Consultation on International Outreach of ESFRI projects and landmarks

Main findings

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1. EXECUTIVE SUMMARY

In the case of large scale infrastructures, due to the scale of the investment needed and the global character of the challenges to be addressed, global cooperation is essential for pooling the necessary resources for the construction and operation of the Research Infrastructures. Moreover, international cooperation around Research Infrastructures is of strategic importance in areas where (1) Europe has an international leadership and can influence standardisation at global level; (2) Europe can take advantage of resources not available within Member States; and (3) Europe can develop internal capacities, benefiting from best practices in the global arena.

The nature and complexity of the societal challenges require a global approach for the design and operation of RI. International cooperation is also highly strategic when pooling of resources is necessary for construction and operation of RI and in order to achieve scientific excellence.

Moreover, international cooperation is a tool to support or complement the EU external policy and contribute to Science Diplomacy. In this context, there is a need to develop a comprehensive picture of all the European Research Infrastructures, in order to support the international outreach. The European Commission supports the internationalization of the Research Infrastructures and addresses these international dimensions, e.g. in the context of multilateral and joint science and technology dialogues with EU counterparts.

However, currently, Research Infrastructures are not systematically addressed in the context of these dialogues, due to the lack of information on the Research Infrastructures plans in the international arena.

In order to overcome this shortfall, this targeted consultation aimed to capture information that could be useful to identify potential collaboration opportunities with non-European partners and develop an overview of the main actors in the international landscape in each **scientific** field.

The outcomes of the consultation will be used by the European Commission to:

- support the international outreach of the European relevant Research Infrastructures, by actively promoting these projects and activities to international strategic partners via the European Commission's participation in international fora and bilateral and regional policy dialogues,
- facilitate the organisation of international workshops that envisage the participation of the targeted European projects and potential partners.

Besides the International outreach component, the last section of the questionnaire also covers the Access dimension to Research Infrastructures, in order to better understand the level of openness to non-European countries-users.

The following sections cover the main general findings which were considered relevant to extrapolate from the answers. An analysis of the individual context of each RI responses can provide a more in-depth approach to the data collection.

2. THE CONSULTATION PROCESS

This survey addressed **ESFRI projects and landmarks & non-ESFRI ERIC initiatives**, covering 21 ESFRI Roadmap projects + 29 Landmarks + 2 ERICs which are not part of the ESFRI roadmap. In total, 36 responses were received.

The questions were comprised in 5 sections:

- General description
- Current country involvement
- Ongoing dialogues
- Future partnerships
- RI users

The online consultation was open from 2015 to 22nd April 2016; 36 respondents replied to the survey.

The identity of the respondents has been safeguarded as indicated in the questionnaire which specified that "*A synthesis of the contributions via this online questionnaire, as well as any individual contribution, may be made public, safeguarding the identity of the respondents*".

3. SURVEY RESULTS

Survey results are presented in line with the structure of the questionnaire.

3.1. General description

Fig. 1 – Typology of respondents

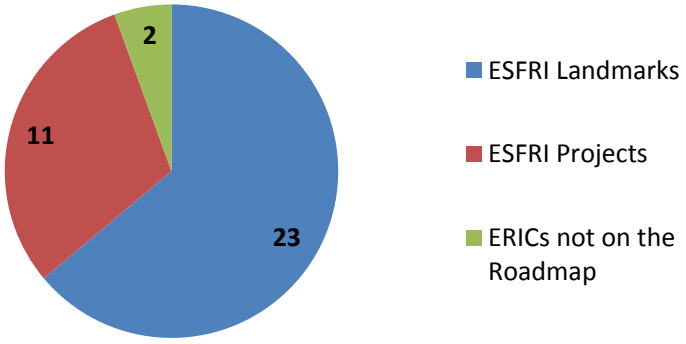
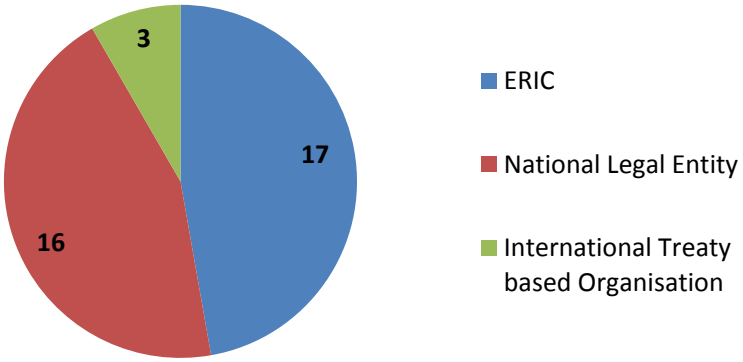
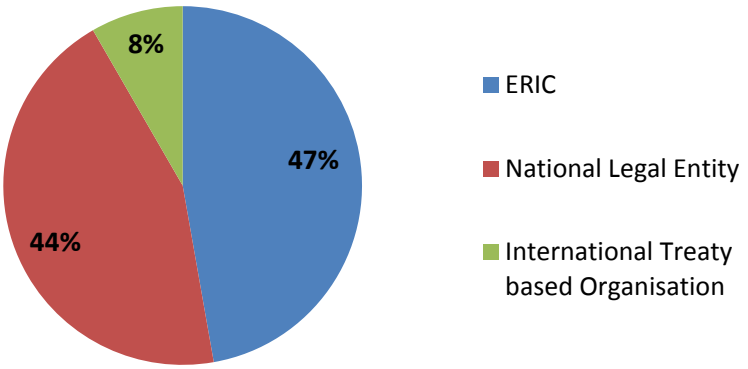


Fig. 2 – Type of legal framework of the organisation (or aim) – (in absolute numbers and in %)



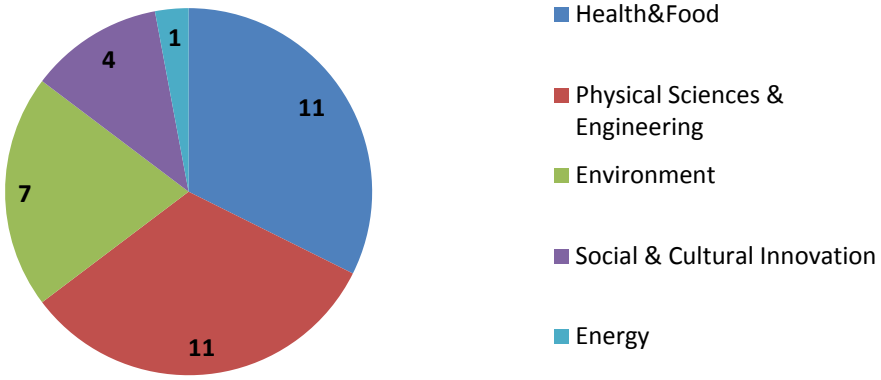
The current established 12 ERICs replied the survey and 5 other RIs identified that they were in the preparation process of an ERIC (step 1) or refered that they aim at establishing this consortia in the future.



Taking into account the 34 ESFRI Roadmap projects and landmarks which responded to the questionnaire, it is visible in Fig.3 that the main representation is from Health and Food and Physical Sciences and Engineering domains, followed by the Environmental field.

Concerning the years of entry in the ESFRI roadmap, as expected, the majority are from 2006 and 2008, respectively 21 and 9 responses.

Fig. 3 – ESFRI Roadmap Projects & Landmarks - Fields of work

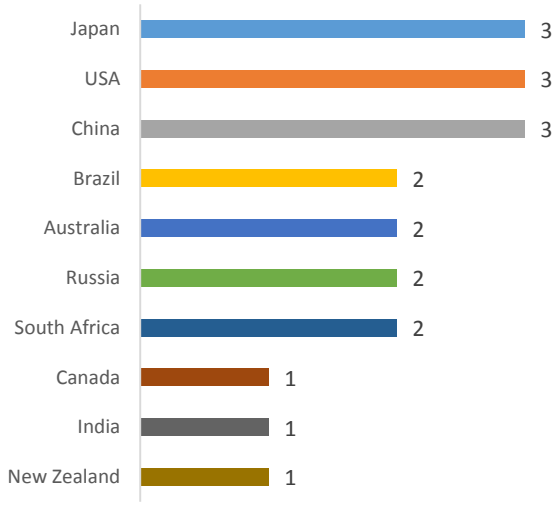


3.2. Current Country Involvement

When asked to indicate non-European countries / International Organisations for the following categories (Members, Partnerships & others), Research Infrastructures also made explicit reference to a number of formal links (members) to Associated Countries, such as Switzerland, Norway and Israel. Concerning the cooperation partnerships, at a more informal level, a remarkable number of institutions Associated Countries was also stated, including Iceland, Israel, Tunisia, Turkey and Ukraine.

The respondents were asked to identify the level of involvement of non-European countries, in 3 levels - members, partners, others – and concerning the membership, 27 RIs projects stated that they didn't have any formalized members outside Europe (excluding Associated Countries)[1]**.** Only 10 RIs/ projects had members of non-European countries (excluding Associated Countries). Fig. 4 a) demonstrates the number of times a non-EU country is referred as being formally involved in the RI. In terms of members, the RIs disclaimed the following non-European Countries.

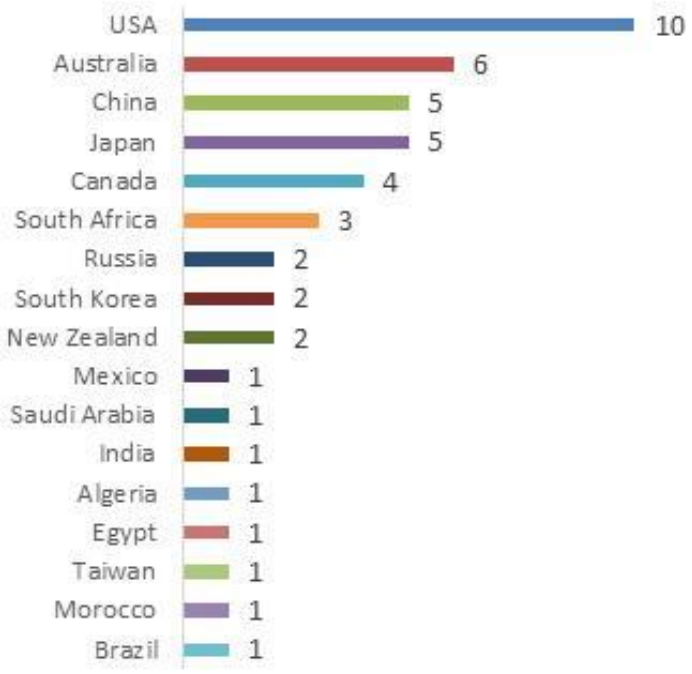
Fig. 4 a)– Non-European countries /International Organisations members



Concerning the cooperation agreements or partnerships, the non-European countries' references identified are clearly demonstrated in Fig. 4 b), where the USA, Australia, China, Japan, Canada are clearly privileged partners.

[1] Associated Countries are referred by some RIs as non-European members and some others don't make a specific reference to them, as they consider them involved in the European context. This analysis doesn't comprise them

Fig. 4 b)– Non-European countries / International Organisations partnerships

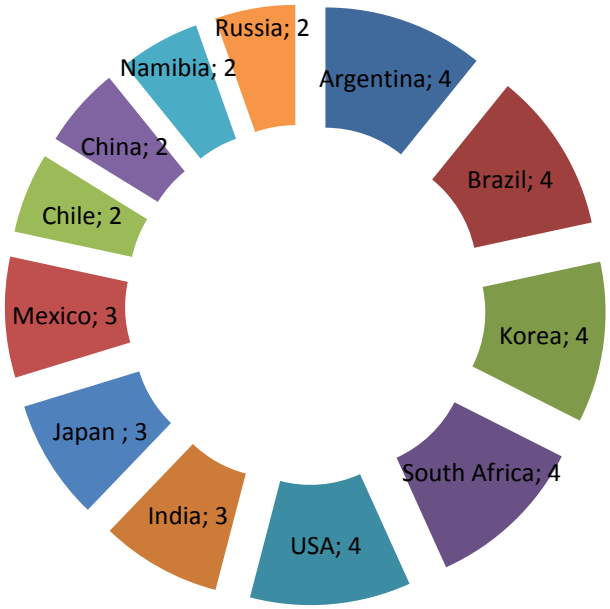


Regarding the number of Cooperation agreements/ partnerships in place, at an institutional level, there was also a focus on some of the International Organisations/ International framework structures, where links with OECD, ERF, RDA, ARGO International, WMO, EFPIA, EMA and with other Research Infrastructures, like CERN, ILL, JINR, ESO, EGI and other European flagship projects - were referred.

In this specific question, RIs expressed several levels of engagement with non-European countries, ranging from signed MoUs, working arrangements at a research institute level, but also technical assistance, associate level in the infrastructure (with no voting rights), etc.

In a third layer, when asked to specify other types of partnerships, the main references involved the following countries:

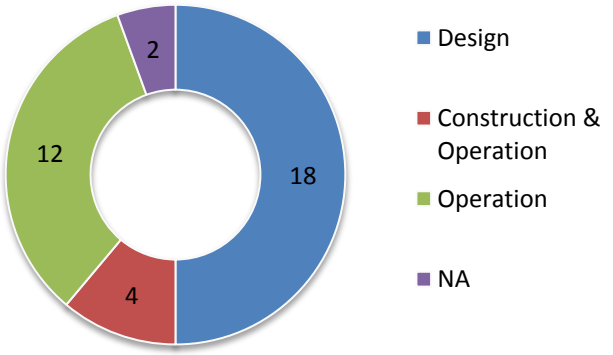
Fig. 4 c)– Non-European countries / Other countries



As can be seen in the graph above, more than one RI referred to have **Other types of agreements**, at a more informal level with several third countries. There were also single references to Associated Countries as Israel, and third countries as Armenia, Australia, Botswana, Ghana, Kenya, Madagascar, Mozambique, Mauritius, Uruguay, Zambia and Thailand.

When asked in what stage did the RI involve non-European partners, there is tendency to see this process as a continuous effort, but some refer to an involvement of Associated Countries in a 1st stage and only after that an "extension" to third countries, but it highly depends on the type of RI, scientific field and the technical endeavours needed to develop such an RI.
The figure below showcases that 18 of the 36 respondents decided to start involvement in an early stage, design & preparatory phase, while the rest only involved third countries in a later stage while construction and operation or even only mentioning operational stage.

Fig. 5 – Stage of Involvement



Concerning the **reasoning behind the establishment of these partnerships**, RIs referred to science as the main driver, but best practices, resources/ investment sharing are mentioned as also one major objective for these partnerships.
The following word map shows the main objectives of the partnerships development.

Fig. 6 – Word map on Reasons for the establishment of these partnerships

The **main challenges** which were highlighted by RIs mainly touch upon regulatory, cultural and funding bottlenecks.

The need to "*reconcile existing legal, administrative and operational approaches that are based on long-standing traditions and firm frameworks in very different cultures (…)*" was explicitly mentioned by several of the RIs representatives.

Another bottleneck which was highlighted as a critical stage was the moment where there is a need to reach an agreement on the funding model: "*taking GDP into consideration or a different contribution by organisations needs to be agreed upon by all other partners".*

The difficulty in conciliating all expectations, needs and scientific priorities was raised as a recurrent issue, "*while at the same time establishing sustainable common activities and services, which are of high interest for all partners involved".*

In this context, different funding cycles and different economic constraints were mentioned by most of the RIs:

Eg.: " (…) "main ongoing challenge is the rigidity of national budgets for research, which will require negotiations to reach sustainability".

Lack of continuity in the high-level relations and the process of understanding which are the key players in each third country constitute also a relevant issue to be tackled:

"A real challenge in building dialogue with countries outside Europe is understanding the key contacts and decision-makers in each country. Scientific collaboration is easier to establish (…)".

There was also an explicit reference to the difficulties for non-EU countries to adhere to the ERIC legal instrument.

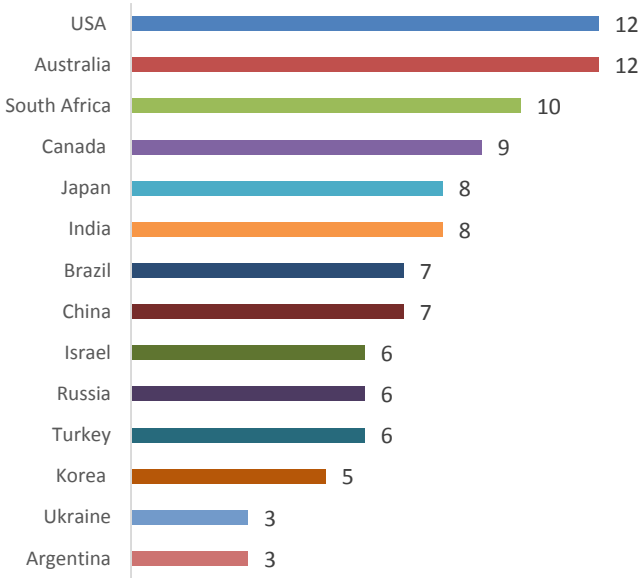
3.3. Ongoing Dialogues

This section focuses on the identification of concrete ongoing dialogues between the RIs and other Countries and International Organisations, which could lead to the future establishment of formal partnerships.

Only 2 out of the 36 RIs expressed that they are not currently involved in any dialogues with non-European countries.

The 34 RIs which referred to specific dialogues target the following countries:

Fig. 7 – Current dialogues



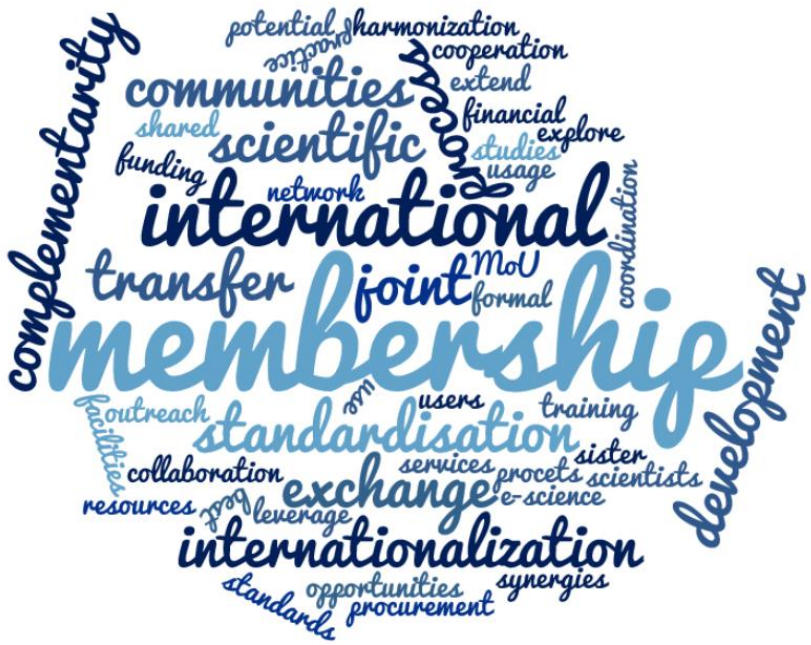
The graph clearly shows the most targeted countries. Among the most referenced there were also 2 Associated Countries - Turkey and Israel.

There were also a number of countries referred twice such as Thailand, Mexico, Bosnia and Herzegovina, Jordan and Chile.

References to International organizations such as CERN, SESAME, UNFCCC, WMO, UNEP, ESA, NASA, ESO, NSF/NRAO, Carnegie Group, G8, G20, OECD, WHO and International Initiatives such as GEO, FLUXNET, SOCAt, GAW were also made.

A word map with the main goals of each of these dialogues clearly shows a main focus on membership opportunities, standardisation, technology transfer, exchange of resources, based on a complementarity approach.

Fig. 8 – Word map on Reasons for the ongoing dialogues



Concerning the status of advancement of these ongoing dialogues, the status differs from an advanced stage of negotiation, about to sign a MoU to a preliminary discussion stage. General terms as "confidentiality" and "ongoing process" were mentioned several times in this framework. Among the answers it is remarkable the 2 different levels where the negotiations occur: first at a lab, research level and other high-level, policy makers' involvement.

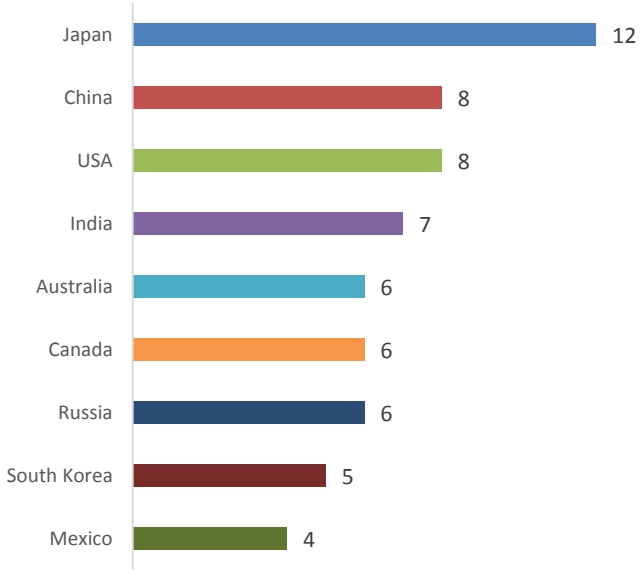
Concerning the challenges, there were explicit references to challenges such as:

- "Identifying the relevant scientific communities and funding agencies",
- "Political barriers" (…) "finding the correct and effective contact/negotiating partner; "Finding the right contacts in Ministries and funding bodies in international countries",
- "building trust between competitors",
- "Lack of funding to continue the dialogue, funding priorities for such long-term commitment",
- "The attraction of international partners depends strongly from the support by the EU and the European Countries ensuring a basic sustainable perspective",
- "Difficulty (of Non- Member States) in committing their own resources on a long term".

3.4. Future Partnerships

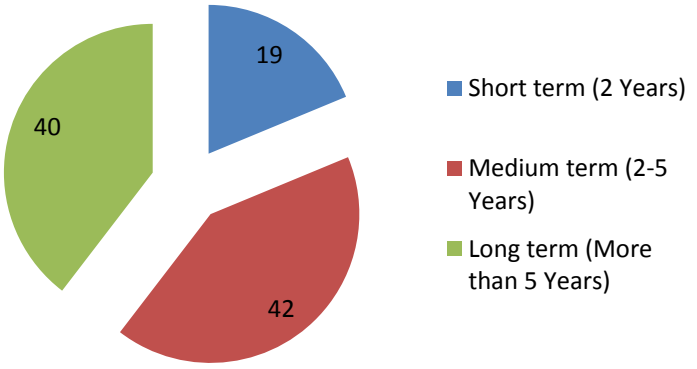
Section 4 focuses on the future partnerships, which, in principle, are still not structured in a coherent internationalization strategy, but which are to be developed in a longer term.
The graph below shows the number of Country occurrences in the context of future partnerships. African continent, as a whole, was mentioned as a target for 3 RIs and South Africa is also mentioned also by other 3 RIs.

Fig. 9 – Future partnerships



In terms of the intended timeframe for these endeavours to be further developed, it is clear that these future partnerships are part of a medium to long term strategy, in the majority of the RIs. Only 19 % referred these targets to be addressed in a short term (2 years' timeframe).

Fig. 10 – Intended timeframe (in %)

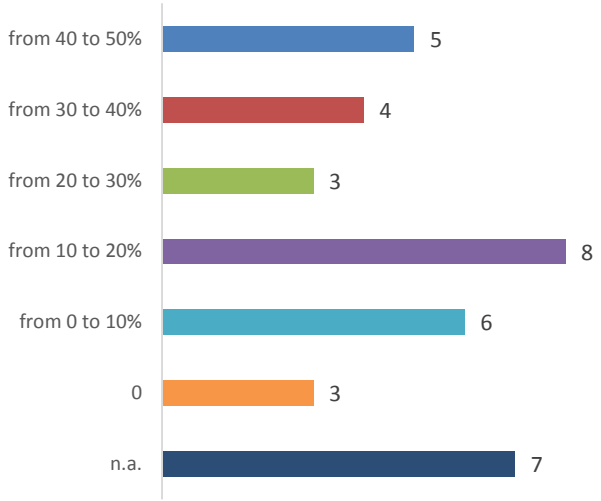


3.5. Research Infrastructures' Users

The set of questions in this section aimed at the characterization of the users of the RI, with specific reference to the international openness of the RI.

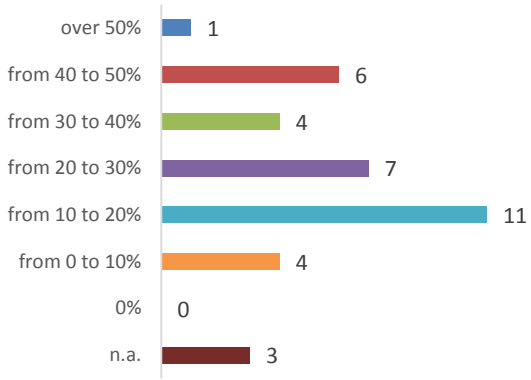
Concerning the current distribution of users, the graph below shows the current distribution of the non-European users of the 36 RIs. The n.a. groups the RIs which considered the question did not apply to them, either because they were not yet providing access or lack of available data. In the current context, 5 out of the 29 RIs (which responded) have 40% to 50% of the users coming from non-European countries and, on the other hand, only 3 have a 0% of non-European users. The graph below shows a variety of non-European users' involvement and openness.

Fig. 11 – Current distribution of users (non-European – in %)



As the graph below showcases, in terms of expectations, in general terms, there is an increase trend in the % of non-European users.

Fig. 12 – Expectations for future distribution of users (non-European – in %)



All of the RIs indicated the aim of providing access to users from non-European countries, under a different set of conditions. These conditions are worth further in depth and individual case analysis.

Based on the Definitions provided by the Charter for Access to Research Infrastructures, only 10 out of the 36 RIs do not intend to guarantee a minimum quota of access provided based on the pure excellence of the proposal submitted without any other kind of conditionality (e.g. membership, funding, specific MoU, …) and independently from where and what institution the User might be coming from. From the 26 RIs which intend to guarantee a quota, only 12 RIs indicated a specific quota (in relation to the entire Access provided), the rest of the responses were vague.