

ERIC Forum 2

Best Practices and Recommendations for Procedures of Engagement with Third Countries

Work Package 7 - Deliverable 7.1

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Description of deliverable	The deliverable describes the results of a combination of existing literature review, surveys and interviews on the different models of integration of third countries and international organisations and outlines best practices and recommendations for procedures of engagement.

Executive summary

The global interconnected nature of scientific challenges and the diversity of the required resources and skills demand broad international sharing of data, knowledge, best practices, and research joint programs. In this context Research Infrastructures are critical for global science, global economy and for the entire global research community.

In this task a combination of existing literature review, a survey sent out to all ERICs, and one-hour interviews with ERICs were used to collect an overview of the different models of integration used by ERICs to engage with third countries (i.e., countries not associated to Horizon Europe; for example UK and Israel do not qualify as third countries, they are associated to Horizon Europe) and international organisations. This report summarises the ERIC Forum common understanding of methodologies, challenges and opportunities for global collaboration. It analyses the current status of ERIC's partnerships with third countries, identifies potential barriers and opportunities to enhance cooperation, and offers recommendations to various stakeholders on best practices.

There is a consensus within the ERIC community that opening services to countries outside Europe is a challenging but highly needed activity. Engagement fosters improvement to the infrastructure and allows the opportunity to tackle global challenges. Barriers to this much needed engagement were identified including financial, political, administrative and managerial issues which need to be addressed to achieve a productive and enriching collaboration. ERICs have found instruments to advance in their internationalisation efforts which in many cases are fit for purpose and have allowed for integration, albeit with limitations which are described. This is the case for the agreements with individual organisations which have made it possible to tackle global challenges in partnership. When ERICs require an interaction at national level other instruments are needed. Full membership at ministry-level would ensure a clear buy-in to the future of the ERIC, but so far this is an option which has not been extensively exploited due mainly to legal barriers, such as the signature to the European Court of Justice. Associated membership for organisations, with a limited set of rights and obligations, is viewed as an alternative which can fulfil the higher level of involvement of parties outside of Europe without facing the same legal barriers. A great wealth of experience and expertise have been identified within the ERIC community which will be explored in the next task (7.2, Cooperation activities implemented with the international organisations selected) of this work package.

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Table of Contents

EXECUTIVE SUMMARY	2
1. BACKGROUND	5
2. METHODOLOGY	7
2.1 Roadmap followed	7
2.2 Table of ERIC membership from statutes and websites (Annex 1)	8
2.3 Detailed survey of ERIC international modalities of engagement (Annex 2)	8
2.4 In-depth interviews with selected partners (Annex 2)	9
3. RESULTS	10
3.1 Table of ERIC membership from statutes and websites	10
3.2 Detailed survey of ERIC international modalities of engagement (Annex 1)	10
3.3 In-depth interviews with selected partners (Annex 2)	13
4. MAIN BARRIERS IDENTIFIED	14
5. RECOMMENDATIONS.....	17
6. CONCLUSION	20
7. ANNEXES	21
7.1 Table of ERIC membership from statutes and websites.....	21
7.2 Detailed Survey of ERIC Modalities of International Engagement	21
7.3 In-depth Interviews with Selected Partners	22



1. Background

The global interconnectedness of scientific challenges and the diversity of the required resources and skills demand broad international sharing of data, knowledge, best practices, and joint research programs.

Research infrastructures (RIs) defined by the European Commission as “facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields.” — are critical for science, economies and for the research community worldwide. They give researchers access to high-quality resources and services, in order to foster innovation and develop cutting-edge technologies to address global challenges and drive the green and digital transitions.

The international cooperation fostered at research infrastructures offers a complex and diverse panorama, spanning different continents, definitions, organisations and research systems.

The main international and regional bodies active in RI policies and strategies are:

- The European Strategic Forum for Research Infrastructures ([ESFRI](#)) drives the coordination of European Union countries for joint planning of and access to research facilities at an international level.
- The Group of Senior Officials (GSO) on research infrastructures, which is a working group under the G7
- The OECD’s [Global Science Forum](#) carries out analytical work, often on research infrastructures and their international dimension
- The ICRI conference (held bi-annually in different countries) allows for RI managers and policy makers from around the world to meet and discuss areas of common *interest*

All of these bodies act to enhance scientific collaboration among research infrastructures.

As the international dimension with third countries is considered an important component of the development of the European Research Area (ERA),¹ and therefore of the EU’s capacity for innovation and competitiveness, the European Commission fixed the international cooperation beyond Europe as one of the main guiding principles of the ERICs (ERIC stands for “European Research Infrastructure Consortium” created as a specific legal form that facilitates the establishment and operation of Research Infrastructures with European interest).

The expectation is that each ERIC establishes international collaborations in order to enhance their work and increase their impact. Through international collaborative projects, ERICs are able to offer their services to users from outside Europe, highlighting the advantages of research infrastructures at a global level which have an impact on the level and scope of their infrastructures. The global nature of challenges such as pandemics, food security and the environment, to name a few, requires global accessibility of the infrastructures available and in many cases, the joint construction and maintenance of global research infrastructures. Past initiatives supported by the European Commission have paved the way to increased collaboration of ERICs in the international scene and the adoption of Open Science principles in the infrastructure domain.

¹ The European Research Area (ERA) is the ambition to create a single, borderless market for research, innovation and technology across the EU. https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/european-research-area_en#what-is-era

As stated in the Third Report on the Application of the ERIC Regulation for a European Research Infrastructure Consortium², “ERICs have the potential to become the legal instrument of choice for further developing globally integrated RI activities, [...]. This would allow a better use of research infrastructures across continents, enabling the sharing of capacities, knowledge resources and services among international partners.”

Projects such as EU-LAC Res Infra have connected ERICs not only with the research community in Latin America, but also with the local policy makers. This has led to a deeper understanding of potential challenges and significant opportunities for enhanced collaboration. The project RI-VIS tackled the lack of visibility of research infrastructures within Europe but also globally. By organising joint events with stakeholders in Australia, Africa and Latin America, the ERICs in the project consortia gained valuable insights to the international research infrastructure landscape. A clear outcome of these activities is the understanding of sharing infrastructure as vital for research and innovation. ESFRI has been viewed by international partners as a shining example of how to identify synergies and optimise the use of available resources.

In this context the ERIC Forum 2 project is providing the opportunity to summarise these efforts in a matrix, thereby creating a common understanding of methodologies, challenges and opportunities for global collaboration. The main objectives of the work described here were to analyse the current status on ERIC collaboration with third countries, identify potential barriers and opportunities to enhance collaboration and to provide recommendations to the relevant stakeholders on best practices.

² COM(2023) 488 final <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2023%3A488%3AFIN>

2. Methodology

To develop this deliverable (D7.1 Best Practices and Recommendations for Procedures of Engagement with Third Countries), project task T7.1 used a combination of existing literature reviews, a survey sent out to all ERICs, and one-hour interviews with eight ERICs, to collect an overview of the different models of integration that are in use for third countries (i.e., countries not associated to Horizon Europe; for example UK and Israel do not qualify as third countries, they are associated to Horizon Europe) and international organisations. The product of the discussions enabled us to produce an overview of best practices and to formulate recommendations for procedures of engagement with third countries and International Organisations.

2.1 Roadmap followed

A systematic methodology was employed to analyse the status of the international cooperation in the ERIC landscape in order to identify barriers and recommendations on how to overcome them.

This approach was designed to ensure that the resulting guidelines are well-informed, practical, and adaptable to a diverse range of national contexts. By combining thorough research, expert consultation, and a critical analysis of existing practices, the methodology aimed to address the complexities of the interactions between ERICs and third countries. This section will outline the key steps of this methodology, from the initial definition of scope to the final dissemination of the document, that formed the roadmap for how the best practices and recommendations were formulated.

Definition of the scope and purpose of the report (Step 1)

The first key step was the **definition of the scope and purpose** of the report.

The main objective of delivering a set of best practices and recommendations for procedures of engagement with third countries was already fixed during the preparation of the project proposal.

The ERIC community acknowledged the need to receive support for their international relations, both in terms of formal and informal cooperation with third countries. Few organisations had already embedded third countries in their governance, some other organisations were accustomed to cooperating with third countries, whereas many others still needed to establish structured links and formal relations.

The activities framed in task T7.1 were conceived to investigate the usual practices implemented by the ERICs in the field of international cooperation, to identify the related weaknesses and strengths, and to provide the entire ERICs community (including EC, MS, etc..) with recommendations to exploit the potential of the ERICs.

Information gathering (Step 2)

The second step was primarily focused **on gathering information on the current international relations in place within the ERICs.**

It was decided to first review international relations from a legislative standpoint: this led to an analysis of the ERICs statutes, able to provide a picture of the ERICs memberships.

Subsequently, structured consultations with all current 28 ERICs were conducted in the form of a survey, with the objective of mapping the experiences of the community.

Analysis of the survey responses (Step 3)

The third step focused on the **analysis of the survey responses**, in particular on the identification of the common issues and challenges faced during engagements with third countries.

Follow-up bilateral interviews (Step 4)

As a fourth step, the partners involved in the WP7 selected a restricted number of ERICs (eight) to deepen the analysis through **bilateral interviews**, based on the level of international engagement and the different modalities used. ERICs were selected from multiple domains to ensure a wider spread of experiences.

Results

The subsequent step was the analysis of the interviews and the formulation of best practices and recommendations. For each key issue or barrier, the document sets out specific best practice and makes recommendations.

Such best practices and recommendations will be tested by selected ERICs which will act as pilot examples under task T7.2.

Once finalised, the document will be disseminated to the relevant parties, including ERICs, European Commission, MS representatives in the ERICs General Assemblies and other relevant stakeholders.

2.2 Table of ERIC membership from statutes and websites (Annex 1)

When ERICs are established, statutes are made publicly available via the European Commission website³ which describe the founding membership of each ERIC. As ERICs expand, they have the obligation to publish their new membership on their website. A comprehensive review of all 28 ERICs was carried out, using information from the European Commission website, and individual ERIC websites. The information was then verified with the ERICs themselves to ensure accuracy.

The overview table generated (Annex 1) includes information on the host nation of each ERIC, as well as the members and observers. It describes members and observers in European member states, non-member associated countries (associated to Horizon Europe), and third countries. It also indicates whether international organisations are full members or observers.

2.3 Detailed survey of ERIC international modalities of engagement (Annex 2)

The survey aimed to collect information on the different modalities of engagement of the ERICs with third countries. The survey was carried out using ARIA (Access to Research Infrastructure Administration), the Instruct-ERIC in-house access management system, thereby ensuring all data was collected and stored securely. The survey was sent to the nominated representative for international collaboration in each ERIC. The aim of the survey was to gather quantitative data on ERIC collaboration with third countries, identify trends within similar ERICs, and obtain preliminary information that could be used to select appropriate ERICs for further interview. The results of the survey were used to select partners with distinct internationalisation profiles.

The full list of questions can be found in Annex 1. The primary topics for which input was asked were:

- the modalities which are used by ERICs for collaboration with third countries;
- the details, advantages, and limitations of such modalities;

³ https://research-and-innovation.ec.europa.eu/strategy/strategy-2020-2024/our-digital-future/european-research-infrastructures/eric/eric-landscape_en

- what they would do differently in the future,
- general difficulties with internationalisation;
- any example application documents.

Respondents were also asked to indicate whether their organisation was multi-sited, single-sited, or virtual.

2.4 In-depth interviews with selected partners (Annex 2)

Based on the result of the survey, eight ERICs were selected to carry out in-depth one-hour interviews. Selection criteria of interviewees included the level of international engagement and the different modalities used, aiming to get a wide range of responses and viewpoints on internationalisation modalities. The research domains of each ERIC was, in order to identify any differences in international engagement in different areas of research.

The full list of interview questions can be found in Annex 2. The main objective of the interview was to retrieve more details on the internationalisation modalities used by ERICs. In particular, the regions in which such activities are being carried out and the rationale for why they were targeted, if at all. The survey results did not provide clarity on whether ERICs have explicit internationalisation strategies, or if association with third countries comes about through individual connections across regions. Interviewees that had internationalisation strategy documents were asked to provide them if possible.

For ERICs that have third countries as member or observer it was a key point of discussion how this was achieved. In particular, it was checked how the requirement to comply with the European Court of Justice (ECJ) was dealt with. ERICs that provide access for international researchers were asked what mechanisms they used for this: dedicated calls, open access protocols, collaboration models, staff exchanges, or any other activities.

The success of any engagement is also crucial information for D7.1, so interviewees were asked if they had any mechanisms to measure success of such activities with third countries, and if so, what sort of metrics/information they are looking for.

3. Results

3.1 Table of ERIC membership from statutes and websites

Information on ERIC membership, observership, and host nation is publicly available at the websites of individual ERICs (and implicitly in the ESFRI Roadmap) but there is no online portal with a permanent and up-to-date overview for all ERICs. Annex 1 shows the membership of all ERICs per 26-6-2024. Some facts and figures draw specific attention:

- The European Social Survey (ESS-ERIC) has the most members of any ERIC, including 22 member states plus 6 countries associated to Horizon Europe. They also have one observer.
- Italy is a member of 21 ERICs, the most common member state across all ERICs.
- Only one ERIC has a third country as a member of its consortium, and only one has a third country as an observer. CLARIN ERIC onboarded South Africa as a member in January 2024, and BBMRI-ERIC has an international observer, Qatar. All other agreements with parties from outside of Europe reported are with international organisations.
- 4 ERICs have international organisations in their consortium. One of these is BBMRI-ERIC, which has the International Agency for Research on Cancer (IARC), part of the World Health Organisation, as an observer of its infrastructure. Another is AnaEE-ERIC, which has CIHEAM (International Centre for Advanced Mediterranean Agronomic Studies) as a member. The European Molecular Biology Laboratory (EMBL) is a member of two ERICs, Euro-BioImaging-ERIC and Instruct-ERIC.

CLARIN is a digital infrastructure which provides access to a broad range of language data and tools to support research in the humanities and social sciences. In 2016, South Africa launched an RI roadmap, in which national language resource facilities were included. South Africa was originally an observer of CLARIN, and during this period they aligned their national centres with the international interoperability framework for language data. Given the model of service federation for (mostly) open data that is adopted in CLARIN signing the ECJ was not a problem.

As the requirements for observership are lesser, including Qatar as an observer for BBMRI is easier than as a full member – they still need to provide some guarantees but not as many as is needed for full membership. Statutes of BBMRI state that observers still are invited to attend all activities at ministerial and scientific level, so Qatar can participate like a European observer.

3.2 Detailed survey of ERIC international modalities of engagement (Annex 1)

The survey was sent to international relation representatives of all (at the time of writing) 24 ERICs, resulting in 23 responses.

One of the key questions asked was to outline the modalities used to engage with international third countries. The count and graphical representation of the answers are shown below.

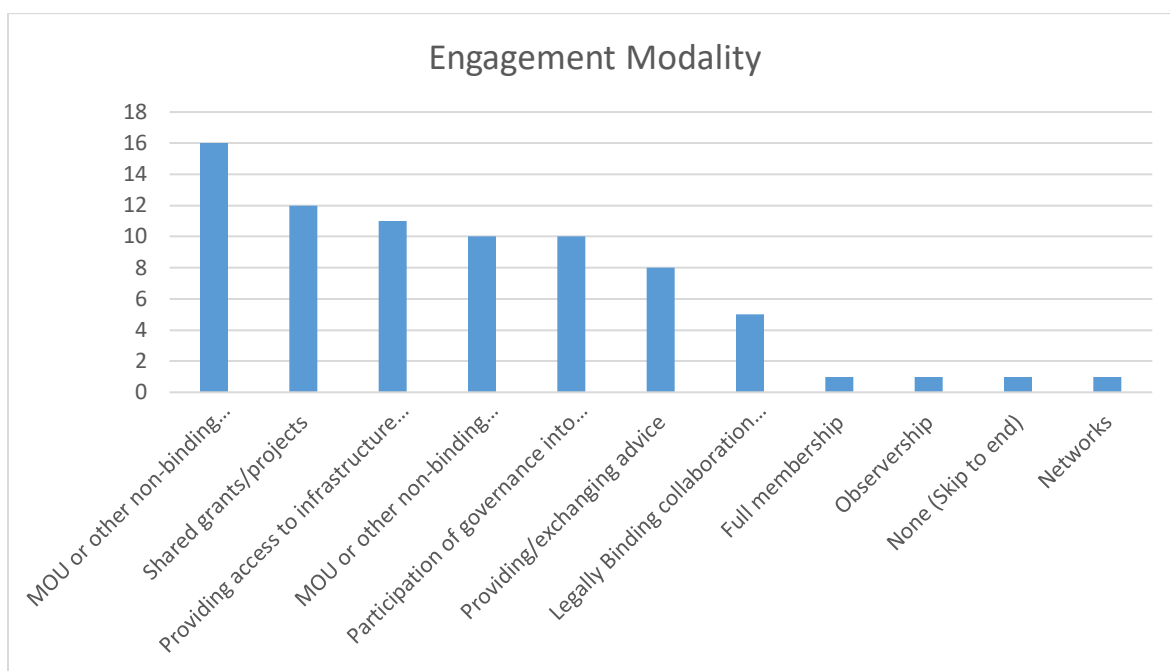


Figure 1. Responses to question on engagement modalities with third countries.

Modality	Count
MOU or other non-binding collaboration agreement with organisations	16
Shared grants/projects	12
Providing access to infrastructure services	11
MOU or other non-binding collaboration agreement with networks	10
Participation of governance into advisory board of international organisations	10
Providing/exchanging advice	8
Legally Binding collaboration agreement with organisations	5
Full membership	1
Observership	1
None (Skip to end)	1
Networks	1

Figure 1 shows the different modalities used to engage with third countries. Memorandum of Understanding (MoU) is the most common instrument to start a collaboration. In most cases, MoU are not legally binding agreements between ERICs and international institutions. There are no fees exchanged, they are a mutual alignment between organisations. These agreements can be the basis for future activities down the line, for example access calls or training opportunities, but these are on a case-by-case basis.

However, some ERICs do have fee-paying MoU agreements, which appears to be the case for 5 ERICs. In these cases, researchers at the international institution are treated as effective members of the ERIC consortium; their researchers have access to services in the same way all researchers in a member state would. This circumvents legal issues at ministerial level, and ensures researchers at relevant international institutions get access to key research infrastructure services with minimal barriers. It is through these MoU mechanisms that ERICs are able to provide access for international researchers, the case for 11 ERICs.

12 ERICs responded that they are in shared projects or grants with international partners. These may be dedicated projects designed to advance collaboration between Europe and other regions, such as EU-LAC ResInfra Plus with Latin America, or B3Africa with research teams in Africa. Or the project might be more focused on a specific thematic area of science but with international partners allowing wider collaboration between ERICs and non-European teams.

10 ERICs indicated that they share their expertise with international partners through membership of advisory boards of non-European organisations. Examples of this would be Instruct-ERIC, which has researchers from its nodes on the advisory board of the SIRIUS Synchrotron in Campinas, Brazil, and CLARIN ERIC, which has representatives in advisory bodies in South Africa, the US and South America. This way, ERICs collaborate with researchers and organisations outside of their usual scope, and exchange ideas and information with other teams.

Of the 16 ERICs who utilise MoU, 13 said that their non-binding nature meant that they are a good starting point. A common advantage was that they are very easy and fast to establish, as they are often not legally binding. They are most useful for initiating early conversations and exchanges of ideas and practices with researchers outside Europe. Of those ERICs which have legally binding MoU, the common advantage is that they can receive increased funding and users from research institutions, without needing to go through legalities at ministerial level – the institution pays a fee allowing users to access RI services. Some of these ERICs say that they also apply this modality to research institutions in Europe – if a country is just an observer, this mechanism can ensure that users can still access services, whilst the country's ministry is arranging full membership.

The key disadvantage to MoU-based agreements though, according to 11 ERICs, is that their non-binding nature means that they can be too easily disregarded when it comes to performing concrete actions. With no legal or financial commitment, acting on the MoU beyond its signature and certification can be difficult to establish and sustain.

All ERICs were asked to describe any general issues they have identified when collaborating with third countries and international partners. Five respondents indicated that they had not encountered any general issues. Seven stated that they lack the necessary resources or support to carry out such collaboration activities with third countries, impeding them from committing time or personnel to contacting ministries or the wider scientific community. On this note, four respondents highlighted the amount of time required to establish such connections, which they identified as a significant barrier to collaborative projects and international partnerships.

In terms of working towards international membership, four respondents cited first-hand problems with the ECJ, as well as other legalities (VAT, customs duty, etc), something that is a significant barrier towards establishing a country as a member of an ERIC. Three respondents referred to the repeatedly changing contact points at ministries and international organisations. Two ERICs cited common problems with MoU, that they do not offer enough commitment to carry out practical activities. One respondent highlighted that the benefits of joining ERICs are still insufficiently clear to convince European members to join. So convincing third countries is even more challenging considering the additional steps required. Finally, one respondent noted that there is limited awareness of ERICs outside of Europe, and that while projects such as RI-VIS a good job establishing initial connections, more needs to be done.

General Issues with International Collaboration	Count
Lack of resource	7
Significant time taken	4
Law, Jurisdiction, ECJ	4
Changing contact points	3
Not enough activity with partner	2
Benefit of joining not convincing enough	1
Limited awareness of RIs outside Europe	1
No issues	5

3.3 In-depth interviews with selected partners (Annex 2)

In-depth interviews allowed us to further investigate the motivation, the results, and the impact of collaboration with third countries. The main topics brought up in these interviews were:

- The key modalities used by ERICs to engage with international third countries.
- The main regions targeted by different ERICs in different domains, and how the existing European membership of an ERIC can substantially affect future internationalisation strategies.
- The key barriers to internationalisation, primarily: financial limitations, lack of legal framework, lack of strategic mandate, level of organisational maturity required. These barriers are explored in more detail in the following chapter.
- The impact of their existing international agreements and collaborations – how they assess this impact and what they have achieved so far.
- Whether they have a dedicated internationalisation strategy, and whether they would be willing to share the document publicly.

4. Main Barriers identified

Most ERICs consider internationalisation as a vital strategic action line for their infrastructure. There is a convergence of methodologies and results of internationalisation efforts across ERICs. Financial support from the EC has been crucial in the development of these interactions. The main barriers at the level of ERICs for internationalisation were identified as:

- A. Financial limitations
- B. Lack of legal/policy framework
- C. Lack of strategic mandate
- D. Level of organisational maturity required

A) Financial limitations can be important factors to take into consideration for international partners looking to join an ERIC.

One of the primary issues is the non-binding nature of MoUs, which are the most common tools for the internationalisation of ERICs. In some cases, these agreements do not require a financial commitment from the international partners. Furthermore, the non-binding nature may generate a lack of commitment that can make it difficult to move forward with concrete actions.

Another significant limitation is the reliance on project funding for financing international collaborations and participation in ERIC activities. This funding is often only available through EC sources and is time-limited, restricting the scope of the collaboration and the financial resources available for broader or long-term initiatives. Additionally, securing such funding can be a lengthy and uncertain process, which may delay or inhibit potential collaborations.

The role of observers within the ERIC also presents financial limitations. The observer status allows potential partners to participate in the ERIC, but this comes with disadvantages on both sides. Observers usually have no voting rights, and their fee is waived or significantly lower than the membership fee, which does not fully cover the real cost of their participation. This can lead to a financial strain on the ERIC, especially if multiple observers are involved.

Administrative costs are another significant consideration. The preparation and signing of agreements, especially with many parties, can involve substantial administrative work and financial burdens. This includes the costs of legal consultations, negotiation processes, and the ongoing management of these agreements, which can divert resources from other critical activities.

In addition to these direct financial limitations, there are also indirect costs associated with managing international collaborations. These can include travel expenses for face-to-face meetings, communication costs for maintaining regular contact with international partners, and the potential need for additional staff to manage these relationships effectively.

Within ERICs, there is also a difference in staff personnel directly hired by ERIC. For many, especially distributed ERICs, usually only management is hired by ERIC, and other HR are provided to ERICs as in-kind contributions. However, there are also ERICs that hire all the staff, numbering 20-30 members (JIVE, a single-

site ERIC, can be an example). In such systems, financial limitations can be very severe, especially in the situation of the high inflation wave that was present between 2021-2023. If the main costs of a given ERIC are salaries, and inflation causes salary increases, this puts the ERIC in a very difficult financial situation. The only solution is a significant increase in the financial contribution from member countries and associated members.

Addressing these financial limitations requires a strategic approach. ERICs may need to seek alternative funding sources, such as private sector partnerships, to support their international activities. Additionally, developing a clear value proposition for international partners, highlighting the mutual benefits of collaboration, can help to secure more substantial and committed financial contributions.

B) As often reported in public panels and reports, for organisations not established in Europe and/or European MS/AC, and for non-European countries joining a European legal entity such as an ERIC can raise questions related to European legislation, especially when the model of cross-border service provision involves transactions with financial obligations and/or legal consequences. And obviously the larger countries such as Australia, Canada and the US are unlikely to join a European ERIC at all, so the focus on internationalisation is inevitably limited to smaller countries outside of Europe. It is therefore not very meaningful to take membership of non-European countries and organisations of an ERIC as the sole sign of internationalisation, as financial limitations to these smaller countries may make them hesitant to pay fees to be ERIC members. Bilateral agreements can bring the required legal and financial clarity without the need for non-EU parties to enter a model based on more flexible legal regulations.

Apart from the complications related to legislation, there is also the conceptual issue that, partly due to the growing adoption of the Open Science agenda, other continents are developing models for infrastructural collaboration and interoperability as well. Strategically, joining an ERIC as a country may no longer bring the most desired benefits if more can be gained from local/regional collaboration and alignment. This brings the need for a European diplomacy and policy towards internationalisation that facilitates collaboration between ERICs and African, American, Asian and Australian infrastructural initiatives in thematically related domains, rather than focusing on individual countries from other continents. See also the comments in section C.

C)

The ERICs are legal entities established in Europe, governed by European Union Law, to better represent the European Research Infrastructures; they are guided by the European Policy on Research Infrastructures, as defined by the European Commission and ESFRI.

While the importance of ERICs to the European research community is becoming increasingly evident, their role in engaging with European policymakers remains unclear. This ambiguity, which has been identified at various stages of current activities, stems from the absence of a strategic mandate for interacting with policymakers.

In the context of international cooperation, this absence of a strategic mandate results in ERICs being minimally involved in the EU's international policy activities. There are few international platforms, such as international organisations and forums, where EU bodies participate as full members and relevant ERICs are authorised to offer scientific advice. Furthermore, this issue is evident in policy activities led by European Commission Directorate-Generals (DGs) beyond DG RTD, such as DG SANTE, DG CLIMA, DG MARE, and DG ENV. In these cases, relevant ERICs could provide valuable scientific input.

Conversely, there is limited involvement from EU diplomatic services in international cooperation activities implemented by ERICs. For instance, ERICs report a lack of clear policy guidelines on target countries for international scientific cooperation. Additionally, the absence of diplomatic support is noted when scientific collaborations with third countries advance towards more formal partnerships, such as memberships or cooperation agreements.

D)

A barrier identified in the analysis of existing collaboration with third countries was the differences in the **level of maturity** of the infrastructures between Europe and third countries. In some cases, these inequalities refer to the infrastructure itself (equipment, personnel); in others, they relate to the systems in place to collaborate internationally. The following maturity issues can be identified:

- Availability of high-end infrastructure
- Lack of information on the infrastructure available
- Lack of regional organisation of existing national infrastructures
- Lack of legal and managerial instruments for collaboration

Availability of high-end infrastructure

World inequalities in the infrastructure available to researchers is clear in most domains. The lack of investment in high-end equipment and capacity building creates an environment where reciprocal exchanges are challenging. However, similar inequalities are also clear between European countries, and ERICs have been an asset in increasing collaboration and providing much-needed infrastructure to researchers. A similar role can be envisaged for international collaborations. Facilitating researchers' access to infrastructure unavailable in their home countries can help to reduce the risk of brain drain.

Lack of information on the infrastructure available

Landscape analyses of existing infrastructure, which ESFRI has been preparing for Europe in the last decades, are rare in many regions of the world. Projects like EULAC ResInfra have worked to carry out similar analysis, but the results are still in development with incomplete information. International collaborations are started bottom-up by interactions between individual researchers in different countries. These connections grow in some cases to generate institutional arrangements in the form of collaboration agreements. More detailed and comprehensive landscape analyses would facilitate new collaborations.

Lack of regional organisation of existing national infrastructure

When transnational organisations are already set up in other regions, they act as a positive tool to enhance intercontinental collaboration. For example, CeBEM the Latin American structural biology organisation provides a clear counterpart for Instruct to interact with Latin America. Such transnational organisations are rare in many areas of research, with ERICs interacting with individual countries and, in most cases, individual organisations.

Lack of legal and managerial instruments for collaboration

Once collaboration and joint research activities have been set up, ERICs and their international counterpart face the challenge of finding the right legal and administrative tools for integration. While the ERIC legislation has provided a unique legal form for infrastructures to operate, there is a lack of similar legislation in other regions of the world.

5. Recommendations

A) Financial limitations

Recommendations for ERICs

- Seek alternative funding sources, such as e.g. private sector partnerships, to support their international activities.
- Develop a clear value proposition for international partners, highlighting the mutual benefits of collaboration, helping to secure more substantial and committed financial contributions.

Recommendations for Members

- Support ERICs in their internationalisation efforts, communicating with ministries and contacts in third countries

Recommendations for the EC

- Prioritisation of support for ERICs regarding collaboration with third countries

B) Lack of legal/policy framework

Recommendations for the EC

- Develop a policy/diplomacy strategy that would help European ERICs in positioning themselves in the global landscape, such as the emerging Global Open Science Commons.
- Give guidance on options for collaboration with regional infrastructural initiatives on other continents, such as thematic chapters of [AOSP](#) and [LA Referencia](#), and coordinating bodies in the bigger countries such as [ARDC](#) and [ACCESS](#).

Recommendations for ERICs

- Identify strong cross-border initiatives in your domain in non-European regions.
- Convince the relevant stakeholders that country membership/observership has limited meaning as criterion for assessing internationalisation.

C) Lack of strategic mandate

Regarding the **lack of strategic mandate**, a clearer address from the European Union about how the ERICs could contribute to the global context would be desirable to exploit the potential impact of the RIs. Indeed, one of the main untangled and indirect benefits of the RIs is their potential role in supporting the stakeholders and decision-makers in the regulatory and political international contexts.

ERICs, being research organisations established with European law, could become crucial players able to provide access to research data and scientific support to the international bodies and panels acting in global governance.

The barriers identified in the previous paragraph related to the lack of strategic mandate for the ERICs in the international cooperation framework of the European Union, could be partially overcome with a better positioning of the ERICs in the Science Diplomacy.

In the Council ⁴conclusions about the European strategy for international cooperation in R&I, the European Union underlines the importance of openness and international cooperation in research infrastructures for the advancement of science, **science diplomacy**, tackling global challenges and increasing access to excellence; it recognises also the need for further development and implementation of the Global Research Infrastructure framework, encouraging ESFRI and the Commission to support activities of research infrastructures to this end.

Science diplomacy eludes an agreed definition but, according to the Royal Society⁵ is generally understood to include three strands: **Diplomacy for science**, **Science for diplomacy** and **Science in diplomacy**.

The benefits of having the Research Infrastructures well positioned in Science Diplomacy can be listed as a development of the original definition of Science Diplomacy:

- **Diplomacy for RIs:** diplomatic action is essential in the development of the pan-European research infrastructures as well as in the coordination and cooperation among them.
- **RIs for diplomacy:** the identification of common scientific areas of interest and the resulting efforts to establish a common scientific framework of cooperation support the diplomatic relations among countries and continents
- **RIs in diplomacy:** the direct provision of data to support international decision

Recommendations for the EC

- Stronger support of the EU diplomatic services for the international cooperation activities of the ERICs
- Establish a clearer and more structured system for the involvement of the ERICs in the international activities of the EU (e.g. international organisations) as well as in the policy activities of other EC Directorates.

D) Level of organisational maturity required

To address the issues arising from the inequalities in the **maturity level** of infrastructures we propose the following recommendations

Recommendations for ERICs

- To use the ERIC Forum as a tool and understand lessons learned from other ERICs with regard to collaborate with countries and organisations with different maturity level when providing research infrastructure
- Use the appropriate modality of engagement according to the maturity of the partners

⁴ Global approach to Research and Innovation - Europe's strategy for international cooperation in a changing world - Council conclusions (adopted on 28 September 2021). <https://data.consilium.europa.eu/doc/document/ST-12301-2021-INIT/en/pdf>

⁵ The Royal Society is a Fellowship of many of the world's most eminent scientists and is the oldest scientific academy in continuous existence. <https://royalsociety.org/>



- To make clear the advantages of joining/collaborating with an international partner even when dealing with clear inequalities

Recommendations for member countries

- Support their ERICs with their internationalisation efforts even when the interaction may not be reciprocal at the outset

Recommendations for the EC

- Provide funding for internationalisation efforts for ERICs to interact with likeminded countries and organisations even when the infrastructure available is unequal
- Provide support to develop the legal and administration framework in which international partnerships can strengthen

Recommendations for Third Countries

- Analyse the possibility of joining an ERIC to provide scientific infrastructure to their researchers as a mechanism to decrease the inequalities and avoid brain drain
- Suggest alternative modalities of engagement if existing modalities are not appropriate given the inequalities

6. Conclusion

Opening European research infrastructures and their services to countries outside of Europe is a challenging but highly needed aspect of the strategic objectives of ERICs, which faces a series of barriers and open a wide field of opportunities. Barriers including financial, political, administrative and managerial issues need to be tackled to achieve a productive and enriching collaboration. ERICs have found instruments to advance in their internationalisation efforts which in many cases are fit for purpose and can continue. This is the case for the agreements with individual organisations which make it possible to tackle global challenges in partnership. When ERICs require an interaction at national level other instruments are needed. Full membership at ministry-level would ensure a clear buy-in to the future of the ERIC, but so far this is an option which has not been extensively exploited due mainly to legal barriers. Associated membership for organisations, with a limited set of rights and obligations, is viewed as an alternative which can fulfil the higher level of involvement of parties outside of Europe without facing the same legal barriers.

7. Annexes

7.1 Table of ERIC membership from statutes and websites

URL to Table of ERIC membership -

https://bbmrieric.sharepoint.com/:x:/r/sites/ERICFORUM2/Shared%20Documents/ERIC%20Forum%20Project%20202/05_Work%20Packages/Pillar%202%20-%20Reinforcing%20Internal%20Cooperation%20WP4-WP8/WP7%20-%20International%20Dimension/List%20of%20ERICs/202407%20-%20List%20of%20Eric.s.xlsx?d=wa229cca75a6f478990c4795b730c00d7&csf=1&web=1&e=GAuVcC

7.2 Detailed Survey of ERIC Modalities of International Engagement

- What is the name of the infrastructure/organisation you represent?
- Is your infrastructure/organisation single-sited, multi-sited, or virtual?
- Where is your infrastructure/organisation located (if multi-sited give location headquarters/coordinating site)?
- International Collaborations are established in a variety of ways. Please select the modalities of engagement that your organisation has used.
 - o MOU or other non-binding collaboration agreement with organisations
 - o MOU or other non-binding collaboration agreement with networks
 - o Legally binding collaboration agreement with organisations
 - o Observership
 - o Associate membership/Limited membership
 - o Full membership
 - o Shared grants/projects
 - o Providing/exchanging advice
 - o Providing access to infrastructure services
 - o Participation of governance into advisory board of international organisations
 - o None (Skip to end)
- Time frame required to set up the international agreement
- Advantages of the selected collaboration modality (or modalities)
- Limitations of the selected collaboration modality (or modalities)
- Recommended changes to the modality (or modalities)
- What are the main issues you encounter with the international collaboration agreements your organisation uses?
- Upload of the Agreement document, if available (PDF of template document)
- Please specify the players who facilitated the collaboration establishment
 - o European Commission
 - o National foreign affairs delegation
 - o International relations officer of research infrastructure
 - o EU members (research organisation) of the ERICs
 - o International project (e.g. EU-LAC ResInfra, RI-VIS, ERIC Forum etc)

7.3 In-depth Interviews with Selected Partners

1. Which modality of engagement do you use? What is your definition of each?
2. Which regions have you established/attempted to establish international agreements in? Why did you target the region(s)? How did you select these modalities per region?
3. From partners that pay you, how did you come to that figure? Same criteria as EU partners? Do they pay fee or in-kind contributions for access/centre/node?
4. How/did you get around the ECJ issue? Was that an issue? Did you have any other statute-based issues that slowed things? E.g. IP, tax and VAT, ERIC regulations etc
5. Do you have an internationalisation strategy document or similar. Is it public? Can we have the link? Would you be happy to add this to the ERIC Forum 2 Toolkit for Internationalisation?
6. How do you find certain modalities suit certain partners/countries?
7. Which modality/modalities have you had most success with? How do you measure this success?
8. Which modality have you had least success with?
9. What is your main motivation to seek international partners
10. Who initiated and directed the engagement and negotiations, on both sides? At Hub or node level? Bottom up or top-down approach?
11. Do you have any further comments or questions?
12. Are you planning any upcoming internationalisation engagement. Would you be happy to be a pilot?