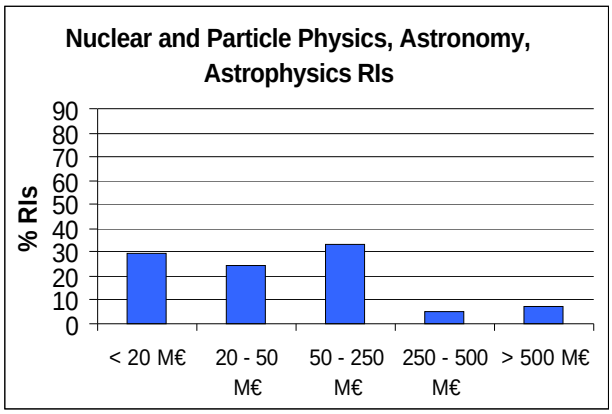

Humanities RIs
% RIs
60
50
40
30
20
10
0
0-5 years
6-10 years
11-15 years
16-20 years
21-25 years
> 25 years

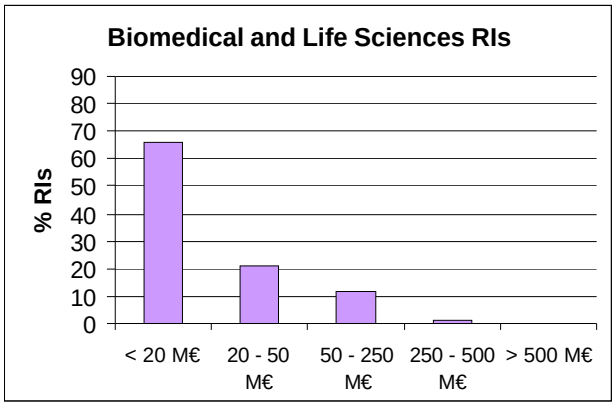

Engineering RIs
% RIs
60
50
40
30
20
10
0
0-5 years
6-10 years
11-15 years
16-20 years
21-25 years
> 25 years

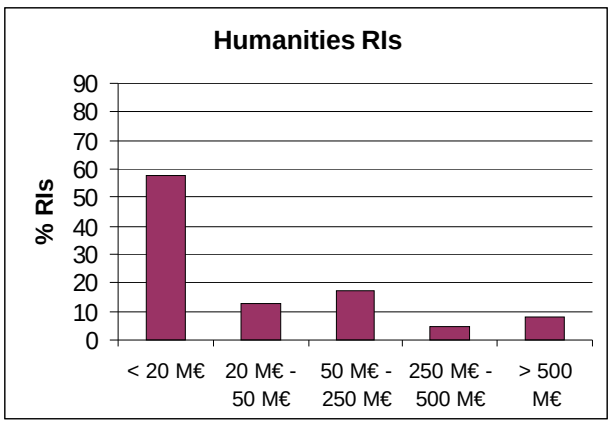

Social Sciences RIs
% RIs
60
50
40
30
20
10
0
0-5 years
6-10 years
11-15 years
16-20 years
21-25 years
> 25 years

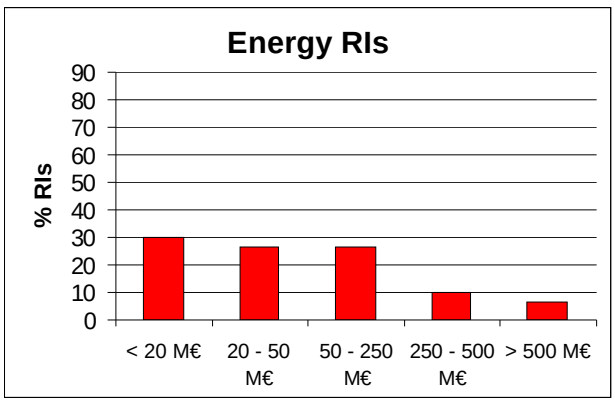
Construction Costs

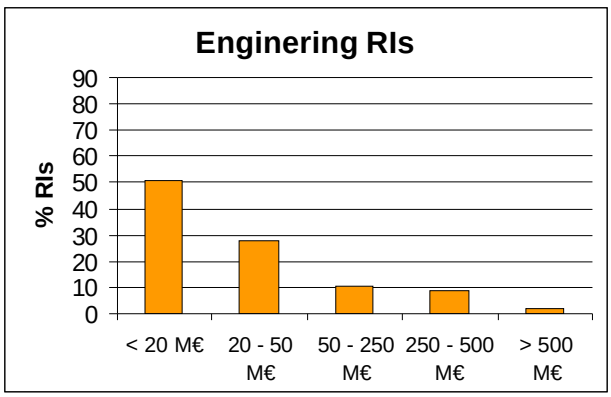


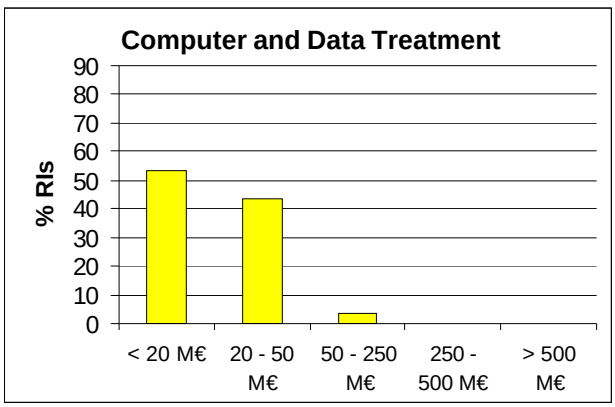




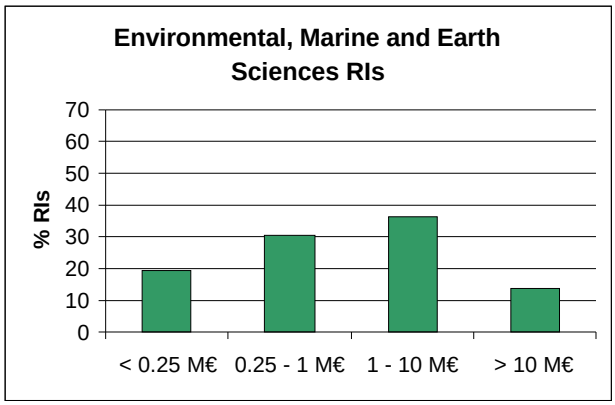


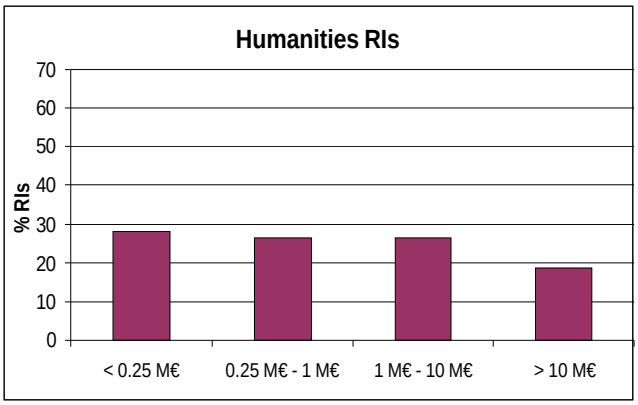


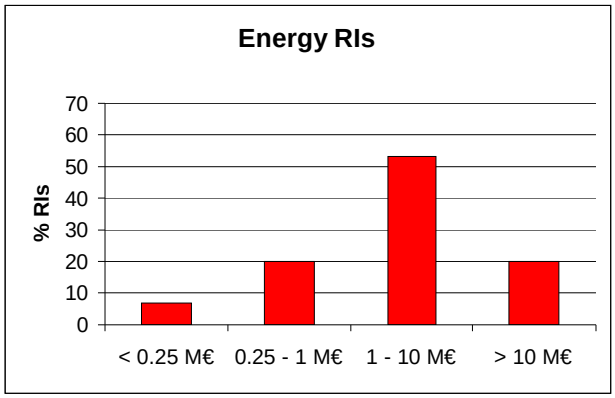


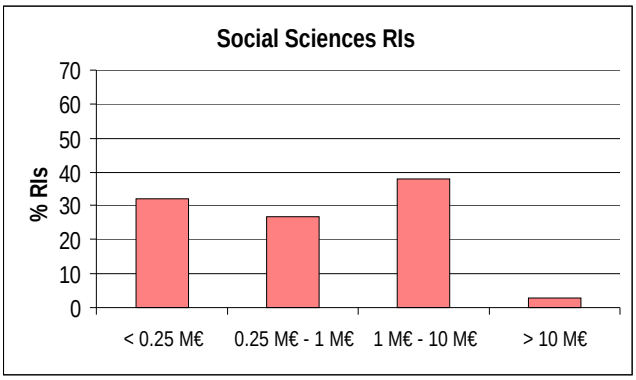


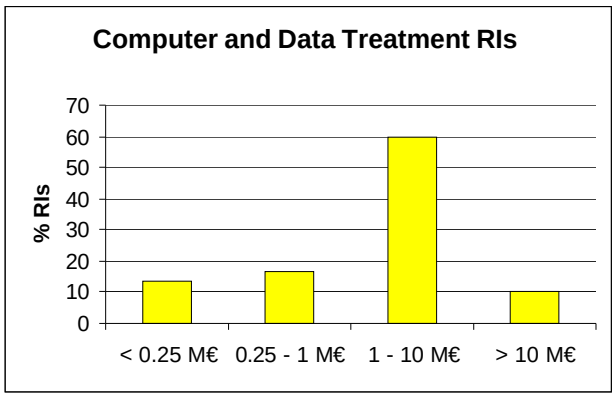
Yearly Operation Costs

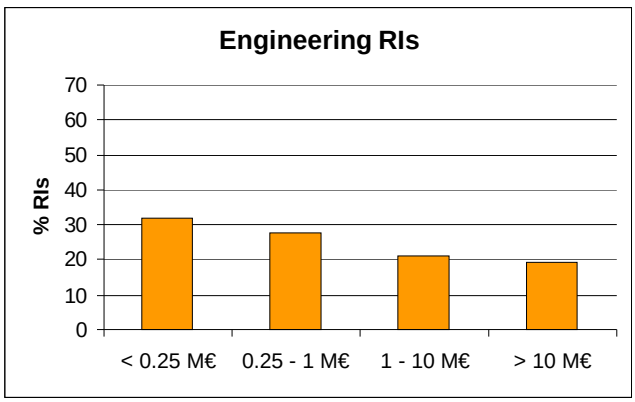


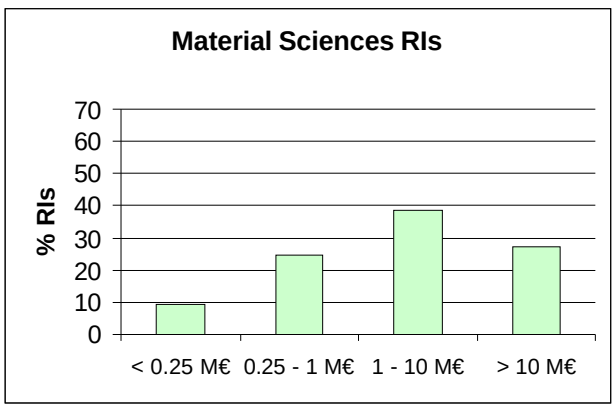




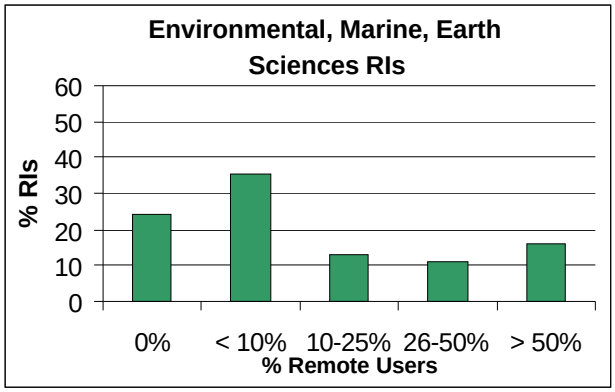


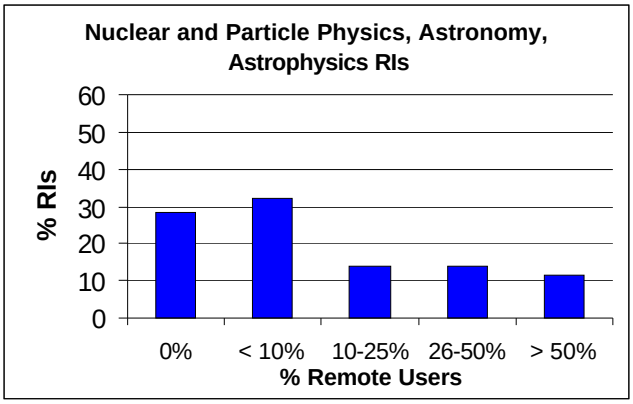


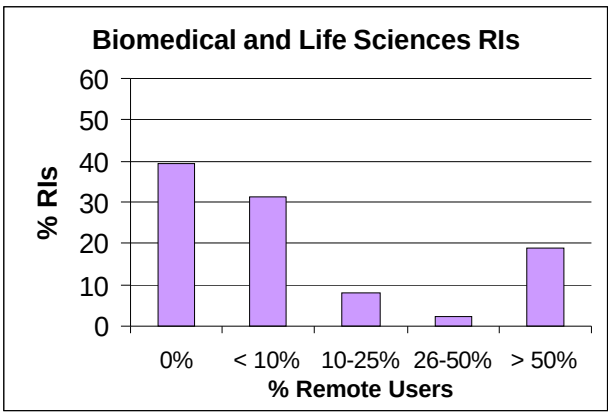


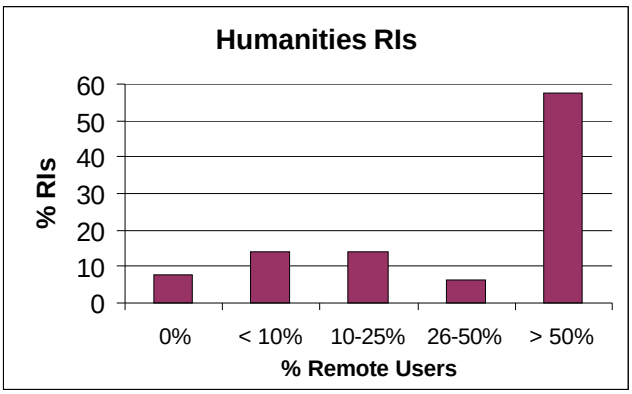


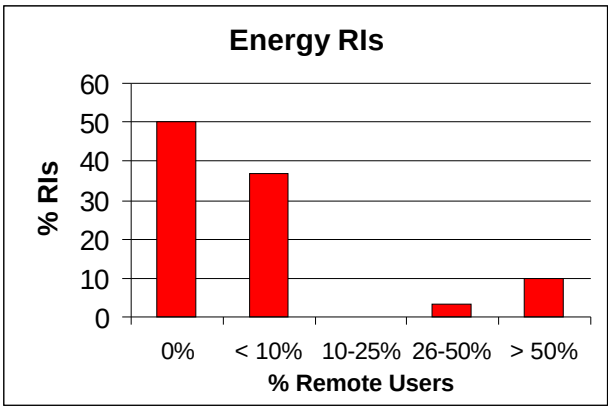
Remote Users

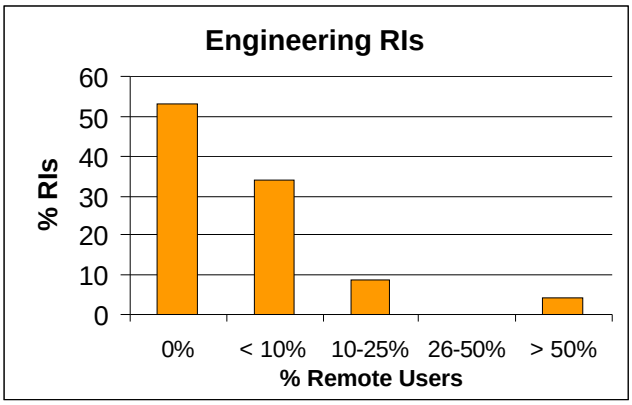


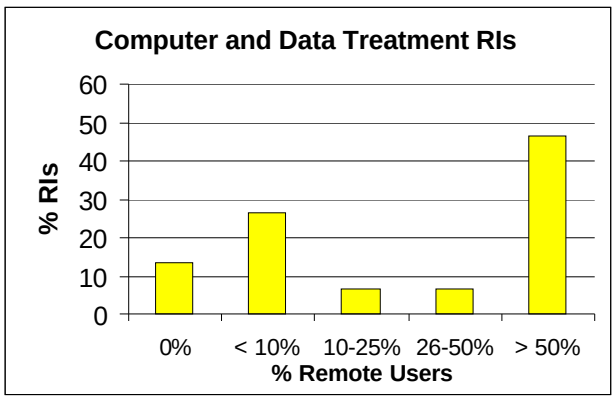




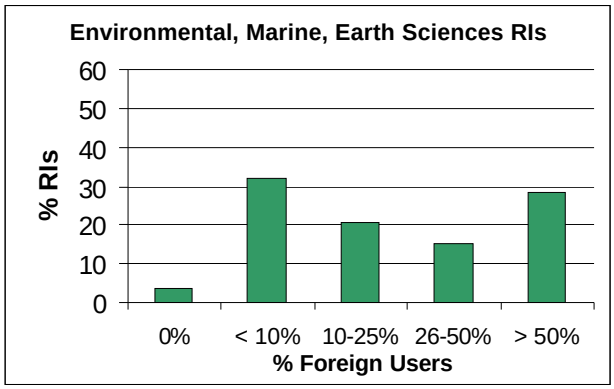


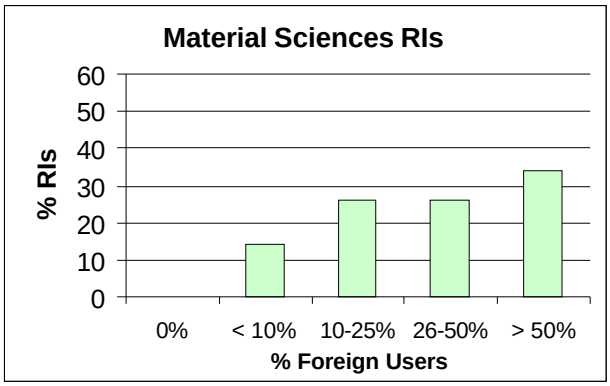


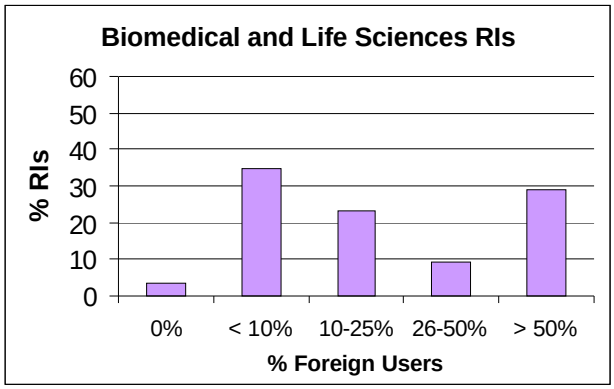


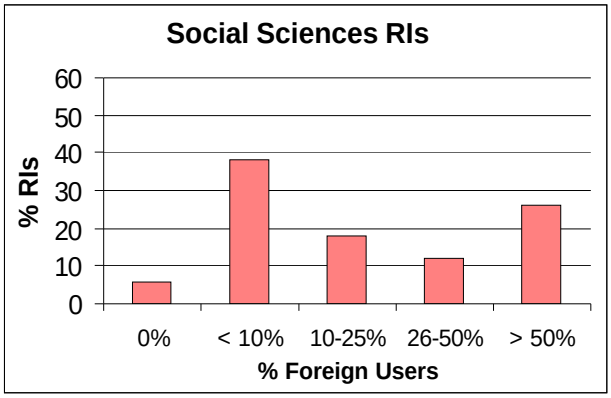


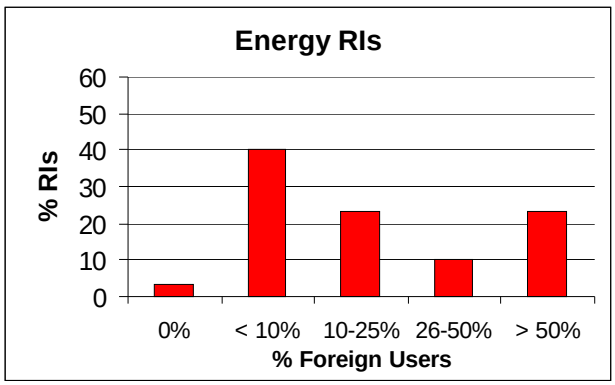
Foreign Users

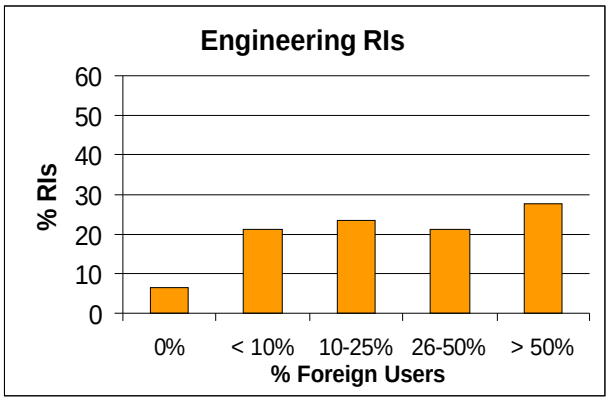


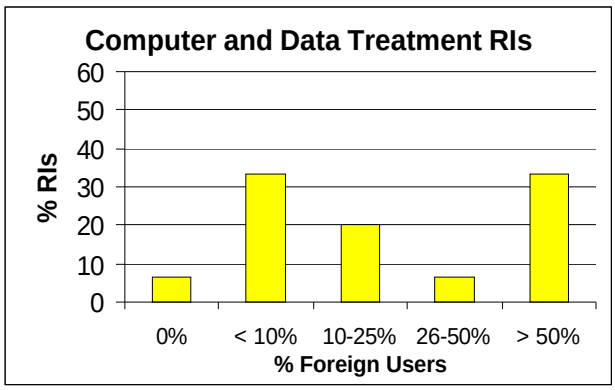




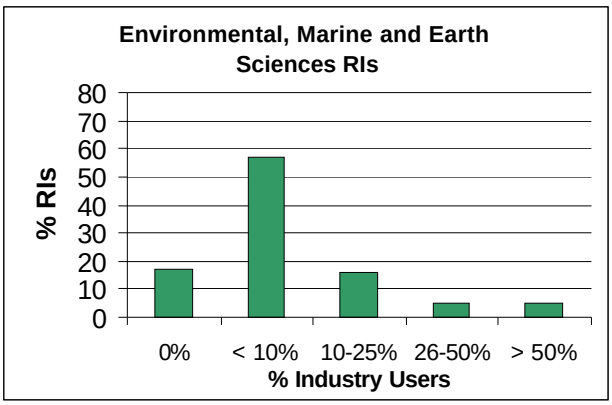


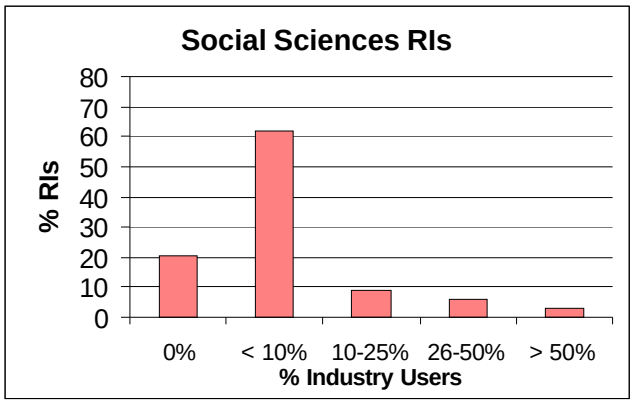


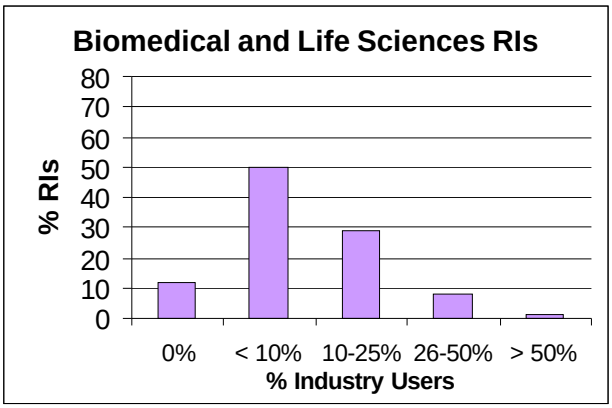


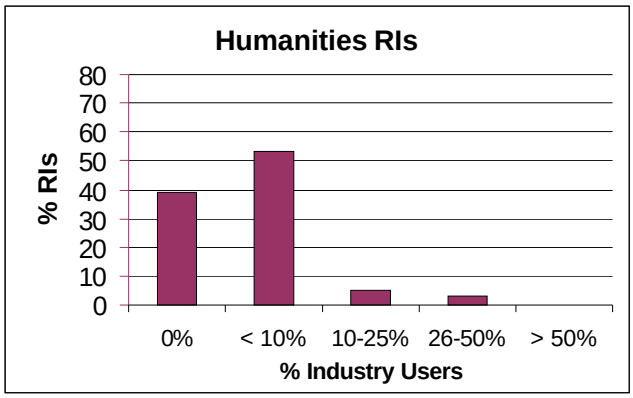


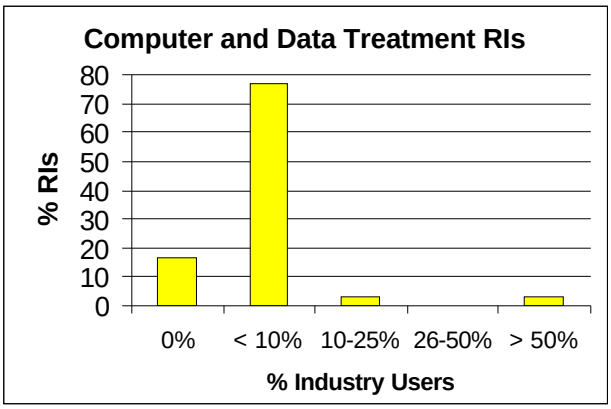
Industry Users

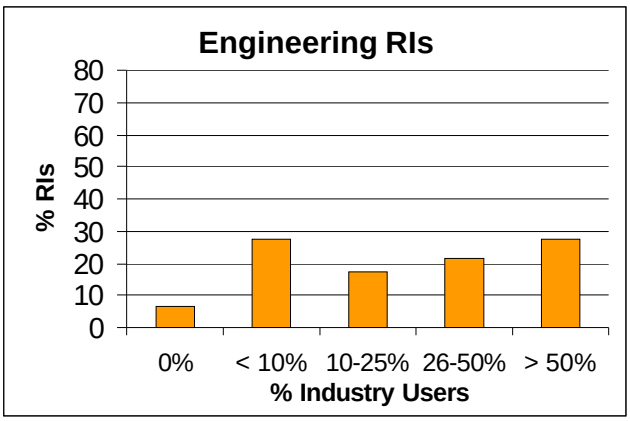


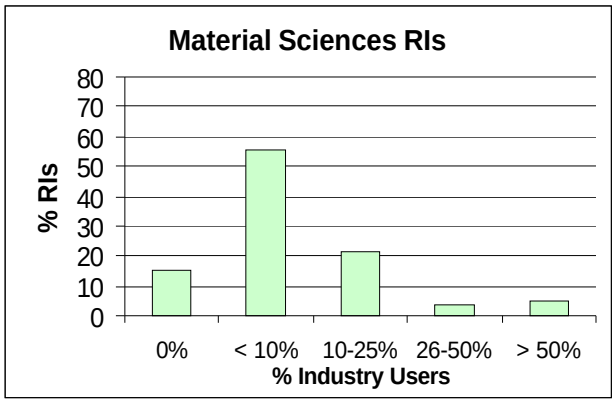












Annex 5 List of Surveyed Research Infrastructures[14]

Humanities

Unique research libraries (incl. national libraries)

- 427: The British Library, London (UK)
- 696: Archive ouverte en Sciences de l'Homme et de la Société, Paris (FR)
- 663: Bodleian Library, Oxford (UK)
- 720: The National Library of Scotland, Edinburgh (UK)
- 711: The National Library of Wales, Aberystwyth (Ceredigion) (UK)

Unique research archives

- 738: Sudan Archive, Special Collections, Durham University (UK)
- 282: The Norwegian Historical Data Centre, Tromsø (NO)
- 423: Wittgenstein Archives at the University of Bergen (WAB), Bergen (NO)
- 705: Phonogrammarchiv der Österreichischen Akademie der Wissenschaften, Wien (AT)
- 699: Icelandic newspaper archive (timarit), (IS)
- 703: The Warburg Institute, London (UK)

Digital collections/ repositories

- 691: Max Planck Digital Library (MPDL), München (DE)
- 704: Data Archiving and Networking Service, The Hague (NL)
- 706: Arts and Humanities Data Service in UK, London (UK)
- 719: REX: Integrated online Catalogue, Copenhagen (DK)
- 730: Unit for Digital Documentation, Faculty of Arts, University of Oslo (NO)
- 733: Danmarks Kalkmalerier, SAXO-Instituttet, Copenhagen (DK)
- 734: Het Geheugen van Nederland / Memory of the Netherlands, Den Haag (NL)
- 739: EKT/NHRF (National Documentation Centre/National Hellenic Research Foundation), Athens (EL)
- 743: Short-Title Catalogue, Den Haag (NL)

Large scale research bibliographies

- 718: International Medieval Bibliography, University of Leeds (UK)

Education databases/ collections/ repositories

- 727: National Library of Education PERINE, Copenhagen (DK)

Arts & Art History databases/collections/repositories

- 230: Byzantine Sigillography, Institute for Byzantine research, Austrian Academy of Sciences, Vienna (AT)
- 688: Herzog August Library, Wolfenbüttel (DE)

[14] Each Research Infrastructure in this list is preceded by its ID number in the database; the "T" before some of the Research Infrastructures indicates that these Research Infrastructures had a Transnational Access contract with the European Commission under FP6.

- 702: Institute of Art of the Polish Academy of Sciences, Warszawa (PL)
- 716: Beazley Archive of Classical Archaeology and Art, Oxford (UK)
- 723: Tate Research, London (UK)

Archaeology and anthropology databases/collections/repositories

- 262: The digital collection catalogue of Norsk Folkemuseum (PRIMUS), Oslo (NO)
- 667: Musée du quai Branly, Paris (FR)
- 695: Institute of Archaeology and Ethnology, Polish Academy of Sciences, Warszawa (PL)
- 710: KITLV (Royal Netherlands Institute of Southeast Asian and Caribbean Studies), Leiden (NL)
- 717: Danske runeindskrifter (Danish Runic Inscriptions), Nordisk Forskningsinstitut (DK)
- T729: Royal Museum for Central Africa, Tervuren (BE)

Digitised manuscript databases/collections/repositories

- 675: Codices Electronici Ecclesiae Colonienses, CEEC, Köln (DE)
- 728: Codices Electronici Sangallenses, CESG, St. Gallen (CH)
- 669: Manuscripta Medievalia database, Marburg (DE)

History archives/databases

- 115: Schweizerisches Sozialarchiv, Zurich (CH)
- 683: Ottoman Bank Archives, Istanbul (TR)
- 686: Forschungsstelle für islamische Numismatik, Tübingen (DE)
- 694: Demografiska Databasen, Umeå University (SE)
- 697: Istituto e Museo di Storia della Scienza, Firenze (IT)
- 700: International Institute for Social History, Amsterdam (NL)
- 712: Institut de recherche et d'histoire des textes, Paris (FR)
- 713: Nederlands Instituut voor Oorlogsdocumentatie (NIOD) (Netherlands Institute for War Documentation), Amsterdam (NL)
- 715: Internationaal Informatiecentrum en Archief voor de Vrouwenbeweging (IIAV), Amsterdam (NL)
- 732: Archivo General de Indias, Sevilla (ES)
- 752: Haus-, Hof- und Staatsarchiv, Wien (AT)
- 753: Arquivo Histórico Ultramarino, Lisboa (PT)

Linguistics (incl. corpora; language technology; analytical tools; ontologies)

- 158: Research Infrastructure for Language Technology, University. of Helsinki (FI)
- 690: Czech National Corpus, Prague (CZ)
- 692: Hans Rausing Endangered Languages Programme, SOAS, London (UK)
- 701: Hungarian National Corpus, Budapest (HU)

Literature and text archives

- 471: Digital Library for Dutch Literature, Leiden (NL)
- 736: Literature Online, Oxford (UK)
- 737: CTLO (Centre Traditio Litterarum Occidentalium) (BE)

Music and instrument collections

- 726: Répertoire International des Sources Musicales (RISM), Paris / Frankfurt (FR / DE)

Analytical facilities for cultural heritage objects (artefacts, incl. sound, images, film)

- 174: Opificio delle Pietre Dure, Firenze (IT)
- 336: “ORMYLIA” Foundation, Ormylia (EL)
- 410: Institute for Conservation and Promotion of Cultural Heritage ICVBC-CNR, Firenze (IT)
- 708: 14CHRONO Centre for Climate, the Environment, and Chronology, Belfast (UK)
- 714: IDAP: Improved Damage Assessment of Parchment School of Conservation, Copenhagen (DK)

Cognitive Sciences

- 168: Cognitive Brain Research Unit, Dept of Psychology, University of Helsinki (FI)

Other Humanities Research Infrastructures:

- 33: Commission for Egypt and the Levant, Austrian Academy of Sciences, Wien (AT)
- 488: School of Advanced Study, University of London (UK)

Social Sciences

Data storage & Data Archives for economic and social data

- 348: Centre d'Etudes de Populations, de Pauvreté et de Politiques Socio-Economiques/International Networks for Studies in Technology, Environment, Alternatives, Development, Luxembourg (LU)
- 476: INDEUNIS, Wien (AT)
- 637: UK Longitudinal Studies Centre, Colchester (UK)
- 640: UK Data Archive, Colchester (UK)
- 641: Council of European Social Science Data Archives (CESSDA), Colchester (UK)
- 69: Zentralarchiv fuer Empirische Sozialforschung an der Universitaet zu Koeln (GESIS-ZA) (DE)
- 157: Swiss information and data archive service for the social sciences (SIDOS), Neuchâtel (CH)
- 216: Finnish Social Science Data Archive (FSD), Tampere (FI)
- 256: Wiener Institute for Social Science Documentation and Methodology (WISDOM), Wien (AT)
- 460: The Finnish Labour Archives, Helsinki (FI)
- 509: Government Institute for Economic Research (VATT), Helsinki (FI)
- 634: Intute: Social Sciences (formerly SOSIG), Manchester (UK)
- 638: Centre for Survey Research and Methodology (GESIS-ZUMA), Mannheim (DE)
- 639: Economic and Social Data Service (ESDS), Colchester (UK)
- 642: Institute for Social Studies at the Warsaw University (PL)
- 643: Centre for Advanced Study Sofia (CAS), Sofia (BG)
- 649: Norwegian Social Sciences Data Services Ltd. (NSD), Bergen (NO)
- 16: National Centre for E-Social Science (NCeSS), Manchester (UK)
- 208: European Rural Development Network, Warszawa (PL)
- 412: Accès unique aux Données et aux dOcuments NumérIques des Sciences humaines et sociales (ADONIS), CNRS, Paris (FR)
- 724: International Bibliography of the Social Sciences (IBSS), London (UK)

Social surveys and methods for social sciences

- 112: ASEP/JDS Data Bank, Madrid (ES)
- T614: European Social Survey Infrastructure (ESSI), London (UK)
- 629: The International Social Survey Programme (ISSP), Bergen (NO)
- T647: Survey of Health, Ageing and Retirement in Europe (SHARE), Tilburg (DE)
- 627: Scottish Longitudinal Study, Edinburgh and St Andrews (UK)
- 654: Luxembourg Income Study, Luxembourg (LU)

- 458: STUDIA Studienzentrum für internationale Analysen, Schlierbach (AT)
- 646: National Centre for Research Methods, Southampton (UK)

Other Social Sciences Research Infrastructures

- 97: University 1 Decembrie 1918, Alba Iulia (RO)
- 285: Scientific Research Centre of Slovenian Academy of Science and Arts (SRC SASA), Natural and Cultural Heritage, Ljubljana (SI)
- 377: European Anglers' Alliance, Brussels (BE)
- 469: Agora Human Technology Center, Jyväskylä (FI)
- 477: FOWI, Wien (AT)

Environmental, Marine and Earth Sciences (EMES)

Natural History collections

- T47: Museum National d'Histoire Naturelle, Paris (FR)
- T131: Botanic Garden & Botanical Museum Berlin-Dahlem, Freie Universität Berlin (DE)
- T238: Museum für Naturkunde / Museum of Natural History, Berlin (DE)
- T596: Natural History Museum of Denmark, University of Copenhagen (DK)
- T395: Zoological research collection, Institute Biodiversity & Ecosystem Dynamics, University of Amsterdam (NL)
- T493: Naturhistoriska Riksmuseet, NRM (Swedish Museum of Natural History), Stockolm (SE)
- 525: Staatliche Naturwissenschaftliche Sammlungen Bayerns (SNSB), München (DE)
- T529: Natural History Museum, London (UK)
- T553: Royal Botanic Garden Edinburgh (UK)
- T567: Nationaal Herbarium Nederland, Leiden (NL)
- T581: Royal Belgian Institute of Natural Sciences (RBINS), Brussels (BE)
- T609: Museo Nacional de Ciencias Naturales (MNCN), Madrid (ES)
- T615: Real Jardín Botánico de Madrid, CSIC, Madrid (ES)
- T628: Naturhistorisches Museum Wien (AT)
- T709: Royal Botanic Gardens, Kew (UK)
- T751: Botanical Garden, University of Vienna (AT)

Seismic monitoring stations

- 4: European Center for Geodynamics and Seismology, Walferdange (LU)
- 21: AMRA Scarl-Naples (IT)
- 116: ITSAK Research Infrastructure, Thessaloniki (GR)
- 199: Corinth Rift Laboratory, Aigion (GR)
- 222: EUROSEISTEST, Aristotle University of Thessaloniki (GR)
- 302: Geological Institute of Romania, Bucharest (RO)
- T368: Conrad Observatory, Zentralanstalt für Meteorologie und Geodynamik, Muggendorf (AT)
- T402: NORSAR Norwegian Seismic Arrays Norwegian National Data Centre (NO)
- T619: Swiss Digital Seismic Network (SDSNet), ETH Zürich (CH)
- T660: SISMOS (INGV), Roma (IT)

Earthquake simulation labs

- 175: TAMARIS, Gif-sur-Yvette (FR)
- 224: European Centre for Training and Research in Earthquake Engineering, Pavia (IT)
- 404: LCPC Geotechnical Centrifuge, Nantes (FR)
- 534: Structural Dynamics and Vibration Control Laboratory, ENEA, Rome (IT)

Marine research centers

- 228: Instrument platforms for deep sea exploration, Marum Center for Marine Environmental Sciences, Bremen (DE)
- T244: Trondheim Marine Systems Research Infrastructure, Trondheim (NO)
- 289: Dunstaffnage Marine Laboratory, Oban (UK)
- 390: Marine Data Online, Marine Institute, Galway (IE)
- 405: Automated high frequency monitoring network for coastal water, Ifremer, Brest (FR)
- 425: Bergen Marine Research Infrastructure, Bergen (NO)

- 519: Centre for Estuarine and Marine Ecology, Yerseke (NL)
- 536: Maritime Research Institute Netherlands, Wageningen (NL)
- T537: Research laboratories of the Institute of Marine Research (Havforskningsinstituttet), Bergen (NO)
- 540: Research stations of the Institute of Marine Research (Havforskningsinstituttet), Bergen (NO)

Wave channels

- T542: Delft Hydraulics, Delft (NL)
- T561: CIEM flume, LIM, Universitat Politècnica de Catalunya, Barcelona (ES)
- T604: Ship Dynamics Laboratory, CEHIPAR, Madrid (ES)
- T623: DHI Shallow Water Basin, DHI Water & Environment, Hoersholm (DK)
- T624: DHI Offshore Basin, DHI Water & Environment, Hoersholm (DK)

Research Vessels

- 35: Ifremer blue ocean research vessels (Thalassa, L'Atalante, Le Suroît, Pourquoi pas?) (FR)
- 128: Oceanographic research fleet of the Instituto Español de Oceanografía (ES)
- 163: NIOZ Marine Research Facilities (NIOZ-MRF), Texel (NL)
- T193: RV Zeeleeuw, Flanders Marine Institute - VLIZ, Oostende (BE)
- 207: SYKE/Helsinki, Finnish environment institute, Savonlinna (FI)
- 317: RRS James cook; RRS Discovery, NERC, Southampton (UK)
- 321: Oceanographic fleet (6 vessels and instruments), CNRS, Meudon (FR)
- 331: Research vessels, Marine Institute, Galway (IE)
- T414: Research vessels, Institute of Marine Research (Havforskningsinstituttet), Bergen (NO)
- T489: The Finnish Institute of Marine Research (FIMR) and the research vessel Aranda, Helsinki (FI)
- 558: Polar Research Vessel "Polarstern", Alfred Wegener Institute for Polar and Marine Research, Bremerhaven (DE)
- T689: Marine Research Institute, Reykjavik (IS)

Oceanic and Marine Data Centers

- T213: Systèmes d'Informations Scientifiques pour la Mer (SISMER), Brest (FR)
- T217: Technical-Scientific Data Centre, Instituto Hidrográfico, Lisbon (PT)
- T349: Irish national data buoy network, Marine Institute, Galway (IE)
- T357: National Oceanographic data Centre/NODC/IODE/IOC and Oceanographic Calibration Centre, Trieste (IT).
- T569: IMGW OM Oceanographic Data Base (PL-NODC), Gdynia (PL)
- T582: Latvian Institute of Aquatic Ecology, Riga (LV)
- T585: AVISO Altimetry, CLS/CNES, Toulouse (FR)
- T591: National database for marine data (MADS), Roskilde (DK)
- T602: Hellenic National Oceanographic Data Centre (HNODC), Anavyssos (GR)
- T621: Center of Marine Research, Klaipeda (LT)
- T622: Marine Hydrophysical Institute, Sevastopol (UA)
- T625: Mariene Informatie Service 'MARIS', Amsterdam (NL)
- T626: IFM-GEOMAR, Leibniz –Institut für Meereswissenschaften, Kiel (DE)
- T632: Israel Marine Data Centre – ISRAMAR, Haifa (IL)
- T644: National Center for Marine Sciences, Jounieh (LB)
- T674: DNA-Oceanological Reasarch Centre/IOC/UNESCO, Iv.Javakhishvili Tbilisi State University, Georgia
- T698: Swedish Meteorological and Hydrological Institute (SMHI), Norrkoping (SE)

Oceanographic Research Infrastructures

- 429: Integrated Ocean Drilling Program (IODP), (international, FR)
- 443: ECORD Science Operator, IODP, British Geological Survey, Edinburgh (UK)
- 454: Integrated Ocean Drilling Program (IODP) Bremen Core Repository (BCR)
- 470: DFG-Research Center Ocean Margins RCOM Center for Marine Environmental Sciences, MARUM, IODP, Bremen (DE)

Ice model basins (ice tanks)

- T606: Arctic Technology Laboratories (ARCTECLAB), Hamburgische Schiffbau-Versuchsanstalt GmbH (HSVA), Hamburg (DE)

Atmospheric test chambers

- T82: European Photoreactor EUPHORE, Paterna (ES)
- T179: JRC-Ispra atmospheric research station, Ispra (IT)
- T573: AIDA aerosol and cloud chamber, Institute for Meteorology and Climate Research (IMK-AAF), Forschungszentrum Karlsruhe (DE)

Atmospheric measurement facilities and data archives

- 10: Instituto de Meteorologia, Lisboa (PT)
- T70: Andøya Rocket Range (ARR), Andenes (NO)
- 81: High Altitude Research Station Jungfraujoch (CH)
- 103: Spanish EMEP monitoring network, Madrid (ES)
- 332: European Center for Atmospheric Research (ECAR), Finnish Meteorological Institute, Helsinki (FI)
- 335: Sonnblick Observatory, Zentralanstalt für Meteorologie und Geodynamik, Wien (AT)
- 413: MIRACLE, Finnish Meteorological Institute, Helsinki (FI)
- T556: SPOT, CNES, Toulouse (FR)
- 563: BEO Moussala (Basic Environmental Observatory), INRNE, Sofia (BG)
- T612: Pallas, Finnish Meteorological Institute, Helsinki (FI)
- T613: High Altitude Research Station Jungfraujoch, Paul Scherrer Institut, Villigen (CH)
- T620: The Puy de Dôme Microphysics and Chemistry Station, Clermont-Ferrand (FR)
- 653: Leibniz-Institute of Atmospheric Physics e.V. at the University Rostock (DE)

Research Aircraft

- T133: NARSIM (NLR ATC Research Simulators), Amsterdam (NL)
- T272: Joint Airborne-geoscience Capability (JAC), Geological Survey of Finland (GTK), Espoo (FI)
- T326: Research Aircraft (SAFIRE, avions de recherche atmosphérique), CNRS, Toulouse (FR)
- T403: Facility for Airborne Atmospheric Measurements, NERC, Cranfield (UK)
- T491: Airborne Research and Survey Facility (ARSF), NERC, Oxford (UK)
- T522: DLR, Flight Facility Oberpfaffenhofen (DE)
- 557: Polar Research Airplanes, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven (DE)
- T566: INTA Airborne Research Facility, Madrid (ES)
- T588: MetAir – airborne research and consulting (CH)
- T589: Research Aircraft Do128-6 "D-IBUF", Technical University of Braunschweig, Institute of Flight Guidance, Braunschweig (DE)
- T595: Geophysica-EEIG, Firenze (IT)
- T598: King Air research airplane, Tel Aviv University (IL)
- T599: Microlight Research Aircraft, D-MIFU, Garmisch-Partenkirchen (DE)
- T600: enviscope GmbH, Measurement Technology for Environmental Research, Frankfurt/Main (DE)

- T636: CNR ISAFoM, Ercolano (IT)

Ecological habitats and field stations

- 200: Finnish Forest Research Institute (Metla), Helsinki (FI)
- 439: Estacion Biologica de Donana (EBD), Sevilla (ES)
- 456: Danube Delta National Institute for Research and Development, Tulcea (RO)
- T631: Abisko Scientific Research Station, Abisko (SE)

Aquaculture facilities

- 126: Aquaculture and laboratory testing facilities network, Instituto Español de Oceanografía, Madrid (ES)
- 286: Laboratoire Aquaculture Languedoc Roussillon, IFREMER, Palavas (FR)
- 381: Pluridisciplinary Marine Aquaculture Research Center (PLUMAREC)-Ifremer, La Tremblade (FR)

Environmental Health research

- 22: LQAI - Laboratório da Qualidade do Ar Interior, Porto (PT)
- 176: Center of excellence in Environmental Health risk analysis, Kuopio (FI)
- 319: Radiation and Nuclear Safety Authority STUK, Helsinki (FI)
- 436: Finnish Institute of Occupational Health, Helsinki (FI)
- 438: National Public Health Institute, Helsinki (FI)

Environmental Management Infrastructures

- 6: MINEA, CEMAGREF, Montpellier (FR)
- 19: Low-Background Spectrometry Systems, Henryk Niewodniczanski Institute of Nuclear Physics, PAN, Kraków (PL)
- 27: Lysimeter station, UFZ Centre for Environmental Research Leipzig – Halle (DE)
- 71: SAFIRA, UFZ Center for Environmental Research, Leipzig (DE)
- T98: Environmental Gas Management Research Infrastructure (ENGAS-RI), Trondheim and Oslo (NO)
- 195: JRC, Institute for Environment and Sustainability, Ispra (IT) (PESC)
- 225: Zöbelboden, Ecosystem Monitoring, Umweltbundesamt, Wien (AT)
- T757: Agricultural Research Institute, Agricultural Research Institute, Nicosia (CY)

Environmental Polar Infrastructures

- 172: Finnish Antarctic research station Aboa, Finnish Meteorological Institute, Helsinki (FI)
- 206: Ny-Ålesund International Research and Monitoring Facility, Svalbard (NO)
- 473: IFF Social Ecology, Wien (AT)
- 526: Neumayer Station Antarctica, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven (DE)
- 528: Koldeway Station – AWIPEV, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven (DE)

Other Environmental Science Research Infrastructures

- 407: NoE HySafe, Forschungszentrum Karlsruhe GmbH (DE)
- 467: Environmental Information System HERTTA, Helsinki (FI)
- 494: Climate and Land Surface Systems Interactions Centre, Swansea (UK)
- 586: Laboratoire de Mesure du Carbone-14, UMS 2572 (CNRS/CEA/MCC/IRSN/IRD), Gif-sur-Yvettes (FR)
- 659: RERAF (Risoe Environmental Risk Assessment Facility), Risoe National Laboratory, Roskilde (DK)
- T766: Institute of botany, Bulgarian Academy of Sciences, Sofia (BG)

Other Earth Sciences Research Infrastructures

- 58: Turun ammattikorkeakoulu - Turku University of Applied Sciences, Turku (FI)
- 65: Space Weather Centre, Space Research Centre, PAN, Warszawa (PL)
- 159: Advanced Mapping Services, Marine Institute, Galway (IE)
- 371: National Land Survey of Iceland, Akranes (IS)
- 382: European UV Database (EUVDB), Helsinki (FI)
- 453: Support for Research Centers in the South, IRD, Paris (FR)

Energy

Nuclear energy research facilities

- 370: CABRI reactor, CEA/CADARACHE, Saint Paul lez Durance (FR)
- 375: EOLE, CEA/CADARACHE, Saint Paul lez Durance (FR)
- 376: MASURCA, CEA/CADARACHE, Saint Paul lez Durance (FR)
- 380: OSIRIS reactor, CEA/SACLAY, Gif sur Yvette (FR)
- 389: PLINIUS, CEA/CADARACHE, Saint Paul lez Durance (FR)
- 393: MINERVE, CEA/CADARACHE, Saint Paul lez Durance (FR)
- 428: LECI, CEA/SACLAY, Gif sur Yvette (FR)
- 430: CHICADE, CEA/CADARACHE, Saint Paul lez Durance (FR)
- 434: ATALANTE, CEA, Marcoule - Bagnols sur Cèze (FR)
- 437: LEFCA, CEA/CADARACHE, Saint Paul lez Durance (FR)
- 445: LECA-STAR, CEA/CADARACHE, Saint Paul lez Durance (FR)
- 474: The BR1 Research Reactor, SCK-CEN, Mol (BE)
- 483: VENUS: Zero Power Research Reactor, SCK-CEN, Mol (BE)
- 532: Institute for Energy (IE), JRC, Petten (NL)
- 783: TCV, Centre de Recherches en Physique des Plasmas, EPFL, Lausanne (CH)

Fusion test facilities (tokamaks, stellarators, inertial fusion)

- 1: Plasma Physics and Fusion Energy Laboratory, ENEA, Frascati (IT)
- 5: TCV, Centre de recherches en physique des plasmas, EPFL, Lausanne (CH)
- 527: Flexible Heliac TJ-II, CIEMAT, Madrid (ES)

Solar energy testing platforms

- 365: Plataforma Solar de Almeria, Desert of Tabernas, Almeria (ES)
- 495: Ege University, Solar Energy Institute, Izmir (TR)
- T590: High Flux SOLar FACilities for Europe "SOLFACE", Odeillo (FR)
- 767: AEE - Institute for Sustainable Technologies (AEE INTEC), Gleisdorf (AT)

Combustion test facilities

- T593: The KTH Cluster of Research Infrastructures in Sustainable Thermal Power Generation, Kungliga Tekniska Hoegskolan, Stockholm (SE)
- 769: Fluidised bed facility for combustion, gasification and pyrolysis of different fuels, INETI, Lisboa (PT)

Bioenergy research facilities

- 312: The NoE Bioenergy for Europe, Espoo, Uusimaa (FI)
- 780: Austrian Bioenergy Centre, Graz (AT)

Geothermics Research Facilities

- 359: Géothermie Soultz, Soultz-sous-Forêts (FR)

Electricity Research Facilities

- 90: High Voltage Laboratory, ICMET, Craiova (RO)

Other Energy Research Infrastructures

- 452: Supervision and Control of Energy Systems, Rome (IT)
- 782: International Institute for Applied Systems Analysis (IIASA), Laxenburg (AT)

Biomedical and Life Sciences (BMLS)

Medical imaging facilities (including MRI)

- 95: Centre Auvergne de Resonance Magnétique, Saint-Genès Champanelle (FR)
- 190: Human Brain Mapping Pitié-Salpétrière' Facilities (MEG-EEG, fMRI, RMN), Paris
- 290: PRISM Imaging and Spectroscopic Research Plate-form for Structural and Metabolic investigation, Cemagref, Rennes (FR)
- 325: Centre d'Investigation Technologique en Imagerie Médicale (CITIM), Lyon (FR)
- 398: Advanced Magnetic Imaging Centre, Helsinki University of Technology (FI)
- 685: NeuroSpin, Saclay (FR)

Advanced Light Microscopy facilities

- 15: "Dynamics processes Imaging in Cellular and Developmental Biology", Institut Jacques Monod, Paris (FR)
- 89: European Light Microscopy Initiative - Centre for Cellular Imaging, Göteborg University (SE)
- 306: Molecular Imaging Unit, University of Helsinki (FI)
- 468: Cell Imaging Research Platform of Normandy, INSERM, Rouen (FR)

Bio-informatics resources

- T8: Swiss-Prot knowledgebase, Genève (CH)
- T183: European Bioinformatics Institute (EBI) (in EMMA), EMBL, Cambridge (UK)
- 343: BioInformatics Platform of Strasbourg, GENOPOLE / CANCEROPOLE / IGBMC, Strasbourg (FR)
- T765: BRENDA Enzyme information system, Universität zu Köln (DE)

Bio-nanotechnology facilities

- 309: Biochips platform, Institut national des sciences appliquées Toulouse (FR)
- T768: BINASP Bio-Nanotechnology European Infrastructure in AREA Science Park, Trieste (IT)

Genomic, Proteomic, Transcriptomic facilities

- 2: Center for Immunophenomics, Centre d'Immunologie INSERM/CNRS de Marseille-Luminy (FR)
- 134: INRA Proteomic Platform of Montpellier Genopole, Montpellier (FR)
- 145: Swedish Proteomics Interaction Network for Clinically Applied Technology SPIN-CAT, Lund (SE)
- 196: OUEST and Rhône-Alpes Genopole Proteomics platforms, Rhône-Alpes (FR)
- 233: Plate-forme protéome et spectrométrie de masse biologique de la Montagne Sainte Geneviève (ESPCI et Institut Curie), Paris (FR)
- 747: Human Proteome Resource (HRP) center, Royal Institute of Technology (KTH), Stockholm (SE)
- 784[15]: Wellcome Trust Sanger Institute (WTSI), Cambridge (UK)

Phenotyping facilities (Mouse clinics, …)

- 75: Center for Mouse Physiology and Bio-Imaging, Gothenburg University, Gothenburg (SE)
- 107: ARA : Ani.Rhône-Alpes, Lyon (FR)
- 354: Mouse Clinical Institute - GIE-CERBM, Illkirch (FR)

[15] Received after 7 March 2007, the data of WTSI are not included in the analysis of this report.

Biological Atlas (Histology, In-situ-hybridisation, …)

- 770: Edinburgh Mouse Atlas Project, MRC Human Genetics Unit, Edinburgh (UK)

Collections of Biological Resources (DNA, RNA, antibodies, aptamers, vectors, cells, tissues, organs, …)

- 479: Platform for integrated clone management, ARC Seibersorf research (AT)
- 241: Vienna Drosophila RNAi Stock Centre, Wien (AT)
- 750: GARNet (Genomic Arabidopsis Resource Network) (UK)

Animal archives (Mouse archives, primate centers, Drosophila, …)

- T53: European Mouse Mutant Archive (EMMA), Monterotondo Scalo (IT)
- 136: CNRS-Transgenos Institute (in EMMA), Orléans (FR)
- T575: Deutsches Primatenzentrum, Goettingen (DE)
- T748: CNR-Istituto di Biologia Cellulare (in EMMA), Monterotondo Scalo (IT)
- 749: Szeged Drosophila Stock Centre, University of Szeged (HU)
- T759: MRC-Harwell (in EMMA), Harwell (UK)
- T760: GSF-Forschungzentrum für Umwelt und Gesundheit (in EMMA), München (DE)

Animal Quarantine stations and experimental animal farms

- 189: Ruminant physiology and metabolism unit, Agrifood Research Finland (MTT), Jokioinen (FI)
- 219: Fish Nutrition Research Facilities, INRA, St Pée-sur-Nivelle (FR)
- 279: VAR - Veterinary and Agrochemical Research centre, Brussels (BE)
- 318: Centro de Investigación en Sanidad Animal (CISA-INIA), Valdeolmos (ES)
- 351: Campusstalden - Copenhagen Animal Facilities, Copenhagen (DK)
- 420: Department of Physiology of Marine Organisms, IFREMER, Brest (FR)
- T776: Budapest Zoo and Botanical Garden, Veterinary Department, Budapest (HU)

Biosafety Level-4 Laboratories

- 178: European Centre for Training and Research on Highly Contagious Diseases (EUTRICOD), Hamburg (DE)

Seed banks (Wild species, Arabidopsis, …)

- 457: Arabidopsis thaliana Resource Centre for Genomics, INRA, Versailles (FR)
- 755: Millennium Seed Bank Project, Royal Botanic Gardens Kew, Ardingly (UK)
- 758: Nottingham Arabidopsis Stock Centre (NASC), Nottingham (UK)
- T761: Trentino Seed Bank, Trento (IT)
- T764: Germplasm Bank of the Botanical Garden of Valencia University (ES)
- T771: Banco de Germoplasma de la Universidad Politécnica de Madrid (ES)
- T774: Botanical Garden – Center for Biological Diversity Conservation of Polish Academy of Sciences, Warsaw (PL)
- T775: Department of “Ecologia del Territorio” of the University of Pavia (IT)
- T777: Budapest Zoo and Botanical Garden, Pannon Seed Bank, Budapest (HU)

Greenhouses and Phytotrons

- 328: Martonvásár Phytotron, Martonvásár (HU)

Chemical libraries and screening facilities

- 754: FMP Berlin Screening Unit, Leibniz-Institut für Molekulare Pharmakologie (DE)

Computational Biology

- T223: Interdisciplinary Center for Neural Computation (ICNC), Jerusalem, (IL)

Translational research centers of competence

- 499: Fondazione parco biomedico san Rafaele, Rome (IT)

Biobanks

- 67: Biobank of the Medical University of Graz (AT)
- 741: TuBaFrost; European Human Frozen Tumor Tissue Bank, Rotterdam (NL)
- 756: Estonian Genome Project, Tartu University (EE)
- 762: Swedish National Biobanking Program, Malmö (SE)

Clinical research centers

- 12: Paracelsus Private Medical University, Salzburg (AT)
- 144: Dept. of Obstetrics and Gynaecology, Med. University of Innsbruck (AT)

Cyclotrons for medical applications

- 45: Isochronous Cyclotron AIC-144, Henryk Niewodniczanski Institute of Nuclear Physics, PAN, Kraków (PL)
- 197: Large Scale Facility of Research in Medical Physics, Valencia (ES)

Mass spectroscopy and other analytical facilities for life sciences

- 167: SCESMO: Single CEll Single MOlecule anlaytics and diagnostics, Graz (AT)
- 188: CQM - Centro de Química da Madeira, Funchal (PT)
- 245: Division of Molecular & Nanomaterials, Chemistry Department K.U.Leuven (BE)
- 250: Plant, Drug and Scientific Researches Center (AÜBIBAM), Eskisehir (TR)
- 344: From Metabolism to Metabolomics Platform, INRA, Clermont-Ferrand/Theix (FR)

Nutrition and Food facilities

- 185: FRCNF, Federal Research Centre for Nutrition and Food, Karlsruhe (DE)
- 441: Lebensmittelversuchsanstalt/Food Testing Institute, Wien (AT)

Structural Biology facilities (including NMR)

- 60: European Molecular Biology Laboratory (EMBL), Hamburg Unit (DE)
- 76: Swedish NMR centre at Göteborg University (SE)
- 184: Centro Risonanze Magnetiche, CERM, Florence (IT)
- 298: The Centre for Integrated Structural Biology (CISB), Grenoble (FR)
- 408: Structural Biology and Genomics Platform, GENOPOLE, CANCEROPOLE, IGBMC/STRASBOURG, Illkirch (FR)
- 466: Austrian Academy of Sciences Institute of Biophysics and X-Ray Structure Research, Graz (AT)
- T564: Center for Biomolecular Magnetic Resonance (BMRZ), Frankfurt/Main (DE)
- T568: Wageningen NMR Centre, Wageningen (NL)
- T587: SON NMR LSF; European NMR Large-Scale Facility Utrecht (NL)

Networks of distributed infrastructures for clinical trials

- 506: Réseau des Centres d'Investigation Clinique (CIC, in France) & European Clinical Research Infrastructures Network (ECRIN, in the EU), INSERM, Paris (FR)

Agronomy and plant breeding centres

- 102: Plant Breeding and all related issues, Central research Institute for Crops, Ankara (TR)
- T773: Mediterranean Agronomic Institute at Chania (MAICh), Chania (EL)

Other BMLS Research Infrastructures

- 391: "Victor Babese" National Institute of Pathology and Biomedical Sciences, Bucharest (RO)
- 450: IAM, Dept. Biotechnology BOKU, Wien (AT)

Nuclear and Particle Physics, Astronomy, Astrophysics (NPPAA)

Particle Physics accelerators and detectors

- 165: Proton Cyclotron Systems, Paul Scherrer Institut, Villigen (CH)
- 171: HERA, DESY, Hamburg (DE)
- 186: ZEUS, DESY, Hamburg (DE)
- 243: H1 Experiment, DESY, Hamburg (DE)
- T249: DESY Test Beam, Hamburg (DE)
- 548: CERN Proton Synchrotron and Super Proton Synchrotron beamlines, Genève (CH/FR)
- 550: CERN Neutrinos to Gran Sasso (CNGS), Genève/Gran Sasso-L'Aquila (CH/FR/IT)
- 552: CERN AD - antiproton decelerator, Genève (CH/FR)

Nuclear Physics accelerators and detectors

- T39: Laboratori Nazionali di Legnaro (LNL), INFN, Legnaro (IT)
- T48: Laboratori Nazionali di Frascati (LNF), INFN, Frascati (IT)
- 104: Horia Hulubei National Institute of Research and Development for Physics and Nuclear Engineering (IFIN-HH), Bucharest (RO)
- 141: NIK Heavy Ion Cascade Generator, KFKI Research Institute for Particle and Nuclear Physics, Budapest (HU)
- 143: EG2R van de Graaff Accelerator, KFKI Research Institute for Particle and Nuclear Physics, Budapest (HU)
- 164: Bonn Isotope Separator (BONIS), Helmholtz – Institut für Strahlen- und Kernphysik, Bonn (DE)
- T187: GSI Accelerator Facility (UNILAC-SIS-ESR), Darmstadt (DE)
- T215: HERMES, DESY, Hamburg (DE)
- 327: Laboratori Nazionali del Sud (LNS), INFN, Catania (IT)
- T345: MAinz MIcrotron MAMI, Mainz (DE)
- T384: ISOLDE, CERN, Genève (CH)
- 409: Maier-Leibnitz-Laboratory for Nuclear and Particle, München (DE)
- T487: The Svedberg Laboratory, Uppsala (SE)
- T492: Accelerator Laboratory, Department of Physics, University of Jyväskylä, (FI)
- T541: Cyclotron Research Centre, Université catholique de Louvain, Louvain-la-Neuve (BE)
- 658: Tandem/ALTO facility, Institut de Physique Nucléaire, Orsay (FR)
- 661: 5 MV Van de Graaff accelerator of Atomki, Debrecen (HU)
- 662: Cyclotron of Atomki, Debrecen (HU)
- 670: RUBION- central unit for ion beams and radio nuclides Ruhr-University of Bochum (DE)
- 735: FAIR, GSI, Darmstadt (DE)
- 740: Laboratoire de l'Accélérateur Linéaire, Orsay (FR)
- 276: AIFIRA (Applications interdisciplinaires des faisceaux d’ions en région Aquitaine), Gradignan (FR)
- 283: Heavy Ion Laboratory (HIL), Warsaw University (PL)
- T421: AGOR/KVI, Groningen (NL)
- T422: Grand Accélérateur National d'Ions Lourds (GANIL), Caen (FR)
- T560: Queen's University Low Energy Ion Facility (QULEIF), Belfast (UK)
- T597: ELISA - ELectrostatic Ion Storage Ring Aarhus (DK)
- T601: ECT* (European Center for Theoretical Studies in Nuclear Physics and Related Areas), Villazzano (IT)
- T605: C2RMF, Paris (FR)

Underground Labs

- 330: HADES, EIG EURIDICE, Mol (BE)
- T617: Laboratori Nazionali del Gran Sasso (LNGS), INFN, L'Aquila (IT)
- T671: Laboratoire Souterrain de Modane (FR)
- T676: Boulby Unnderground Laboratory, Whitby (UK)

Gravitational Detectors

- 419: VIRGO, European Gravitational Observatory (EGO), Pisa (IT)

Earth based Astronomical Telescopes

- T28: European Northern Observatory, Tenerife and La Palma (Canary Islands) (ES)
- 32: High Altitude Research Station Gornergrat (CH)
- 36: ESO/ESA Space Telescope European Coordination Facility, München (DE)
- T40: La Silla-Paranal Observatory, Atacama desert, (Chile)
- 124: 1.5-meter telescope and Cassegrain spectrograph, Tartu Observatory (EE)
- 132: LOFAR, Dwingeloo (NL)
- T221: Radioobservatorium Effelsberg, Bad Münstereifel (DE)
- 247: MPIfR Correlator for Very-Long-Baseline Interferometry, Max Planck Institute for Radio Astronomy, Bonn (DE)
- T253: European VLBI Network (EVN), Dwingeloo (NL)
- 388: Metsähovi Radio Observatory, Helsinki University of Technology (FI)
- T399: Onsala Space Observatory, Gothenburg (SE)
- 415: High Energy Stereoscopic System (HESS), Gamsberg (desert) (Namibia)
- T432: Telescope Heliographique pour l'Etude du Magnétisme et des Instabilités Solaires (THEMIS), Tenerife (Canary Islands) (ES)
- 435: European Southern Observatory, Atacama desert, (Chile)
- 442: European Incoherent SCATter (EISCAT), Kiruna (SE)
- T448: Synthesis Radio Telescope Westerbork Observatory, Dwingeloo (NL)
- 472: Centro Astronomico de Yebes / Observatorio Astronomico Nacional, Yebes (ES)
- T484: Pico Veleta Observatory, Granada (ES)
- T504: Nordic Optical telescope, Garafia (La Palma) (Canary Islands) (ES)
- T517: James Clerk Maxwell Telescope, Mauna Kea (Hawai, USA)
- T530: MERLIN/VLBI National Facility, Manchester (UK)
- 533: Osservatori Radioastronomici di Medicina e Noto, Bologna (IT)
- T559: United Kingdom Schmidt Telescope, Coonabarabran (Australia)
- T570: Anglo-Australian Telescope, Coonabarabran (Australia)
- T574: Helmos Observatory (Aristarchos Telescope), Kalavryta (GR)
- T580: United Kingdom Infrared Telescope, Hilo (Hawaii, USA)
- T616: Observatoire de Haute Provence, Saint Michel l'Observatoire (FR)
- T635: Télescope Bernard Lyot, Tarbes (FR)
- T673: Canada France Hawaii Telescope, Kamuela (Hawaii, USA)
- T687: Calar Alto Observatory - Centro Astronomico Hispano Aleman, Almeria (ES)

Other NPPAA Research Infrastructures

- 146: Ruder Boskovic Institute, Zagreb (HR)
- 254: August Chelkowski Institute of Physics, Katowice (PL)
- 763: The Abdus Salam International Centre for Theoretical Physics, Trieste (IT)

Material Sciences

Synchrotron light sources and X-ray diffraction facilities

- T20: ELETTRA, Trieste (IT)
- 153: SOLEIL, Saint-Aubin (FR)
- T294: European Synchrotron Radiation Facility (ESRF), Grenoble (FR)
- T299: MAX-lab, Lund (SE)
- 418: DORIS III, DESY, Hamburg (DE)
- T431: ANKA (Angströmquelle Karlsruhe), Karlsruhe (DE)
- T446: Swiss Light Source (SLS), Paul Scherrer Institut, Villigen (CH)
- T513: BESSY, Berlin (DE)
- T515: ISA Institute for Storage Ring Facilities, Aarhus (DK)
- T618: COSY, Jülich (DE)
- T633: Daresbury Synchrotron Radiation Source, CCLRC, Warrington (UK)
- 645: Diamond Light Source, Oxford (UK)

Laser light sources

- T61: Ultraviolet Laser Facility (ULF-FORTH), Heraklion (GR)
- T475: PALS (Prague Asterix Laser system), Prague (CZ)
- T520: Central Laser Facility, CCLRC Rutherford Appleton Laboratory, Didcot (UK)
- T543: Lund Laser Centre (LLC), Lund (SE)
- T565: Centre for Ultrafast Science and Biomedical Optics, Milano (IT)
- T579: Institut für Optik und Quantenelektronik Jena (DE)
- T583: 100TW, Polytechnique, Palaiseau (FR)
- T584: LULI2000, Polytechnique, Palaiseau (FR)
- T603: Laser Centre Vrije Universiteit (LCVU) Amsterdam (NL)
- T650: Max Born Institute for Nonlinear Optics & Short Pulse Spectroscopy, Berlin (DE)
- T657: SLIC (Saclay Laser Matter Interaction Center), Saclay (FR)
- T664: European Laboratory for Non Linear Spectroscopy, Sesto Fiorentino (IT)

Free Electron Laser light sources

- T74: Forschungszentrum Rossendorf, Dresden (DE)
- T147: CLIO, Orsay (FR)
- 166: ELYSE, Orsay (FR)
- T231: FLASH (Free electron LASer for VUV and soft X-Ray radiation, formerly VUV-FEL), DESY, Hamburg (DE)

Neutron sources

- T44: Nuclear Physics Institute - Neutron Physics Laboratory, Rež (CZ)
- T161: Berlin Neutron Scattering Center at the Hahn-Meitner-Institut Berlin (DE)
- T182: Research Reactor FRJ-2 and Neutron Scattering Instruments, Jülich (DE)
- T218: Laboratoire Léon Brillouin (LLB) - Réacteur ORPHEE (Neutron Research Facility), Saclay (FR)
- T263: Reactor Institute Delft (NL)
- 342: ORPHEE reactor, CEA, Saclay (FR)
- T356: Budapest Neutron Centre (HU)
- T451: ISIS, CCLRC, Didcot (UK)
- 459: Institut Laue Langevin (ILL), Grenoble (FR)
- T510: Swiss Spallation Neutron Source (SINQ), Paul Scherrer Institut, Villigen (CH)
- T547: Nuclear Physics Institute LVR-15 Research Reactor Infrastructure, Rež (CZ)
- 554: CERN - neutron Time of Flight (n_TOF), Genève (CH/FR)
- T571: Forschungsneutronenquelle Heinz Maier-Leibnitz (FRM II) Technische Universität München, Garching (DE)

- 745: Megajoule Plasma-Focus PF-1000, Institute of Plasma Physics and Laser Microfusion, Warszawa (PL)

Muon sources

- T201: Swiss Muon Source (SµS), Paul Scherrer Institut, Villigen (CH)

High Power magnets labs

- T512: Laboratoire National des Champs Magnétiques Pulsés, Toulouse (FR)
- T577: Laboratory for pulsed high magnetic fields, IFW, Dresden (DE)
- T578: EuroMagNET project, INPAC-Institute for Nanoscale Physics and Chemistry, University of Leuven (BE)
- T594: Laboratorio de Campos Magneticos Intensos de Zaragoza (ES)
- T608: Grenoble High Magnetic Field Laboratory, Grenoble (FR)
- T630: High Field Magnet Laboratory (HFML), Nijmegen (NL)

Clean rooms

- 347: Electrum Laboratory, KTH - Royal Institute of Technology, Stockholm (SE)
- 531: Integrated Clean Room for Nano and Microfabrication (hosted by IMB-CNM), Bellaterra (ES)
- 652: IHP - Innovations for High Performance Microelectronics, Frankfurt/Oder (DE)
- 742: Nanofabrication Laboratory, Dept of Microtechnology and Nanoscience, Chalmers University of Technology, Göteborg (SE)

Micro- and Nanotechnology facilities

- 26: Ångström Microstructure Laboratory, Uppsala University, Department of Engineering Sciences, Uppsala (SE)
- T38: HTU Heterogeneous Technology Unit, CSEM, Centre Suisse d'Electronique et de Microtechnique S.A, Neuchâtel (CH)
- 92: Micro, Nanoelectronics and MEMs laboratory of IMEL, Demokritos, Athens (GR)
- 99: NMNL - Norwegian Micro and Nano Laboratories, SINTEF, Oslo (NO)
- T105: LETI, Grenoble (FR)
- T111: Braun Center for Submicron Research, Weizmann Institute of Science, Rehovot (IL)
- 122: Research Platform on Nanoelectronic Systems, Forschungszentrum Jülich (DE)
- 210: Micro-nano experimental facility of the CeRMiN, Université catholique de Louvain, Louvain-la-Neuve (BE)
- 258: Ångström Nano Centre, The Angstrom Laboratory, Uppsala (SE)
- 277: CT-ISOM: Centre for Technology of the Institute for Systems based on Optoelectronics and Microtechnology, Madrid (ES)
- 363: ELECTROPOL and Biosensor Research Laboratory, Istanbul (TR)
- 406: Réseau NATional des grandes centrales de TECHnologie (RENATECH) Micro and Nano Technology Network, Paris (FR)
- 455: Nanomanufacture, University of Cyprus, Nicosia (CY)
- T505: Nanoelectronics Laboratories, IMEC, Leuven (BE)
- T555: Fraunhofer Institute of Integrated Systems & Device Technology, Erlangen (DE)

Mass spectroscopy and other analytical facilities

- 353: National Institute R&D for Technical Physics (NIRDTP), Iasi (RO)
- T449: Centre SMAArt (Scientific Methodologies applied to Archaeology and Art), Perugia (IT)

Surface science facilities

- 14: Dual Beam Ion Implanter, Henryk Niewodniczanski Institute of Nuclear Physics Polish Academy of Sciences, Kraków (PL)
- 672: Ion and Molecular Beam Laboratory (IMBL), Instituut voor Kern- en Stralingsfysics, K.U.Leuven (BE)
- T772: Surface Science Laboratory (SSL), University of Patras, Rion (EL)

Electron Microscopy facilities

- T562: Technische Universitaet Dresden Institute of Structure Physics Triebenberg Laboratory, Dresden (DE)
- T592: Centre d'Elaboration et d'Etudes Structurales (CEMES - CNRS), Toulouse (FR)
- T607: Department of Materials at the University of Oxford (UK)
- T610: EMAT (Electron Microscopy for Materials Science), University of Antwerp (BE)
- T611: Orsay STEM infrastructure, Orsay (FR)

High Pressure laboratories

- 142: Institute of High Pressure Physics, Polish Academy of Sciences, Warszawa (PL)
- T546: The Structure and Properties of Materials at High Pressure, Bayerisches Geoinstitut, University of Bayreuth (DE)

Low Temperature laboratories

- T516: Low Temperature Laboratory, Helsinki University of Technology (FI)

Actinide handling facilities

- 746: JRC-ITU, Karlsruhe (DE)

Other Material Sciences Research Infrastructures

- 353: National Institute R&D for Technical Physics (NIRDTP), Iasi (RO)
- 721: Centre Européen de Calcul Atomique et Moléculaire (CECAM), Lyon (FR)
- T778: Atomic Institute of the Austrian Universities of the Vienna University of Technology, Wien (AT)

Engineering

Wind tunnels

- 31: Istanbul Technical University, Faculty of Aeronautics and Astronautics (TR)
- 251: Laboratory of Aerodynamics at Helsinki University of Technology (FI)
- 648: Set of low speed and high speed aerodynamic tunnels, VZLU, Prague (CZ)
- 523: European Transonic Wind tunnel GmbH (ETW), Köln (DE)
- 538: Scirocco Plasma Wind Tunnel, CIRA, Capua (IT)
- 665: Transonic Wind Tunnel, Aircraft Research Association, Bedford (UK)
- 680: Icing Wind Tunnel (IWT), CIRA, Capua (IT)
- 722: Aeronautical wind tunnels, DNW, Emmeloord (NL)
- 731: ONERA, Paris/Modane/Toulouse (FR)
- 744: Aeronautics & Aerospace Department, von Karman Institute for Fluid Dynamics, Rhode-Saint-Genese (BE)

Aerospace research Infrastructures

- 9: MARTEL, Centre d'Etudes Aérodynamiques et Thermiques, Poitiers University (FR)
- 539: Eurocontrol Experimental Centre, Ile-de-France (FR)
- 549: DLR, Flight Facility Braunschweig (DE)
- 656: Lab. for Study of Effects of Radiation on Material for Space (SERMS), Terni (IT)
- 678: GNC Laboratory (Guidance, Navigation & Control applications) CIRA, Capua (IT)
- 679: LISA, CIRA, Capua (IT)

Transport Engineering Infrastructures

- 119: Istanbul Technical Univ. Urban / Environmental Planning & Research Center (TR)
- 271: Road Vehicles Research Institute, Brasov (RO)
- 355: Ship Laboratory, Ship model test facility, Espoo (FI)
- 385: Istanbul Technical University / Automotive Technology R&D Center (OTAM) (TR)
- 511: Marine Environment Tests and Research Infrastructure, Ifremer, Brest (FR)
- 524: Hagerbach Test Gallery Ltd., Sargans/Flums (CH)

Materials testing facilities

- 113: InnoSteel, HAMK University of Applied Sciences, Hämeenlinna (FI)
- 154: Infrared User Facility FELIX, Nieuwegein (NL)
- 301: German Federal Institute for Materials Research and Testing, BAM, Berlin (DE)
- 360: Ion Microprobe Facility, University of Edinburgh (UK)
- 386: Cologne Database for Molecular Spectroscopy, CDMS, Universität zu Köln (DE)
- 545: Thermoplastic Composites Infrastructure Cooperation Network (CORONET), University of Nottingham (UK)
- 681: Advanced Materials and Technologies, CIRA, Capua (IT)

Civil Engineering Research Infrastructures

- 18: EFECTS, Laboratoire Régional des Ponts et Chaussées, Clermont-Ferrand (FR)
- 78: INFRASURE, Laboratoire Central des Ponts et Chaussées, Nantes (FR)
- 401: Laboratório Nacional de Engenharia Civil (LNEC), Lisbon (PT)

Engineering Research Infrastructures (electrical, optical)

- 72: Tallinn University of Technology Library (EE)
- 100: National Institute for Optoelectronics-INOE 2000, Bucharest-Magurele (RO)
- 121: EMC and Safety Laboratories, ICMET Craiova (RO)
- 257: SMARAD/Radio Laboratory and MilliLab, Helsinki University of Technology (FI)
- 270: CESI, Milano (IT)
- 280: INCDIE ICPE-CA, Bucharest (RO)
- 411: Astro Technology Lab, ASTRON, Dwingeloo (NL)
- 416: Istituto Nazionale di Ottica Applicata - INOA, CNR, Florence (IT)
- 521: DERlab, ISET e.V., Kassel (DE)
- 369: Centro Elettrotecnico Sperimentale Italiano, Milano (IT)

Manufacturing research center

- 66: Robotics Research Platform, LAAS-CNRS, Toulouse (FR)
- 338: Kompetenzzentrum Virtuelles Fahrzeug Forschungsgesellschaft mbH, Graz (AT)

Processing technology

- 576: CoSTaR, Newcastle (UK)
- 259: Facilities of the Mining Eng. Dept, Istanbul Technical University (TR)

Computer and data treatment

(see also the e-Infrastructure survey (2007), EC
http://cordis.europa.eu/fp7/ict/e-infrastructure/publications_en.html)

Supercomputers

- 011: NOTUR II - Norwegian Metacentre for Computational Science, Trondheim (NO)
- 108: UK Tier1 Centre, RAL, CCLRC (UK)
- 123: Centro de Supercomputación de Galicia, Santiago de Compostela (ES)
- 352: Computer Centre of the National Institute of Nuclear physics and Physics of Particles (CC-IN2P3), Villeurbanne (FR)
- T362: Institute for Development and Resources in Intensive Scientific computing (IDRIS), Orsay (FR)
- 447: CSC, the Finnish IT center for science, Espoo (FI)
- T482: John von Neumann Institute for Computing (NIC), Jülich (DE)
- T535: MareNostrum Supercomputer, Barcelona (ES)
- T779: CINECA, Casalecchio di Reno - Bologna (IT)

Software development centers of competence

- 781: Computational Laboratory (CoLab) - ETH Zurich (CH)

GRID Computing facilities

- 68: BEgrid, BELNET, Brussels (BE)
- 252: Tier-2@DESY, Hamburg (DE)
- 287: UK National Grid Service, Central Office at CCLRC-Oxfordshire (UK)
- 444: CyGrid, University of Cyprus, Nicosia, Cyprus
- 551: EGEE - Enabling Grids for E-sciencE, CERN, Genève (CH)

Communication networks (NREN, …)

- 41: Estonian Educational and Research Network (EENet) (EE) (SCH)
- 275: CESNET2, Prague (CZ)
- 440: REseau NAtional de télécommunications pour la Technologie, l'Enseignement et la Recherche (RENATER), Paris (FR)
- 514: National Research and Education Network (NREN), HEAnet (IE)
-

Mathematics Centers of Competence

- 160: EURANDOM, Eindhoven (NL)
- T572: Institut des Hautes Etudes Scientifiques, Bure-sur-Yvette (FR)
- 651: Mathematisches Forschungsinstitut Oberwolfach (DE)
- 655: Institute of Mathematics of the Polish Academy of Sciences (PL)
- 668: Centro Internacional de Matemática, Coimbra (PT)
- 682: Centre de Recerca Matemática, Bellaterra (ES)
- 684: Centre International de Rencontres Mathématiques, Marseille (FR)
- 693: Weierstrass Institute for Applied Analysis and Stochastics (WIAS) (DE)
- 725: Isaac Newton Institute for Mathematical Sciences, Cambridge (UK)

Other CDT Research Infrastructures

- 346: euroCRIS, Amsterdam (NL)
- 666: STN International, FIZ Karlsruhe, Karlsruhe (DE)

New data on research infrastructures will be entered as soon as new forms are filled in by the research infrastructures owner in the web site: http://www.ec.europa.eu/research/infrastructures