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Strategic Priorities, Funding and Pan-European Co-operation for Research Infrastructures in Europe

SURVEY REPORT



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Foreword

Research Infrastructures (RIs) are my passion. For 20 years I have worked on the European programme promoting the benefits of networking national RIs and developing new European facilities in a co-ordinated way. We have seen many changes in the way RIs are understood, but they are now recognised as essential across all research disciplines.

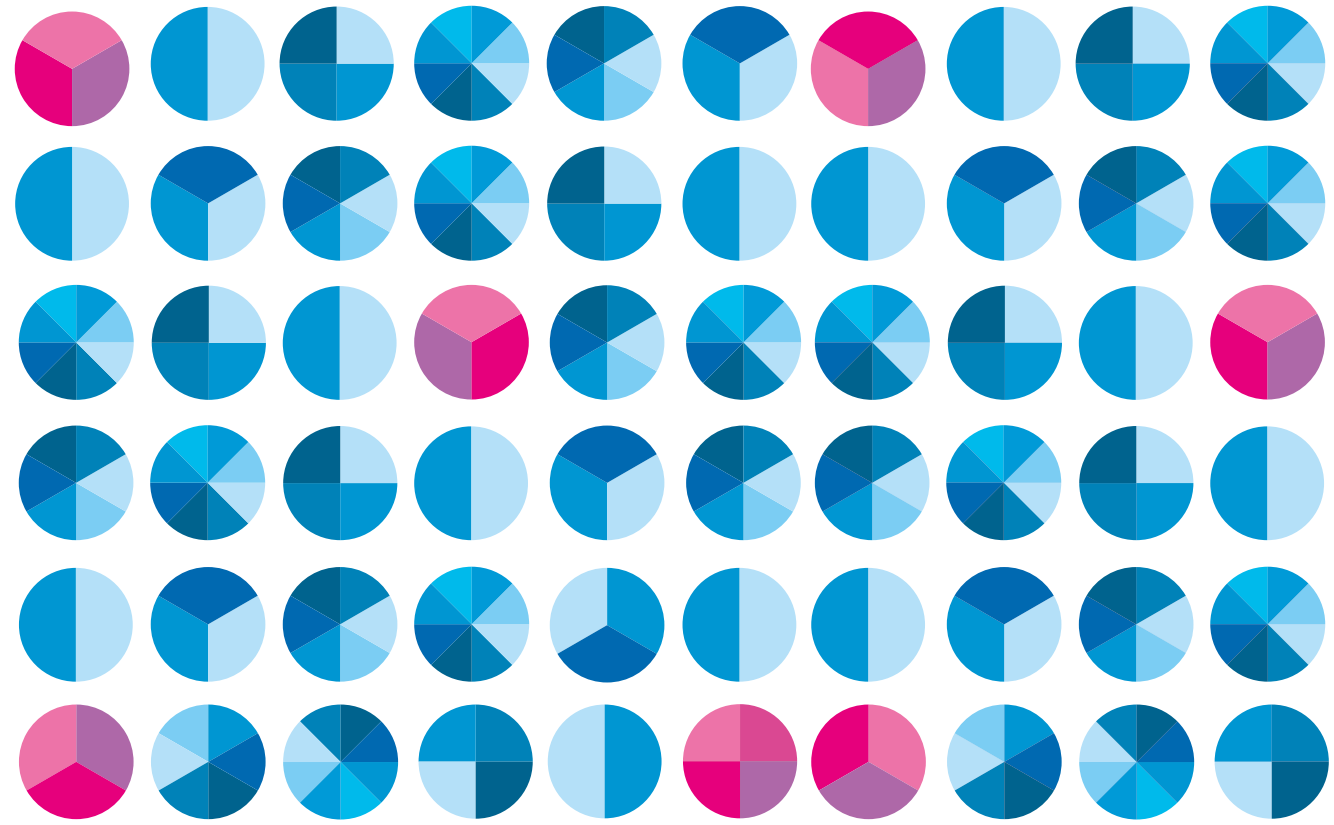
In recent years, the focus has been on the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap and the delivery of new European RIs to underpin core disciplines. This has been essential for the future of the European Research Area (ERA), but has also led to an imbalance in the understanding of the investment needed in RIs for the ERA: investment is needed at the national level as well as at the European level. As shown by the Mapping of the European Research Infrastructure Landscape (MERIL) database, research within Europe depends on national facilities with an international capability as well as multinational facilities.

In this study, Science Europe seeks to extend the understanding of the role of RIs in the ERA by documenting and analysing the decision-making processes of Science Europe Member Organisations, which underpin the decisions needed to build and operate RIs at the national, European or global scale.

This report is offered as a contribution to the ongoing debate on how to deliver a strong RI base for the ERA, to bring together core national funding facilitated by funds from Horizon 2020 and future Frameworks to maximum effect.

PETER FLETCHER

Chair of the Science Europe Working Group on Research Infrastructures, 2013–2015



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SURVEY REPORT

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“Co-operation between research funding and research performing organisations across borders within Europe is considered highly beneficial for the RI landscape”

Executive Summary

Large-scale research facilities are crucial for the development of science in many fields of research. They provide new opportunities for innovations in science and for scientific co-operation. In light of the importance of Research Infrastructures (RIs) for science and the economy, the Science Europe Working Group on Research Infrastructures defined an agenda that would contribute to the actions described in the Science Europe Roadmap.^[1]

The demand for RIs is high throughout all fields of science. However, the available funds for capital investment and running costs are generally limited and do not nearly meet the demand. Effective allocation of available funds and effective operation of facilities is therefore important in order to serve the scientific community in the best possible way.

How are strategic priorities regarding RIs established? How are bottom-up initiatives (mostly arising from the research community) balanced in these processes with top-down strategic priorities? Which roles do Science Europe Member Organisations and regional and national authorities play in such processes? These are some of the questions which guided the work of the Science Europe Working Group on RIs from 2013 to 2015.

In spring 2014, the Science Europe Member Organisations were invited to take part in a survey developed by the Working Group on RIs. The survey was structured in order to collect data related to the following topics:

- ▶ the definition of strategic priorities within countries;
- ▶ the use of these priorities to inform funding decisions on RIs; and
- ▶ the status of cross-border co-operation.

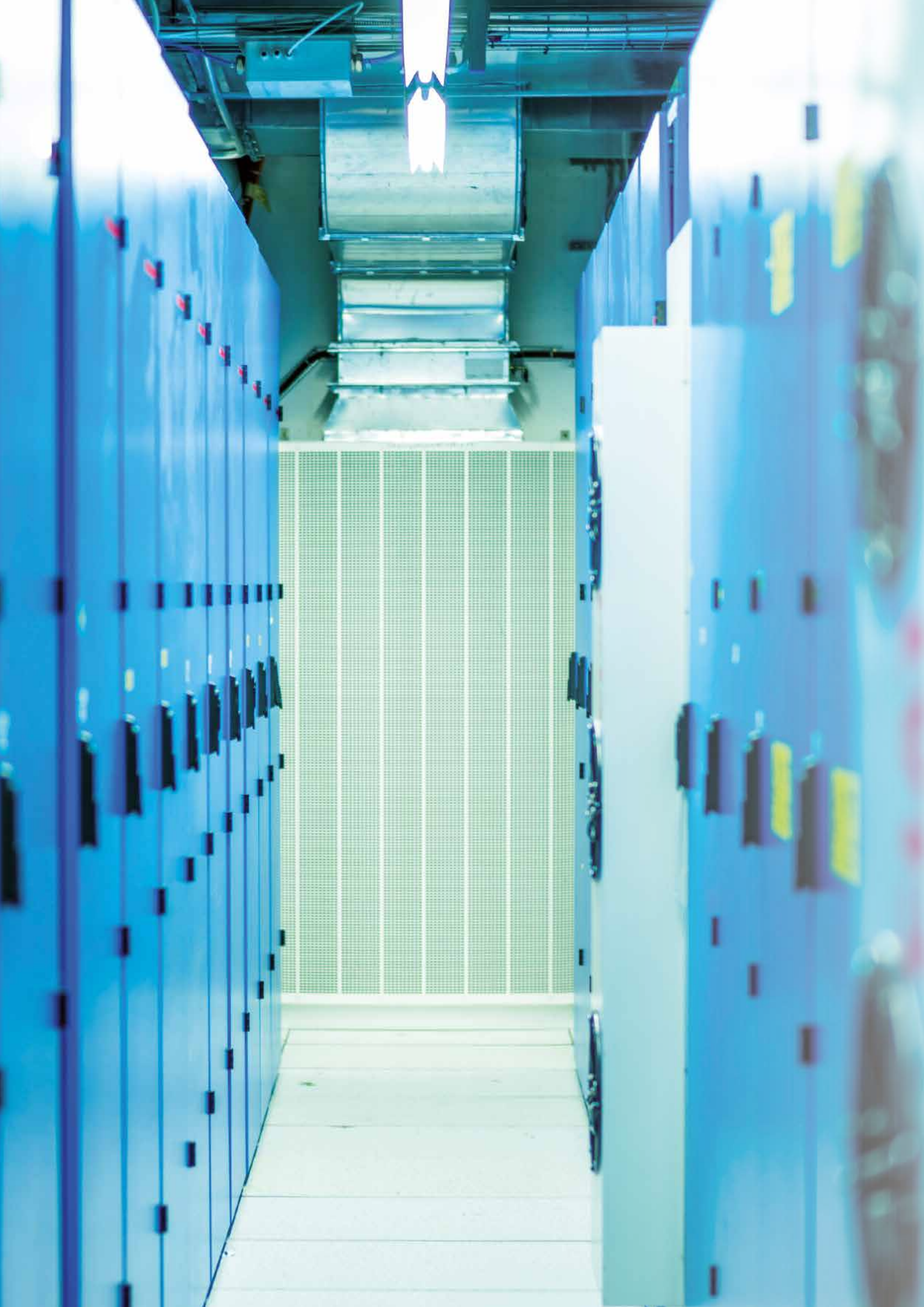
These topics, based on the cases of a number of specific countries and multi-sited international research facilities, were subsequently discussed comprehensively during a workshop in January 2015.

The combined analysis of the survey results and workshop outcomes revealed that the landscape in Europe is diverse, with a range of approaches to issues such as the strategic priorities and the procedures used to define them, the funding of RIs and the exchange of information. Nevertheless, despite this diversity the Science Europe Working Group on RIs concludes that in all fields significant progress can be made to the benefit of the research community. In particular, co-operation between research funding and research performing organisations across borders within Europe is considered highly beneficial for the RI landscape within the European Research Area (ERA).

The Science Europe Working Group on RIs makes a number of recommendations for Member Organisations and other key RI stakeholders. These emphasise the need to:

- ▶ develop a landscape analysis of those RIs that are currently available and those that are needed;
- ▶ consider defining strategic priorities to support the decision-making process; the outcome of the landscape analysis can feed into the development of strategic priorities;
- ▶ explore different funding sources for RIs and combine these to reduce dependence on one source of funding;
- ▶ introduce a budget plan which also covers the full life cycle cost of RIs, including decommissioning costs;
- ▶ exchange information about strategic priorities with regard to multilateral co-operation; and
- ▶ investigate opportunities to join forces in funding research facilities.

These recommendations are based on the input provided by 26 Science Europe Member Organisations from 19 countries. The Science Europe Working Group on RIs expects that implementing the recommendations will help to strengthen the ERA and provide a better service to the European research community, giving it the tools to perform innovative, cutting-edge research with benefits to both science and society.



1 Introduction

1.1 Science Europe and Research Infrastructures

Large-scale facilities are vital for the development of science in many fields of research. Such facilities provide new opportunities for innovation in science and for scientific co-operation. Research facilities contribute significantly to long-term scientific developments in research and stimulate the competitiveness of the European economy. However, large-scale research facilities in general are costly, both in terms of the initial investment required and the subsequent running costs. As in other domains of science and innovation, Research Infrastructure (RI) funding usually relies heavily on public investment. Thus while there is an increasing need and demand for such ventures, only a limited number of facilities can be funded.

Research Infrastructures policies and investment decisions relating to RIs across Europe depend upon various drivers including the *ex-ante* definition of priority areas within a science ministry (or other ministries), a partial alignment with the ESFRI Roadmap,^[2] international science initiatives or a bottom-up assessment process.

Science Europe subscribes to the importance of research facilities for the advancement of science and the establishment of a European Research Area (ERA).^[3] In addition to ESFRI-type facilities there are a large number of RIs that already exist or will be developed in Europe. These differ in size and visibility in comparison with those on the ESFRI Roadmap, yet still require discussions on the necessary funding

or boundary conditions for their operational phase. It is crucial that the European debate takes these RIs into consideration. In the context of these diverse RIs in Europe, the Mapping of the European Research Infrastructure Landscape (MERIL) database aims to provide an inventory of those RIs that are openly accessible and are of more-than-national relevance across all scientific domains.^[4]

Long-term sustainability in the field of RIs will necessitate harmonised management and networking practices leading to efficient access to RIs, improved funding of RIs throughout their life cycle (design, construction, operation, management, upgrades, decommissioning) and implementation of appropriate and robust metrics to assess the impact of RIs.

Given the importance of RIs, Science Europe decided to take action with regard to:

- a. reviewing Member Organisations' drivers and strategies for funding and evaluation of national RIs of European interest, and promoting their alignment when and where appropriate;
- b. advancing the development of e-infrastructures;
- c. advancing the management and networking of RIs;
- d. identifying and tackling RI needs of the scientific communities that warrant joint discussion between Science Europe Member Organisations; and
- e. producing consolidated positions for, and contributing to European and global forums related to, RIs and promoting the adoption of recommendations as appropriate.

1.2 Science Europe Working Group on Research Infrastructures

Considering the importance of RIs for science and economy, the Science Europe Working Group on RIs has defined an agenda which contributes to the actions described in the Science Europe Roadmap. One of the Science Europe Working Group on RIs' aims was to gain an insight into how strategic priorities relating to RIs are established and how bottom-up initiatives (mostly arising from the research community) are balanced with top-down strategic priorities in these processes, taking into account the roles of Science Europe Member Organisations (whether represented or not in the Science Europe Working Group on RIs) and both regional and national authorities. This report describes the results of these activities and presents recommendations. With this agenda, the Science Europe Working Group on RIs contributes to goals (a), (d) and (e) of the Science Europe actions described in section 1.1.

1.3 Working Method

In April 2014 the Science Europe Working Group on RIs surveyed members using a questionnaire with the aim of gaining insights into:

- ▶ the strategic priorities defined within the respective countries;
- ▶ how these priorities are used in funding decisions on RIs;
- ▶ the current status of RI roadmaps;
- ▶ the status of cross-border co-operation.

The questionnaire addressed the following topics:

A. Strategic Priority Procedures and Definition

This section gathered information about the way strategic priorities for RIs have been established in the country of the responding Member Organisation. It collected information about what the strategic priorities in a country are, which actors are involved in the formulation of strategic priorities and which actors finally decide on the strategic priorities. It

also focused on the procedures a country has developed in order to define the strategic priorities. The questionnaire aimed to identify the situation at national, regional and organisational level.

B. Strategic Priorities and the Assessment Procedures for RI Funding

This section gathered information on how strategic priorities are taken into account when making funding decisions. It described the procedures which are followed in order to come to a decision about RIs, and also addressed whether deviations from the strategic priorities are possible and who decides on this. The questionnaire aimed to identify the situation at national, regional and organisational level.

C. International Co-operation

This section gathered information on the desirability of international co-operation, information exchange and joint funding of RIs.

The combined results of the survey provides an inventory of the current situation of around half of Science Europe Member Organisations and includes information on about two-thirds of the countries represented within Science Europe's membership.

On the extent and limitations of the study it should be noted that:

- ▶ the questionnaire was answered by 26 organisations from 19 countries (see list in Annex B);
- ▶ the questionnaire resulted in the collection of an impressive amount of information;
- ▶ some discrepancies were found in the responses of organisations from the same country; and
- ▶ the results report a snapshot made at one point in time.

The results of the survey were analysed and presented at a workshop in Lisbon in January 2015 to stimulate a more in-depth discussion with representatives from other key stakeholders in the European RI sector; this was possibly the first time that such a broad group had met to discuss these issues.

The main goals of the workshop were:

- ▶ to give an overview of the development of strategic priorities for RIs, the role of strategic priorities in funding decisions and the challenges facing international research facilities;
- ▶ to better understand the strategies, processes, practices and needs of the various stakeholders;
- ▶ to discuss recent developments illustrated by cases from several countries and research facilities;
- ▶ to identify strengths and weaknesses of the different models identified;
- ▶ to investigate the added value of cross-border co-operation and options to strengthen such co-operation in the field of RIs; and
- ▶ to provide recommendations for the development of strategic priorities, funding and international collaboration of RIs.

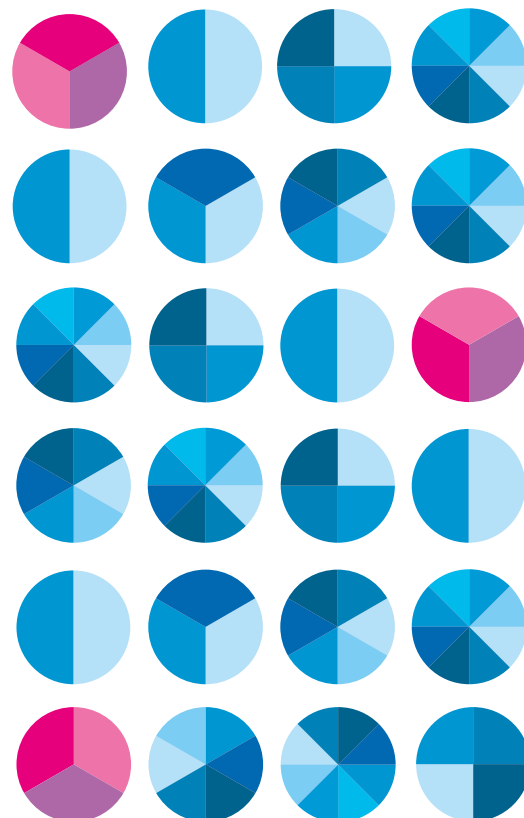
The key messages arising from the discussions are shown on page 10.

Chapters 2 and 3 of this report focus on the strategic priorities for RIs and the way that these are used in funding decisions.

Chapter 4 analyses the topic of cross-border co-operation with regard to RIs and highlights options for possible next steps.

Chapter 5 provides recommendations based on the survey's inventory and the workshop in Lisbon.

More details, such as the survey template, the list of responding organisations, the workshop programme and the list of workshop participants are provided as annexes A, B, C and D respectively.



Key Messages

During the workshop, case studies from four countries (Czech Republic, Portugal, Sweden and the United Kingdom) were presented and discussed. Two international multi-sited facilities (CESSDA – Consortium of European Social Science Data Archives, and the UK National Marine Facilities) were also discussed in-depth with delegates representing large facilities, research funders, the European Commission and research performing organisations. The programme of the workshop and a list of participants are provided as annexes C and D at the end of this report. The key messages resulting from the workshop discussions are listed below:

- ▶ Strategic priority setting for RIs is becoming widespread, even in countries that previously did not have an explicit policy for RIs.
 - ▶ In countries where structural funds play a major role, conditionalities related with the partnership agreement for 2014–2020 were a strong push for a definition of multi-annual funding programmes for RIs. This makes the transition to a post-structural funds paradigm a particular challenge for these nations.
 - ▶ The establishment of national roadmaps across Europe is expected to promote the listed RIs nationally and internationally, which is particularly important for smaller and more peripheral or poorer countries and regions.
 - ▶ Priority setting has promoted public consultations and a more balanced top-down and bottom-up approach to agenda development.
 - ▶ These processes have, in general, helped align views on the regional, national and European-level perspectives on the investments needed, from institutional level to large-scale transnational RIs.
 - ▶ Due to this alignment, well-founded decisions on RIs on all levels become possible. Nevertheless, a universally identified challenge was the balance of distribution of responsibilities between national-level authorities and regional authorities, especially in countries lacking federal or regionalised political structures.
- Collaboration between different management authorities at the same level (whether national or regional) was also identified as an area for potential intervention.
- ▶ The generalisation of the RI concept and of national roadmaps has promoted the openness of national RIs to international usage and collaboration. It has also helped to boost and share managerial good practices.
 - ▶ While augmenting articulation between previously scattered RIs and research teams was a key pillar, enabling new research avenues, it has also shown that the EU has a patchwork of national regulations on privacy and data, with cultural and legal barriers at the forefront.
 - ▶ Large-scale facilities are increasingly supporting diversified scientific communities, emphasising the challenge of multidisciplinary and the need for broad expertise.
 - ▶ Co-operation between European facilities has stimulated access to broader communities and allowed for projects and research avenues that were previously impossible. Huge potential still exists for increased co-operation and real integration, such as sharing operation costs, structured exchange about priorities, and bilateral and multilateral funding initiatives.
 - ▶ Diversified decision-making processes and criteria regarding priority setting for RIs are an obstacle to transparent engagement and cross-border collaboration.
 - ▶ For medium-scale investments, international co-ordination of investments is rare.
 - ▶ European RIs are being developed in a global framework and encouraged to better integrate with other regions for new knowledge, talent and resources.
 - ▶ While RIs and strategic priority setting exercises are being designed and drawn into a more systematic relationship with industry, capital investments and sustainability are foreseen to remain dependent on public funding in the large majority of RIs.

“ Research facilities contribute significantly to long-term scientific developments in research and stimulate the competitiveness of the European economy ”



2 Definition of Strategic Priorities for Research Infrastructures

This chapter describes the various approaches to the development of strategic priorities for RIs that are followed within Science Europe Member Organisations. It also gives an insight into the levels (national, regional or organisational) at which these strategic priorities are established.

2.1 Definition of a Strategic Priority

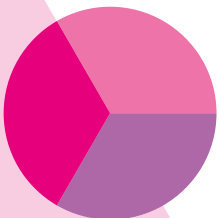
For this study a strategic priority is described as:

- ▶ a deliberate choice for certain research fields for a preferred type of facility or for specific facilities;
- ▶ a choice for certain preconditions (eligibility criteria) which should be met before a proposal can be sent for assessment;
- ▶ a set of assessment (evaluation) criteria against which a proposal will be reviewed;
- ▶ a deliberate choice to align RI decision making with external drivers such as the ESFRI Roadmap, Smart Specialisation Strategy (S3),^[5] etc.; or
- ▶ an engagement in international science initiatives.

A strategic priority can be defined at organisational, regional or national level. This means that strategic priorities can be defined at the level of either the national government (national), at the level of regions within the country (regional) or at the level of a funding or research performing organisation (organisational). A combination of two or all three of these is sometimes possible.

2.2 Landscape of Strategic Priorities and Procedures

From the analysis of the survey's inventory it becomes clear that almost all types of strategic priorities are used in Europe. Many countries do not have strategic priorities as described in the first four bullet points of the definition given in section 2.2, but have developed criteria for their assessment procedures. Table 2.2.1 gives an overview of the type of strategic priorities defined and adopted by European countries.



“The decision-making level at which the strategic priorities are defined differs from country to country”

Table 2.2.1 Strategic priorities in European countries

Strategic Priority	Country
Thematic priority: strategic choice for scientific fields (this type of priority is not necessarily specific to RIs and can apply to other parts of the national scientific system)	Czech Republic, Estonia, France, Ireland, Norway, Slovenia, United Kingdom
A deliberate choice for specific RIs: only predetermined type of RIs or specific facilities are chosen	Belgium (national), Germany (federal level), Sweden
Assessment criteria for a call for proposals	Belgium (regional), Denmark, Estonia, Finland, Germany (organisational level), Netherlands, Portugal, Switzerland
Preconditions (eligibility criteria)	Norway
Smart Specialisation Strategy (S3) priorities	Estonia, Hungary, Lithuania, Portugal, Slovenia
Engagement in international science initiatives	No country considers engagement in such initiatives a strategic priority
No strategic priorities	Poland, Spain

The procedures used to define the strategic priorities differ from country to country and also differ with regard to the type of strategic priorities. Where the strategic priorities are a deliberate choice for a strategic research field, most countries use a wide consultation involving stakeholders, research councils and the relevant research community. Depending on the country, this is carried out by the ministry (for example in the Czech Republic, Estonia, France, Slovenia) or by the ministry together with the research council (for example in the United Kingdom). Some countries establish a separate research prioritisation group (for example in Ireland) or establish areas by an international review of excellence (for example in the Czech Republic). In some countries, national priorities are defined at both national (ministry)

and regional levels; such processes are often related to a Smart Specialisation Strategy and have a reliance on structural funds for financing RIs (for example in Portugal).

In general, two main types of country can be distinguished: countries that have defined criteria for the assessment of research facilities and consider them a strategic priority, and countries that consider their choice for certain research fields a strategic priority. The decision-making level at which the strategic priorities are defined differs from country to country. Sometimes different priorities are identified at different levels (national, regional, organisational) in the same country.

14 In cases where the strategic priorities are a deliberate choice for specific facilities (without any assessment procedure), there is generally a broad consultation of various stakeholders as an input to the selection process. The final decision is subsequently made by the government at its discretion.

Figures 1 and 2 illustrate the level(s) at which strategic priorities are defined: national, regional (sub-national) or organisational.

In Figure 1, all types of strategic priorities (as defined in the list in Section 2.2) are considered except the type 'assessment criteria'.

Strategic priorities ≠ Assessment criteria

National, Regional, Organisational

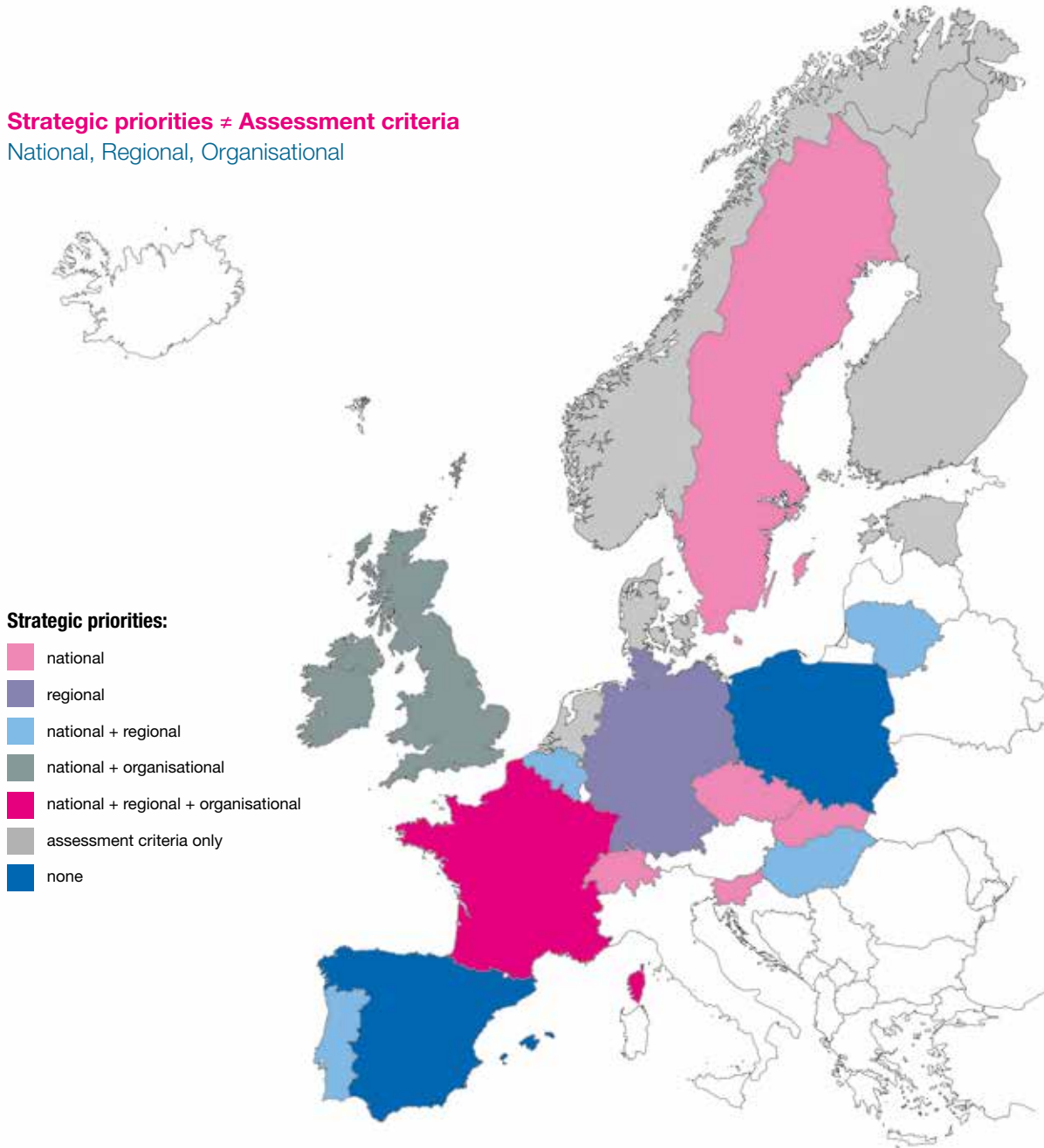


Figure 1 The level at which strategic priorities (excluding 'the assessment criteria' type) are defined.

The assessment is done by peer review and the calls are often restricted to facilities on the roadmap for RIs. Norway has defined some preconditions which should be met in order to be allowed to participate in a call.

Some countries mainly follow a bottom-up process for the selection and funding of RIs.

Many countries have created a special committee for RIs which advises on RI priorities, the roadmap and the allocation of money, and which initiates

evaluations of research facilities. In some cases the country opts for a standing committee (examples include Denmark, Finland, France, Netherlands, Portugal, Sweden) or for an ad hoc committee (for example Estonia, Slovenia).

This exercise reveals that there is a large variation in what is considered to be a strategic priority, how such priorities are established and at which level. The differences are mainly due to the national organisation of the research system.

Strategic priorities = Assessment criteria only

National, Regional, Organisational

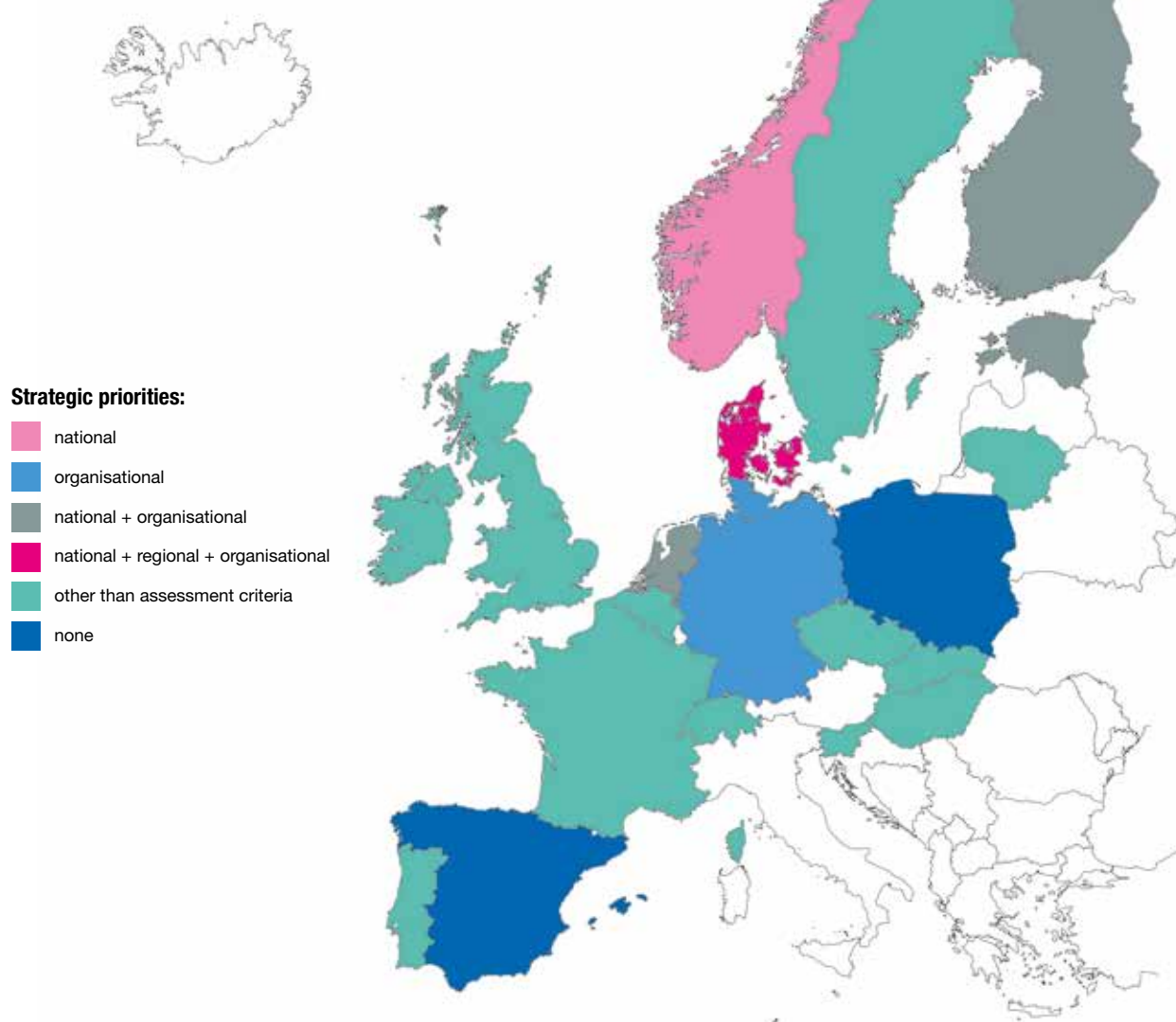


Figure 2 The level at which strategic priorities (limited to 'the assessment criteria' type) are defined.

3 Strategic Priorities and Funding Decisions

Various national and EU-wide measures are necessary to ensure that Europe effectively develops and maintains medium- and large-size national and pan-European RIs.^[6] Prioritising RIs of strategic interest is a highly important – but in itself insufficient – step to unlock national and transnational research facilities for scientific communities and other interested public and private actors. The actual availability of these facilities, which implies adequate and on-time funding for development, building and running of RIs, is crucial.

This chapter describes the interconnections between strategic priorities and funding decisions, and the funding practices and funding instruments for RIs in the countries of the Science Europe Member Organisations. It was informed by a report by the ERA Instruments project on differences and similarities in funding schemes, which aimed to explore the potential for improvement and harmonisation in national funding instruments.^[7] Possible future options for development of national funding models are also discussed.

3.1 Current Situation

As the results of the Science Europe Working Group on RIs survey showed, most of the surveyed countries have defined strategic priorities to some degree and level. Moreover, these strategic priorities are taken into account when making decisions on the RIs' national funding in all countries. As a general rule, the national roadmaps are in line with the chosen strategic priorities.

In every country the road-mapping process for the RIs has two main objectives: (a) preparation and support of strategic research policy decisions at the national level, and (b) securing funding and financial transparency for planned projects.^[8] While a linkage between the list of strategic priorities at national level and funding decisions on the RIs is common practice in most of the countries, it does not usually lead to a situation where a specific RI listed as a priority has secure funding. Only in some countries does a relatively small part of the strategic RIs receive secure funding immediately after their listing on the national

RIs roadmaps. The most common procedure is that the RIs on the national roadmaps are deemed to be ready for investment after additional assessment and competitive calls for RI funding.

National mechanisms for RI funding are highly diverse in terms of the actors involved in funding decision making. The Science Europe RIs inventory shows that many different actors participate in decision making on funding of RIs, such as governments, ministries of research and education, research councils and the research community.

In large countries, more actors have the power to take funding decisions on the RIs than in smaller countries, where these decisions tend to be concentrated in the hands of a single institution. For instance, the Research Council of Norway and the Netherlands Organisation for Scientific Research are the main organisations responsible for RIs in their respective countries. In Germany, the structure is far more complex as there are several councils involving the participation of scientific communities, funding and research organisations and federal and state ministries, which all take part in planning and decision making on the RIs. The funding instruments for large RIs are separated from funding for small- and medium-size RIs in several countries, such as in Germany, the Netherlands, and the United Kingdom. Funding budgets are fairly country-specific, and it is difficult to make generalisations about amounts spent.

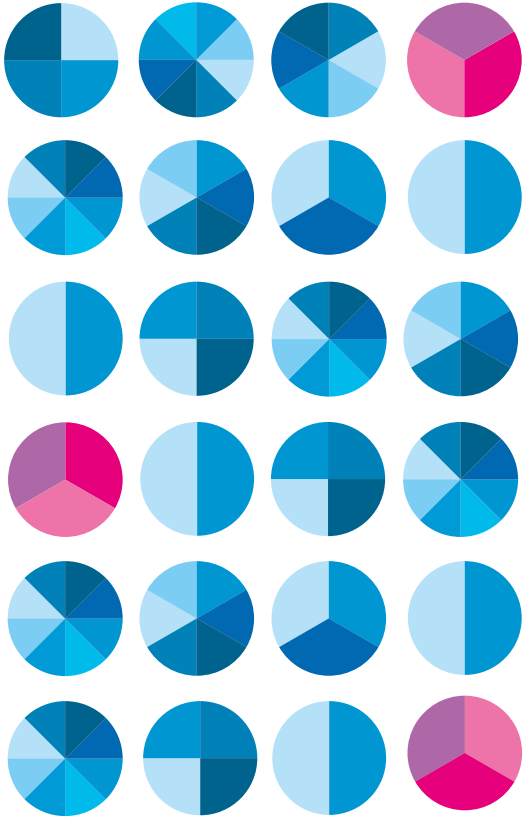
RI funding appears to be allocated more on a per-project basis than directly or continuously funded. Current practices of RI budgeting vary from a fixed annual or even multi-annual budget for the RIs (Sweden, Norway) to funding only when financial resources are available or residual-based funding (Spain). The most common cycle for updating strategic priorities seems to be once every three to five years, and for funding calls once every one to three years. The sustainability and adequacy of funding remain important and unsolved issues in many countries of the Science Europe Member Organisations.



At a national level, funding decisions are usually taken when large investments are required or international treaties and agreements are needed to develop specific RIs. Funding decisions on small- and medium-size RIs are usually taken by national research councils.

In all countries, the criteria surrounding funding decisions include three main elements: (a) national (and/or international) scientific impact of specific RIs; (b) RI partnerships within European infrastructure projects (ESFRI); and (c) membership of other international infrastructures and research organisations' strategically significant infrastructures.

The linkage between the European strategies and national funding decisions on RIs could be improved. In two areas, national and transnational funding of the European RIs are clearly linked: in the area of the European Research Infrastructure Consortium (ERIC) and that of international research organisations such as the European Space Agency, the European Laboratory for Particle Physics, and others. A certain harmonisation of EU-wide strategies for the development of new facilities and the sustainability of existing facilities (especially those of pan-European interest) on the one hand, and national funding decision making on the other, might improve the efficient use of limited funds available. A starting point for these developments would be a broader exchange of information and a more active approach to international co-operation, including the exchange of best practices between the different actors.



3.2 National Funding Instruments and Procedures

Funding instruments and procedures for RIs vary across the surveyed countries of the Science Europe Member Organisations, and sometimes it is difficult to classify these clearly. National funding instruments are applied hand-in-hand with the RIs selection processes.

Among the most widely used instruments for the funding of RIs at national level are open calls, targeted calls and sometimes strategic calls. Many countries do not use one single instrument but try to combine several, and mixed systems appear in reality. 'Open calls' or 'open RIs proposal calls' involve a bottom-up procedure with no restrictions to the research field. The proposals are assessed on the basis of scientific quality, importance for the country, and so on. They are often used as an initial step for the mapping of national RIs or the updating of national roadmaps.

'Targeted calls' take into consideration specific Terms of Reference in order to generate projects

focusing on specific themes, sectors or project types. Strategic priorities are partially considered a precondition of the RIs proposal selection and these calls correspond to the implementation of specialised international, national or regional programmes.

'Strategic calls' or 'calls restricted by strategic priorities' mean that the RIs' proposals need to fully comply with clearly defined strategic priorities and objectives, as these are an eligibility criterion upon which funding of the RI will be considered. If a country has strategic priorities which make a deliberate choice for a certain research field, then the calls meet these strategic priorities.

'Mixed systems' combine open calls for compiling an initial list of the broad national interest from RIs, and targeted/strategic calls for their competitive funding. This system is the most popular in the countries of the Science Europe Member Organisations (see Table 3.2.1).

Table 3.2.1 RIs selection and funding instruments

Selection and funding instrument	Country
Open calls	Netherlands, ^[9] Norway, ^[10] Spain
Targeted calls	Belgium, Slovenia
Strategic calls	France
Mixed system	Czech Republic, Denmark, Germany, Estonia, Finland, Ireland, Lithuania, Poland, Portugal, Sweden, United Kingdom

“ It is important to realise that sustainable funding of RIs is supported by regular funding opportunities ”



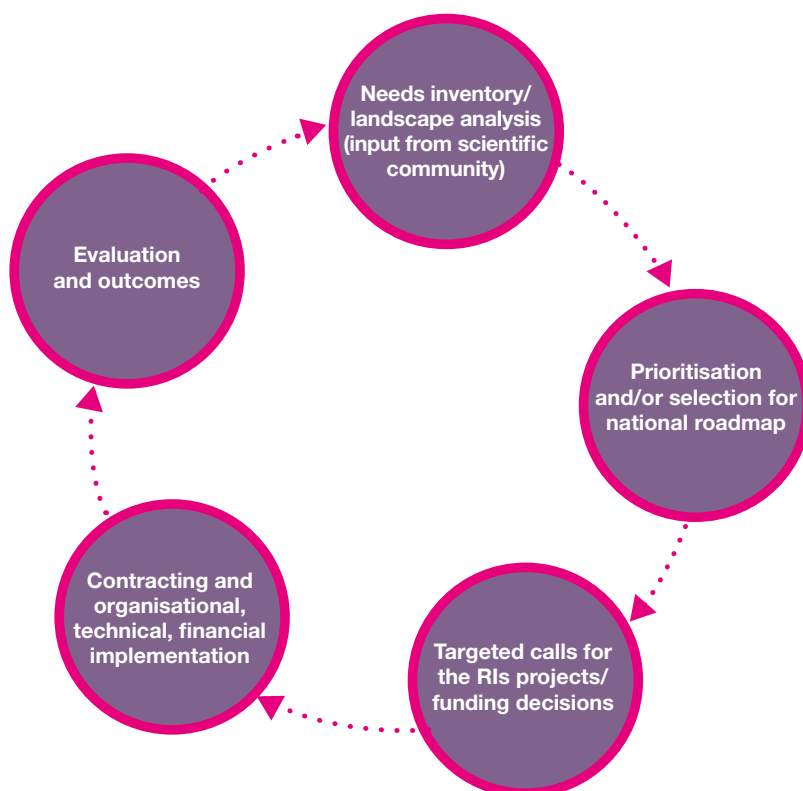


Figure 3 Frequently used funding cycle of RIs.

An almost standard and single procedure which is used in all types of calls is the assessment of the RIs' applications through peer review by international experts. An evaluation committee gives its opinion on the relevance of the RI in the proposals for the setting up of a new RI or the upgrading of an existing RI. An opportunity for the applicants to respond to the reviewers' comments may be included as a standard procedure in evaluation procedures. Some countries (such as the Netherlands) organise visits to the site(s) of the facilities, with the possibility of discussing the funding level.

In many countries, some funding deviations from the strategic priorities are possible. These deviations can have both negative and positive effects on the funding the RIs. The negative effects are that RIs, despite being identified as strategic, have an even smaller chance of getting funded. From the Science Europe Working Group on RIs survey results, however, it seems that such negative effects are rare, if not absent, in most European countries.

A positive effect may be that deviations can help to increase the flexibility of funding; as the research landscape develops and new facilities and data are increasingly used for research purposes, a need and/or demand from the scientific community may arise to fund facilities which have not been defined within the strategic priorities but are now considered of high importance.

The regularity of funding calls is another important procedural issue and one which reflects the strategic planning culture of different countries. Regular calls support the planning of RIs, provide certainty of funding opportunities and offer possibilities to sustain existing RIs. While the Science Europe survey did not ask directly about the regularity of funding calls, some additional observations enable a few trends to be identified. The frequency of calls in the RI funding schemes varies from yearly (as currently in Sweden) to once in every two years (Netherlands, Sweden starting 2017), to once in three or four years (Denmark). In some countries (as in Lithuania), regular calls are completely absent and RIs are funded as far as financial resources are available. It is important to realise that sustainable funding of RIs is supported by regular funding opportunities. Countries with a long tradition of RI funding have more and better established instruments, procedures and processes than countries without this tradition.

A funding cycle for research facilities that is fairly common in many countries is described in Figure 3. The funding cycle starts with an open consultation with the research community, universities and industry, taking into account their needs (landscape analysis). Further strategic priority areas might then be defined. Based on the landscape analysis, and taking into account strategic priority areas, a roadmap for RIs may also be defined. In general, the allocation of funding for specific RIs is based on an assessment procedure of roadmap facilities.



4 Pan-European Alignment and Co-operation

4.1 Current Situation

Research today is an inherently international endeavour. Collaboration between countries is of the utmost importance to the development of excellent research, as is cross-border collaboration in policy development and priority setting. All organisations surveyed for this report exchange information with international counterparts to some extent. The extent of such exchanges can depend on particular characteristics, such as the geographical proximity of the countries. There are also differences in the nature of the information exchanged and the level at which this exchange occurs, as further explained below.

The European Commission has promoted co-operation in RI policy through a number of forums, such as the Framework Programme Research Infrastructures Committee and the ERIC committee, or otherwise related initiatives such as ESFRI. The legal framework for ERICs is designed to facilitate the joint establishment and operation of RIs of European interest. With the help of this legal framework the pooling of financial resources of the EU Member States and associated countries was simplified. ERICs are eligible to submit and participate in proposals for calls under Horizon 2020, which will help RIs to move faster through their establishment phases. ERICs play an important role in the creation of more open and broad infrastructural services for the scientific communities throughout the European Union.

These are important for general information exchange; it is to be noted that policy collaboration generally develops between neighbouring countries or in the same sub-European region.

Several international collaboration initiatives either directly or indirectly related to RIs are regional. There is, for example, Nordforsk – an organisation under the Nordic Council of Ministers that facilitates and provides funding for Nordic co-operation on research and research infrastructure; alternatively, one can look at the joint investments in medium-sized research infrastructures, which naturally assume a regional dimension through collaboration of neighbouring countries, such as Max IV synchrotron light source facility (Denmark, Estonia, Finland, Sweden), German–Dutch Wind Tunnels (DNW), the Ultra High Field Magnetic Resonance Imaging facility in Essen (Germany and the Netherlands) or the International Iberian Nanotechnology Laboratory (Portugal, Spain).

Differing political and organisational structures in each country across Europe lead to different ways of developing RI policy. Cross-border dialogue cannot be characterised as the exclusive domain of a ministry or a research funding organisation; in most cases this happens at all levels, from the scientific community to ministries. The level of the decision-making capacity for medium-sized research infrastructures, however, mostly depends on the country-specific political and scientific organisation. In Germany, a research funding organisation might have a very different degree of autonomy from one in France when it comes to deciding on a cross-border investment initiative, which is again very different from a sole research funding council in a smaller country. The current panorama of cross-border collaboration

in RI policy and initiatives is characterised by the existence of regular and structured discussions on large-scale RI initiatives. However, for medium-sized RIs such forums are lacking, which contributes to the extremely diverse ways of understanding and treating RI policy in different countries and within those countries in different regions.

Co-ordinated approaches between research and regional policies which encourage a broader use of EU structural funds for research facilities are essential elements in the funding decisions for national and pan-European RIs. However, the EU structural funds do not address the operating costs of the RIs; in most countries the funds are restricted to setting up new RIs, not running them.

4.2 Constraints Encountered while Establishing (Multinational) Research Infrastructures

Most of the constraints encountered for the establishment of multinational RIs, especially those of medium size, are related to the diversity of national procedures, the different levels at which dialogue is held, and diverse legal and funding restrictions.

As demonstrated in previous chapters, there are also conceptual differences in how each country defines a RI. This has an obvious impact when translated into concrete policy. Moreover, policies need to take into consideration a mix of local, national and supra-national priorities and this is not always done in an articulated way, nor does it necessarily take advantage of best practice elsewhere.

“ Several international collaboration initiatives, either directly or indirectly related to RIs, are regional ”

5 Recommendations

The European RI landscape is diverse in terms of what is considered a strategic priority, how such priorities are defined and at which level they are established. This reflects the diversity in the composition and institutional functioning of national research systems and has profound implications on RI sustainability and co-operation.

It is challenging to make recommendations for such a diversified RI funding and operational landscape and, given this context, this report aims to provide an initial contribution towards better alignment and articulation in RI strategy by Science Europe Member Organisations.

Due to the diversity between countries, the below recommendations address different actors in the countries. They are based on the information obtained from the Science Europe Working Group on RIs survey and the workshop that took place in Lisbon in January 2015. It is recommended to:

Landscape Analysis and Strategic Priorities

1. **Carry out an analysis of the RI landscape to show what is currently available and what should be available for each country at the European, national, regional and/or organisational level.** The responsible actors at the national and regional level for RI strategy are invited to perform a landscape analysis for their organisation, which might ultimately lead to a landscape analysis for a whole region or country.
2. **Consider defining strategic priorities for RIs as part of decision making.** The limited funds for RIs can be directed to those fields which are considered priority areas within the country, region or organisation. Where they do not already do so, the responsible bodies for RI strategy should as a first step develop procedures to define priority areas. Science Europe Member Organisations, if not responsible themselves, are recommended to stimulate this development within their country.

Strategic priorities can be considered the framework through which the funding for RIs should be directed.

This leads to the following recommendations regarding decision making and funding for research facilities. The outcome of monitoring existing facilities should be used in this process.

Assessment Procedures

3. **Increase the exchange of information and best practice between countries.** Science Europe Member Organisations are invited to allow other organisations to take note of their procedures.

Some best practices were identified from the survey. It is recommended that the following be considered:

4. **Organise site visits during the assessment of RIs and invite international experts to the self-assessment procedure of RIs.** This should help to build a culture of openness in the area of RIs. Some countries organise site visits of facilities with the possibility of discussing the funding level with the applicants. Such site visits allow the assessment committees to evaluate how a given facility is embedded in its local environment.
5. **Seek strong involvement and commitment from leading researchers.** RIs need a strong driving force from the research community and researchers who are committed to develop, build and run the facility in order to be successful.
6. **Ensure that applicants have an opportunity to respond to peer-review comments as a standard procedure in the evaluation of applications.** Reviewers' comments are in general an important part of the assessment procedure. Giving the applicant the opportunity to respond to the reviewers' comments stimulates dialogue and can help to improve quality and increase trust in the evaluation procedure.
7. **Place more emphasis on the development and assessment of the business case of an RI.** The business case is a resource to attract funding and is important in ensuring a sustainable RI during the whole life cycle of the facility.



Funding of RIs

8. **Investigate all sources of funding (national, regional, private and European) with the objective of achieving a portfolio of funders and exploiting all possible funding options, with the aim of reducing the dependence on only one source of funding.** In order to avoid uncertainties in funding of RIs it is important that sustainable funding is supported by regular funding opportunities.
9. **Develop separate assessment and funding schemes for small, medium and large RIs or introduce assessment tailored to the different types of RI.** All types of RI are important. It is therefore recommended that a good balance is maintained between the different types of RI and that assessment of each type is tailored appropriately; differences in scale produce different characteristics and different requirements for the research facilities.
10. **Adopt a ‘whole life cycle’ funding model or a sustainable, transparent and long-term budget for RIs design, construction, operation and future decommissioning.** It is important to have a full overview of the estimated cost of a facility at the outset in order to ensure long-term funding stability.
11. **Establish an internal quality assessment and control system in all RIs which supports and stimulates transparent, stable and effective exploitation and use of the facility.** Science Europe Member Organisations are recommended to stimulate this development within their country to ensure the sound and effective operation of RIs.
12. **Encourage, during and after a funding decision, that a facility has an internal quality control system, external monitoring and regular evaluation of its performance, including access to the facility, as a necessary requirement for successful**

development and operation of the RI and for feedback to the policy-making body responsible for RIs.

Organisations responsible for the funding of RIs should develop clear and objective monitoring procedures aimed principally at improving the performance of RIs, but also addressing the question of whether or not the facility should be continued. The outcomes should be used when setting subsequent strategic priorities.

International Co-operation

13. **Exchange information about strategic priorities between organisations, regions and countries.** This gives all actors the opportunity to investigate who else might be considering funding of comparable research facilities. This should also be the case within countries where more than one party is involved with RI funding; willingness to exchange information is a precondition for success. Organisations responsible for RI funding are invited to exchange information on strategic priorities and investment needs with other organisations. These might include ministries, research councils and/or research organisations.
14. **Investigate options for multilateral or multi-organisational co-operation.** This opens up the possibility to develop and stimulate transnational co-operation even before the application for funding is received. Exchanging information on investment priorities and needs can stimulate exchange between countries and could lead to negotiations about joint investments in facilities which can be used by research communities from both or more countries. Willingness to co-operate is also a precondition for success.
15. **Reduce barriers for multilateral or multi-organisational co-operation and develop options for joint funding of RIs.** The outcome of such negotiations must be incorporated efficiently into funding mechanisms within the country.

Notes and References

- [1] <http://scieur.org/roadmap>
- [2] http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-roadmap
- [3] See Open Letter from Science Europe Governing Board 'Research Infrastructures in the European Research Area': <http://scieur.org/riletter>
- [4] <http://portal.meril.eu>
- [5] http://ec.europa.eu/research/regions/index_en.cfm?pg=smart_specialisation
- [6] Typical costs for medium-size RIs range between €0.5 and €20 million. Large-scale RIs typically require an individual and multinational organisational structure and funding agreement. See more: Mid-Size Instrumentation in the Life Sciences: II. Funding Schemes. Deutsche Forschungsgemeinschaft (DFG), Bonn: http://www.era-instruments.eu/downloads/recommendations_2.pdf
- [7] ERA-Instruments WP 1 Co-ordination and knowledge exchange. Task 1.1 National schemes for infrastructure funding in life sciences. Deliverable 1.2 Comprehensive and critical overview on instrumentation funding in life sciences. April 2009: http://www.era-instruments.eu/downloads/funding_schemes.pdf
- [8] Roadmap for research infrastructures. A pilot project of the Federal Ministry of Education and Research (BMBF). Bonn, 2013: http://www.bmbf.de/pub/roadmap_research_infrastructures.pdf
- [9] The Dutch system is due to change to a mixed system of open and strategic calls in 2016.
- [10] Very limited use of targeted calls.

Annexes

Annex A – Online Questionnaire Developed by Science Europe Working Group on Research Infrastructures

Science Europe Member Organisations were invited to respond to this questionnaire during the period April–May 2014

Structure of the questionnaire

The questionnaire is divided into three parts:

A. (I, II and III) Strategic Priority Procedures and Definition

This section aims to gather information on how strategic priorities for RIs are developed in your country (i.e. agreed national strategic priorities), regions (sub-national level), organisations.

B. Strategic Priorities and the Assessment Procedures for RI Funding

This section aims to gather information on how the strategic priorities are taken into account in the funding decisions at the national, regional (sub-national) or your organisation's levels.

C. International Co-operation in RI

This section aims to gather information on the desirability of international co-operation, information exchange and joint funding of RIs.

AI. Strategic Priority Procedures and Definition

Note: for the purpose of this survey a strategic priority can be defined at the organisational, regional or national levels and is understood as:

- ▶ a deliberate choice for certain research fields, for a preferred type of facility or for specific facilities;
- ▶ a choice for certain pre-conditions which should be met before a proposal can be sent for assessment;
- ▶ a deliberate choice to align RI decision making with external drivers such as ESFRI Roadmap, Smart Specialisation Strategy, etc.;
- ▶ engagement in international science initiatives;
- ▶ other.

Depending on the organisation, region (sub-national) and country, a strategic priority would not necessarily benefit from an earmarked budget line.

1. Are there strategic priorities to guide decision making for RIs?

At national level:

Yes No I don't know No answer

Please describe the strategic priorities. If appropriate, list the top five strategic priorities, indicate whether you think the information you provide here is partial or complete:

What are the reasons for the absence of strategic priorities to guide decision making for RIs?

At regional (sub-national) level (if applicable):

Yes No I don't know No answer

Please describe the strategic priorities. If appropriate, list the top five strategic priorities, indicate whether you think the information you provide here is partial or complete:

What are the reasons for the absence of strategic priorities to guide decision making for RIs?

At the level of your organisation:

Yes No I don't know No answer

Please describe the strategic priorities. If appropriate, list the top five strategic priorities, indicate whether you think the information you provide is partial or complete:

What are the reasons for the absence of strategic priorities to guide decision making for RIs?

Free text box (optional):

All. Strategic Priority Procedures and Definition

2. Are the strategic priorities publicly available?

At national level :

Yes No I don't know No answer

If yes, please give:

- a description of these RI-related strategic priorities;
- the title of the supporting document; and
- possibly a url to it (preferably to an English version of the document if it exists).

At regional (sub-national) level (if applicable):

Yes No I don't know No answer

If yes, please give:

- a description of these RI-related strategic priorities;
- the title of the supporting document; and
- possibly a url to it (preferably to an English version of the document if it exists).

At the level of your organisation:

Yes No I don't know No answer

If yes, please give:

- a description of these RI-related strategic priorities;
- the title of the supporting document; and

- possibly a url to it (preferably to an English version of the document if it exists).

3. Which body(ies) endorse(s) the strategic priorities for decision making on RIs (i.e. which body make(s) the final decision on them) ?

At national level:

- Government
 Other
 Ministry for Research/Science/ I don't know
 National Research Council

Please specify:

At regional (sub-national) level (if applicable):

- Regional Government
 Other
 Regional Ministry for Research/Science
 I don't know
 Regional Research Council

Please specify:

At the level of your organisation:

- Other
 I don't know

Please describe (e.g. central governance of your organisation)

Free text box (optional):

AIII. Strategic Priority Procedures and Definition

4. Which other bodies are consulted in the strategic priority setting process?

At national level (more than one answer is possible):

- Inter-ministerial consultation
 Regional authorities
 National Research Council(s)
 Scientific community
 Other

Please list the ministries involved and their roles:

Please list the regional authorities involved and their roles:

Please specify National Research Council(s):

Please specify (e.g. permanent board, temporary committee, etc.):

At regional (sub-national) level (if applicable): [more than one answer is possible]

- Regional inter-ministerial consultation
 Regional Research Council(s)
 Scientific community
 Other

Please specify (e.g. permanent board, temporary committee, etc.):

At the level of your organisation (more than one answer is possible):

Scientific community Other

Please specify (e.g. permanent board, temporary committee, etc.):

Free text box (optional):

5. **Based on the above, could you please describe as concisely as possible the various steps of the strategic priorities setting process? E.g. "It was a top-down process led by and within the Ministry"; or "It was an open process initiated by the National Research Council with wide stakeholder consultation"; other.**

At the national level:

At regional (sub-national) level (if applicable):

At the level of your organisation:

6. **Has a Roadmap for RIs been developed? (Whether it is a budgeted timed plan, a list of projects with no secured funding yet, or else)**

At national level:

Yes No I don't know No answer

If yes, please:

- describe the links (if any) between the existing list of strategic priorities for decision making on RIs and the Roadmap at national level;
- describe what the Roadmap consists of (list of specific RIs with secured funding, list of specific RIs with no secure funding, etc.);
- provide a url (preferably to an English version of the document if it exists).

At regional (sub-national) level (if applicable):

Yes No I don't know No answer

If yes, please:

- describe the links (if any) between the existing list of strategic priorities for decision making on RIs and the Roadmap at regional level;
- describe what the Roadmap consists of (list of specific RIs with secured funding, list of specific RIs with no secure funding, etc.);
- provide a url (preferably to an English version of the document if it exists).

At the level of your organisation:

Yes No I don't know No answer

If yes, please

- describe the links (if any) between the existing list of strategic priorities for decision making on RIs and the Roadmap at the organisational level;
- describe what the Roadmap consists of (list of specific RIs with secured funding, list of specific RIs with no secure funding, etc.);
- provide a url (preferably to an English version of the document if it exists).

Free text box (optional): you may want to indicate here whether a Roadmap is planned, under development, under revision, etc.

B. Decision on RI Funding and the Actual Use of Strategic Priorities on RIs

In this section the WG RIs is interested in getting an insight into the way strategic priorities are implemented in the decision about funding RIs and to what extent deviations from the defined strategic priorities are possible. In order to be able to analyse the information given we also ask you to describe in general terms, the procedures that are used to achieve funding decisions for RIs.

7. Are the strategic priorities taken into account in the decision on funding RIs (at any level: national, regional or organisational)?

Yes No No answer

8. How are the strategic priorities taken into account in the decision on funding RIs? Are they used to design targeted calls? At which point of the assessment procedure of applications? E.g.: are they compulsory (i.e. eligibility criteria)? Is it left to the (review) committee whether or not this information is taken into account? Is there a certain weight attached to them?

At the national level

At the regional (sub-national) level (if applicable):

At the level of your organisation:

9. Please describe, in general terms, the procedures that are used to achieve funding decisions for RIs.

At the national level:

At the regional (sub-national) level (if applicable):

At the level of your organisation:

10. Are deviations from the strategic priorities possible (i.e. can a facility still be funded even if it does not meet the strategic priorities)?:

At national level:

Yes No No answer

if yes, please describe the possible reasons for an exception and the body which validates it.

At the regional (sub-national) level (if applicable):

Yes No No answer

if yes, please describe the possible reasons for an exception and the body which validates it.

At the level of your organisation:

Yes No No answer

if yes, please describe the possible reasons for an exception and the body which validates it

Free text box (optional):

C. RI and International Co-operation

Many countries develop roadmaps for RIs. For ESFRI-size facilities there is a clear need for international co-operation. However, the funding of facilities in size smaller than the ESFRI level (medium-sized), is generally decided on a national level or below. In this section the WG RIs is interested in getting an insight into the actual or needed (trans)national exchange of information on RIs whose size is (i) smaller than ESFRI or EIROForum types RIs (e.g. the European Space Agency, the European Molecular Biology Laboratory, The European Organisation for Nuclear Research) for which the international co-operation is already a core requirement but (ii) still relevant/big enough to trigger cross-border interest and discussions.

11. Does your organisation/region/country exchange information, with other research organisations, with other regions, or with neighboring countries, about RIs as defined in the above introduction paragraph, and about the related policies, funding and managements schemes, etc.?

Yes No No answer

Please explain:

- what types of information are exchanged; at which level (organisational, regional, national);
- whether the collected information is taken into account when defining strategic priorities for RIs;
- whether the collected information is taken into account in decision for RI funding.

Please explain the reasons why not:

12. Does your organisation/region/country consider joint investments in medium-sized trans/national facilities as an efficient way to fund RIs of smaller scale than the ESFRI and EIROForum type RIs? (without considering for example legal or other limitations)?

Yes No I don't know No answer

If yes, please specify: are joint investments considered, planned, actual? At which level are they being considered (organisational, regional, national)?

If no, please explain the reasons why not:

13. Are there examples of joint transnational investments made by your country for RIs whose size is (i) smaller than ESFRI or EIROForum types RIs (e.g. ESA, EMBL, CERN) for which the international co-operation is already a core requirement but (ii) still relevant/big enough to trigger cross-border joint action?

Yes No No answer

If yes, please specify:

Annex B – List of Organisations that Took Part in the Survey Exercise

Country	Organisation
Belgium	Fund for Scientific Research (FNRS) Research Foundation Flanders (FWO)
Czech Republic	Ministry of Education, Youth and Sports*
Denmark	Danish Council for Independent Research (DFF)
Estonia	Estonian Research Council (ETAg)
Finland	Academy of Finland (AKA)
France	Agence Nationale de la Recherche (ANR) French Alternative Energies and Atomic Energy Commission (CEA)
Germany	German Research Foundation (DFG) Helmholtz Association Leibniz Association Max Planck Society (MPG)
Hungary	Research Infrastructure Board of the Hungarian Academy of Sciences
Ireland	Science Foundation Ireland (SFI)
Lithuania	Lithuanian Research Council (LMT)
The Netherlands	Netherlands Organisation for Scientific Research (NWO)
Norway	Research Council of Norway
Poland	National Science Centre (NCN)
Portugal	Foundation for Science and Technology
Slovenia	Slovenian Research Agency (ARRS)
Spain	Spanish Research Council (CSIC)
Sweden	Swedish Research Council (VR)
Switzerland	Swiss National Science Foundation (SNSF)
United Kingdom	Biotechnology and Biological Sciences Council (BBSRC) Economic and Social Research Council (ESRC) Science and Technology Facilities Council (STFC)

* Not member of Science Europe

Annex C – Science Europe Workshop on Strategic Priority Setting for Research Infrastructures (22 and 23 January 2015, Lisbon) – Programme

Thursday 22 January 2015

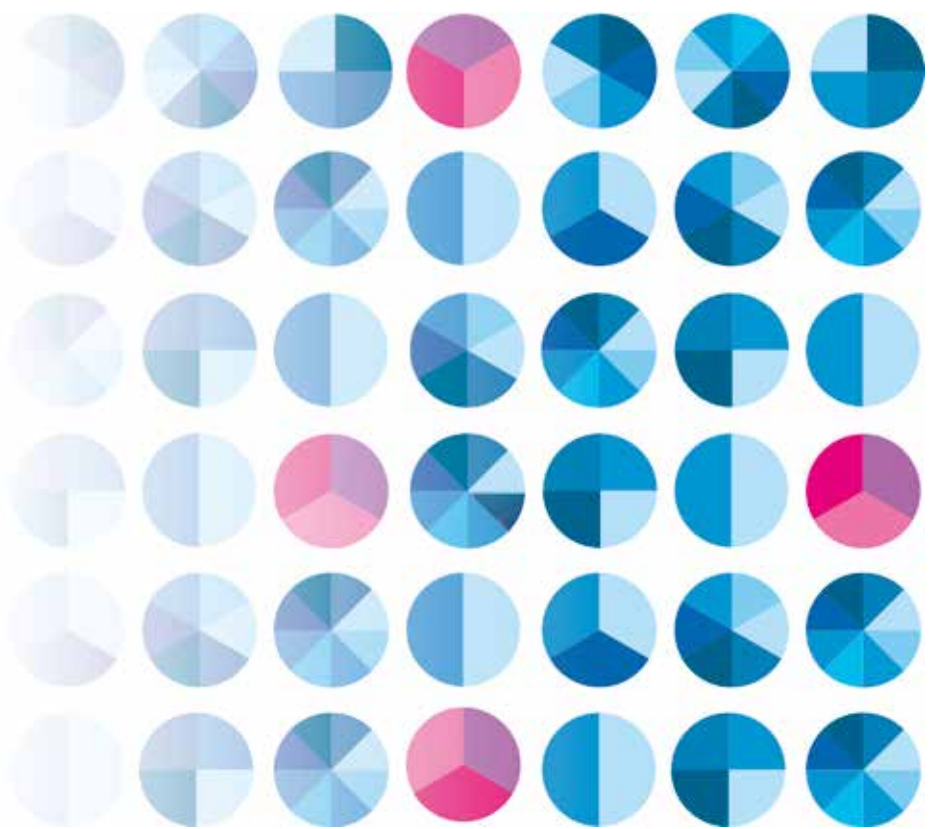
- 14.00**
1. Formal Opening
Miguel Seabra (President of the Portuguese Science Foundation and President of Science Europe)
 2. Introduction on Science Europe Working Group on Research Infrastructures (RIs)
Peter Fletcher (UK Science and Technology Facilities Council and Chair of Science Europe Working Group on RIs)
 3. Workshop Objectives and Expected Outcomes
Kas Maessen (Netherlands Organisation for Scientific Research, and Chair of the Workshop Organising Committee)
 4. Strategic Priority Setting for RIs
 - 4.1. Science Europe Survey: Preliminary Findings
Kas Maessen
 - 4.2. Country Specific Case Studies
 - UK: **Janet Seed** (Science and Technology Facilities Council)
 - Czech Republic: **Petr Ventluka** (Ministry of Education, Youth and Sports)
 - Portugal: **Ricardo Migueis** (Foundation for Science and Technology)
 - Sweden: **Johan Holmberg** (Swedish Research Council)
 - 4.3. RIs' Perspective
 - UK National Marine Facilities:
Geraint West (Natural Environment Research Council)
 - Consortium of European Social Science Data Archives:
Bjørn Henriksen (Norwegian Social Science Data Services)
 5. Introduction to Day 2
- 18.00** End of day 1

Friday 23 January 2015

- 9.00**
6. Opening
 7. Break-out Group Sessions:
Participants will convene in break-out groups. Each break-out group will:
 - Identify the strengths and weaknesses of one of the country specific case study presented on Day 1 with an emphasis on the way strategic priorities are defined and included in the funding process of RIs.
 - Discuss the added value of, and opportunities for, international co-operation.
 8. Feedback from Break-out Groups
 9. Closing Remarks and Next Steps
Kas Maessen (Netherlands Organisation for Scientific Research, and Chair of the Workshop Organising Committee)
- 12.45** End of the Workshop

Annex D – Science Europe Workshop on Strategic Priority Setting for Research Infrastructures (22 and 23 January 2015, Lisbon) – List of Participants

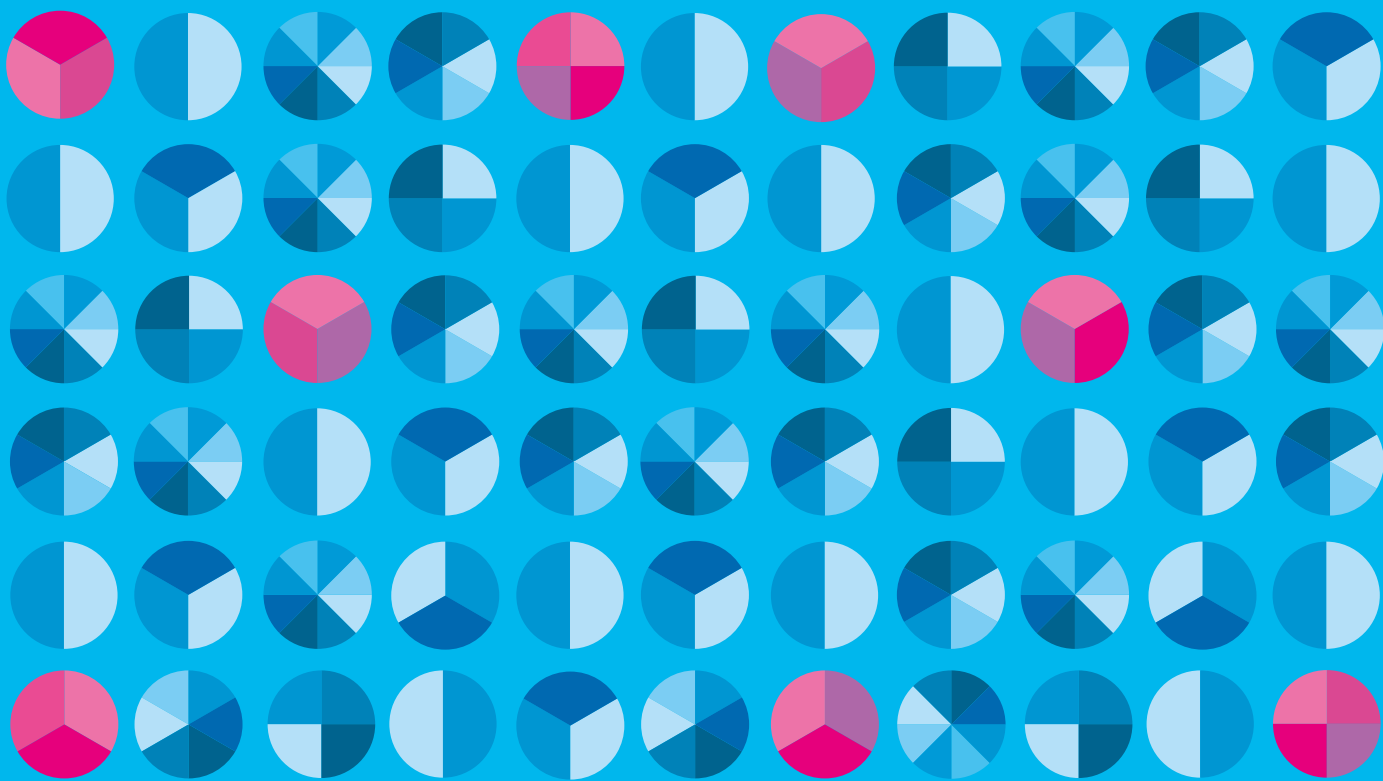
Last Name	First Name	Position	Organisation	Acronym	Country
Araújo	Ana	Technical Officer	Foundation for Science and Technology	FCT	Portugal
Bohmert	David	Head of Office	SwissCore / SNSF	SwissCore / SNSF	Switzerland
Chardin	Gabriel	President Infrastructures Committee	National Centre for Scientific Research	CNRS	France
D'Orazio	Alessia	Scientific Officer	National Institute for Nuclear Physics	INFN	Italy
Dubucs	Jacques	Chair	ESFRI Strategic Working Group on Cultural and Societal Innovation	SWG-SCI	France
Ettl	Christoph	Science and Innovation Studies	Max Planck Society	MPG	Germany
Evrard	Maud	Senior Policy Officer	Science Europe	SE	-
Fletcher	Peter	Head of International Relations	Science and Technology Facilities Council	STFC	United Kingdom
Froissard	Philippe	Deputy Head of Unit	European Commission	EC	France
Henrichsen	Bjørn	Director	Norwegian Social Science Data Services (NSD)	NSD	Norway
Holmberg	Johan	Research Officer	Swedish Research Council	VR	Sweden
Holmgren	Sverker	e-IRG Chair	E-Infrastructures Reflection Group	e-IRG	Norway
Hrusak	Jan	Advisor to the Academy Council	Czech Academy of Sciences	AS CR	Czech Republic
Kjær	Anders	Senior Adviser	Danish Agency for Science, Technology and Innovation	DASTI	Denmark
Krupavicius	Algis	Professor	Lithuanian Research Council	LRC	Lithuania
Luwel	Marc	Director	Hercules Foundation	Hercules Foundation / FWO	Belgium
Maessen	Kas	Head Cluster Granting and Procedures	Netherlands Organisation for Scientific Research	NWO	Netherlands
Martinez	Jose Luis	Director	ESS Bilbao		Spain
Migueis	Ricardo		Foundation for Science and Technology	FCT	Portugal
Opitz	Ricarda	Head of Division Research	Leibniz Association		Germany
Palazzo	Nicoletta	Technologist	National Research Council of Italy	CNR	Italy
Pappalardo	Gelsomina	Senior Researcher	National Research Council of Italy	CNR	Italy
Pereira	Paulo		Foundation for Science and Technology	FCT	Portugal
Rathod	Sonny	Senior Programme Manager	Biotechnology and Biological Sciences Research Council	BBSRC	United Kingdom
Renner	Christian	Deputy Head of Unit	German Research Foundation	DFG	Germany
Rossi	Giorgio	Vice Chair ESFRI	University of Milan	UniMi	Italy
Roussel-Chomaz	Patricia	Manager for Large Research Infrastructures	Alternative Energies and Atomic Energy Commission	CEA	France
Ryan	Michael	Programme Manager	Science Foundation Ireland	SFI	Ireland
Saborida	Tiago	Research Infrastructure Unit	Foundation for Science and Technology	FCT	Portugal
Seabra	Miguel	President	Foundation for Science and Technology	FCT	Portugal
Seed	Janet	Associate Director, Programmes	Science and Technology Facilities Council	STFC	United Kingdom
Sette	Francesco	Director General	European Synchrotron Radiation Facility	ESRF / EIROforum	France
Sgard	Frédéric	Project Administrator	OECD Global Science Forum	OECD GSF	France
Tamm	Priit	Adviser on Research Infrastructures	Estonian Research Council	ETAg	Estonia
Thies	Annika	Director, Brussels Office	Helmholtz Association	HGF	Germany
Ventluka	Petr	Senior Officer	Ministry of Education, Youth and Sports	MEYS	Czech Republic
West	Geraint	Director, National Marine Facilities	National Oceanography Centre	NOC	United Kingdom
Wiesenfeldt	Sören	Head of Research Department	Helmholtz Association	HGF	Germany
Witsch	Renata	DG Office - Legal Affairs	European Synchrotron Radiation Facility	ESRF / EIROforum	France



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